Evidence on the Impact of Auditor Provided Non-Audit Services and Audit-Firm Tenure on Audit Efficiency

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ABSTRACT

The accounting profession strongly debated proposed regulatory prohibition of most auditor provided non-audit services now legislated by The Sarbanes Oxley Act (SOX) of 2002. In addition, the accounting profession challenges regulators by arguing that limiting audit-firm tenure will yield unintended consequences. A common basis for the accounting profession's argument is that auditor provided non-audit services and longer client engagement bring efficiencies to the audit. However, there is no evidence to date to support the accounting profession's position. In this study, I investigate the association between audit lag, a surrogate for audit efficiency, and non-audit services and audit-firm tenure. I hypothesize that auditor provided non-audit services yields knowledge spillover that manifests in a more efficient audit. I further hypothesize that this effect erodes following the ban on non-audit services imposed by the SOX. Finally, I hypothesize that as the auditor-client engagement lengthens, the auditor deepens client-specific knowledge and expertise that manifests in a more efficient audit. Based on 5,393 firm-year observations across fiscal years 2000 to 2003 inclusive, I find significant negative associations between non-audit services fees and audit lag, and between audit-firm tenure and audit lag. I also observe that the negative association between non-audit services fees and audit lag erodes in the post-SOX period. These results are consistent with my hypotheses and are robust to various sensitivity tests. The results suggest the accounting profession is right in its arguments against the ban on most auditor provided non-audit services and recommendations to limit audit-firm tenure.

Keywords: audit lag; knowledge spillover; non-audit fees; tenure; Sarbanes-Oxley Act.

Data availability: All data are publicly available.

I. INTRODUCTION

This study investigates the association between two controversial issues central to ongoing debates between regulators and the accounting profession regarding potential threats to auditor independence. Specifically, I study the association between the provision of non-audit services and audit lag, and audit-firm tenure and audit lag. Regulators hastily introduced the Sarbanes-Oxley Act (SOX) (2002) to regain and strengthen the confidence of the market following allegations of breaches to the external auditors' independence that partially contributed to the string of accounting scandals unfolding since the landmark Enron debacle. One of the reforms brought by section 201 of the SOX prohibits the provision of most non-audit services by the incumbent auditor. Regulators believe auditors permit more financial statement discretion to clients generating high non-audit services fees than to clients generating low non-audit services fees. Although there is anecdotal evidence to support such claims (e.g., Enron, WorldCom and Global Crossing), large sample rigorous empirical evidence suggests the level of non-audit services fees does not threaten auditor independence (e.g., DeFond et al. 2002; Ashbaugh et al. 2003; Kinney et al. 2004).

Contrary to regulators, the accounting profession strongly argues that the joint provision of audit and non-audit services actually improves the performance of the audit due to knowledge spillover. In response to the Securities and Exchange Commission (SEC) proposal in 2000 to prohibit the joint provision of audit and non-audit services, Barry Melancon, President and CEO of the AICPA, argued "There will be a loss of synergies that exist when a firm provides a broad array of audit and nonaudit services to its clients…In addition, the loss of nonaudit service lines will reduce the scope of

knowledge available at the accounting firms" (Melancon 2000, p.26). Mr. Melancon further argues that the loss of synergies will impair the quality of the audit and increase costs to clients. In his support of the accounting profession, Steven Wallman, former Commissioner of the SEC (1996, p. 92), remarked that in his personal opinion prohibiting auditors from providing non-audit services "denies the benefits to the audit function of learning more about the audit client and its business". Mr. Melancon and Commissioner Wallman's remarks drive home the knowledge spillover relationship between the audit and non-audit services functions. In the face of strong dissent against the regulators, it is puzzling to find no unequivocal empirical evidence supporting the claims of the accounting profession. The lack of such evidence does not auger well for the accounting profession.

The second issue of concern to the regulators is that extended audit-firm tenure is associated with poor-quality earnings that consequently mislead investors. Regulators argue longer client engagements create a bond between management and the audit-firm that has the potential to impair the auditor's independence (U.S. Senate 1976; 1977; SEC 1994). It is argued that as the audit engagement lengthens, the audit-firm derives increasing economic rents from the client due to efficiencies and thus becomes economically dependent on the client. In addition, auditors with longer tenure naturally identify with client-management and thus lose the requisite skepticism. They become complacent about and complicit with management prepared financial statements. Such concerns led to Section 203 of the SOX calling for further studies on the effect of audit-firm tenure.

The accounting profession contests the views of the regulators and argues that extended audit-firm tenure does not threaten auditor independence (e.g., AICPA 1992; PwC 2002). The accounting profession argues that increased tenure deepens the auditor's knowledge about the client and thus enhances audit quality. Periodic rotation of the audit-firm increases start-up costs, increases costs to the client and the auditor, increases the likelihood of undetected material misstatements, and decreases audit efficiency (Myers et al. 2003a). Wallman, former Commissioner of the SEC, holds a personal view consistent with the accounting profession. He argues that "periodically rotating the audit firms of a public company seems contrary to the notion of learning as much as possible about an audit client. It would also appear to be remarkably inefficient" (Wallman 1996, p. 93). The impact of limiting audit-firm tenure on audit efficiency is echoed in a recent survey carried out by the General Accounting Office (GAO 2003). The results of this study suggest mandatory periodic rotation of audit firms may not be efficient. However, the GAO (2003), the NYSE (2003) and shareholder activists such as CalPERS remain supportive of auditor rotation (Sinnett 2004). In the context of the new SEC ruling on accelerated filing that is gradually phasing in until December 15, 2006, the historic and continuing controversies over non-audit services and audit-firm tenure call for rigorous research evidence rather than relying on anecdotes and opinions. Currently, there is no empirical evidence to support the accounting profession's argument that longer client engagement enhances audit efficiency.

My study makes unique contributions to the debates between regulators and the accounting profession, and to the literature. First, I provide the initial evidence on the association between the extent of auditor provided non-audit services and audit efficiency

to inform the intense debates between the accounting profession and regulators. I investigate the association between the extent of the provision of non-audit services by the audit firm to its audit client and audit lag, a surrogate for audit efficiency. I posit that if there is evidence of knowledge spillover arising from the joint provision of audit and non-audit services then evidence of efficiency realized by the audit firm may influence audit lag. Since the SOX banned the provision of most auditor provided non-audit services, I expect the presence of any pre-SOX knowledge spillover effects arising from auditor provided non-audit services to erode following the ban. I employ actual fees paid to the auditor to proxy the extent of the provision of non-audit services.

Second, I provide evidence to illuminate debates between regulators and the accounting profession regarding the impact of audit-firm tenure on audit efficiency. I investigate the association between audit-firm tenure and audit lag to ascertain how audit-firm tenure influences audit efficiency. If longer engagement with the client increases the auditor's knowledge about the client's business operations, processes and systems, and associated risks then the auditor's accumulated experience and expertise with the client ought to reduce start-up costs and the learning curve resulting in a more efficient audit. Conversely, shorter audit-firm tenure is expected to delay the audit due to greater start-up costs, a steeper learning curve, and considerable uncertainty and risks associated with new clients.

Third, I fill a void in the literature and add to the burgeoning literature on non-audit services and audit-firm tenure. Since the extant literature provides mixed evidence on the effects of non-audit services (c.f., DeFond et al. 2002; Frankel et al. 2002; Ashbaugh et al. 2003; Kinney et al. 2004) and audit-firm tenure (c.f., Casterella et al.

2002; Johnson et al. 2002; Myers et al. 2003a; 2003b; Carcello and Nagy 2004) on audit quality, it is not clear whether auditor provided non-audit services and longer audit-firm tenure are beneficial. DeFond and Francis (2005, p. 6) submit the ban on non-audit services by the SOX "is at best misguided, and at worst politically-motivated" and thus strongly encourage researchers to provide rigorous and disciplined evidence on the implications of the SOX. In the absence of clear benefits of longer tenure with a client, DeFond and Francis (2005) urge further research on the effects of audit-firm tenure because there is a real possibility that mandatory periodic rotation may be imposed. I add to the non-audit services and audit-firm tenure literature by investigating their impact on a different and unexplored property of the audit (audit efficiency) and by providing more recent evidence that straddles a period prior to and following the effective date of the SOX.

I test hypotheses between non-audit services and audit lag, and audit-firm tenure and audit lag using 5,393 observations over the period 2000 to 2003. The results relating to non-audit services provide evidence consistent with the concept of knowledge spillover. I find that after controlling for other determinants of audit lag, the level of non-audit services fees is significant and negatively associated with audit lag. This association is significant and negative for fiscal years not subject to the ban on non-audit services imposed by the SOX. The association between non-audit services fees and audit lag is positive in the post-SOX period. These results suggest the presence of knowledge spillover in fiscal years prior to the SOX ban on auditor provided non-audit services erodes in 2003. My results indicate a significant and negative association between audit-firm tenure and audit lag. This evidence is consistent with the concept of the auditor

accumulating client-specific knowledge and expertise that manifest in a more efficient production of the audit. These results are robust to a battery of sensitivity tests.

My results thus provide initial evidence consistent with the arguments of the accounting profession that the joint provision of audit and non-audit services and longer engagement with the client bring efficiencies to the audit function. Efficient production of the audit reduces audit lag that has implications for audit costs and reporting timeliness. The loss of synergies between audit and non-audit services following the SOX imposed ban on most auditor provided non-audit services will impose a greater cost burden on the firm and ultimately on the shareholders. The significance of audit lag as a determinant of reporting timeliness (e.g., Ashton et al. 1989) will become more important in the era of accelerated filing with the SEC coming into force on December 15, 2006. The results of this study suggest the joint provision of audit and non-audit services appears to facilitate accelerated filing. I conclude that the SOX imposed ban on auditor provided non-audit services and recommended audit-firm tenure limits are inconsistent with the qualitative characteristic of timeliness of financial information and efficient production of the audit.

The remainder of this paper progresses as follows. The next section discusses the prior literature and develops empirically testable hypotheses. Section III presents the research method including the sample, empirical model, variable measurement, and data sources. Descriptive statistics and multivariate results are presented in Section IV including the sensitivity analyses. Section V discusses and concludes the study including limitations and avenues for further research.

II. PRIOR RESEARCH & HYPOTHESES DEVELOPMENT

Non-audit services and audit lag

Currently, it is not clear from prior empirical research if auditor provided non-audit services yield knowledge spillover, and thus, audit efficiency. In the seminal study, Simunic (1984) argues there are efficiencies associated with the joint supply of the two services because non-audit services and audit services require common knowledge about a client. As the audit-firm's production function becomes more efficient, Simunic (1984) argues cost efficiencies are passed onto clients leading to greater purchases of audit services from the incumbent. His results show that clients who purchase both non-audit and audit services from the incumbent auditor pay significantly higher audit fees than those who do not purchase both services from the incumbent. Simunic (1984) concludes that the higher audit fees represents greater quantities of audit services purchased and is evidence of the effects of knowledge spillover.

Palmrose (1986) extends Simunic (1984) and finds a positive association between audit and non-audit services fees for clients purchasing non-audit services from the non-incumbent. This finding weakens the knowledge spillover argument in Simunic (1984) because the joint provision benefits and the resulting association between audit and non-audit fees ought to be limited to clients purchasing audit and non-audit services from the incumbent.

Abdel-khalik (1990, p. 296) argues that "A priori, the presence of knowledge spillover should not be expected to exert an upward pressure on the cost of audits due to the resultant cost savings". Economic theory would suggest that the efficiencies flowing from knowledge spillovers result in lower costs if a single auditor supplies both services than if the two services are sourced from two different audit firms. Abdel-khalik (1990) reports no significant difference in audit fees between clients purchasing audit services

only and those purchasing both audit and non-audit services. His evidence, consistent with Palmrose (1986), does not support the concept of knowledge spillover.

Davis et al. (1993) investigate the effects of tax related, accounting related and other non-audit fees on audit hours for a sample drawn from a large international accounting firm. Although the different categories of non-audit services fees have a positive effect on the three different measures of audit hours, they are not significant at conventional levels. They report tax related non-audit fees has a positive and marginal significant ($p < 0.10$) association with audit hours. Davis et al. (1993) argue this result is consistent with knowledge spillover on the assumption that lower audit costs due to knowledge spillover lead to a greater demand and purchase of audit services. However, Knechel and Payne (2001) provide an alternative argument suggesting the greater demand for tax related non-audit services is due to complex tax and financial reporting issues that simultaneously create the demand for additional audit work.

O'Keefe et al. (1994) extend Davis et al. (1993) using disaggregated labor hours by rank (partner, manager, senior and staff) for clients of a Big Six firm in 1989. Using the percentage of tax fees to audit fees, and the percentage of management consulting fees to audit fees as independent variables, they fail to find evidence that audit effort reduces in a joint provision scenario.

The most recent study by Knechel and Payne (2001) uses proprietary information from an international public accounting firm for 226 engagements with 1991 fiscal year-ends. They investigate evidence of knowledge spillover using audit lag as the dependent variable and two dummy variables representing the provision of tax services and the provision of management advisory services (MAS) by the incumbent auditor. While the

joint provision of MAS reduces audit lag, the joint provision of tax services increases audit lag. Recognizing that audit technology has changed dramatically since their data were collected in 1991, Kneckel and Payne (2001) urge research to readdress the association between non-audit services and audit efficiency across a wider, larger and more recent sample.

The rationale for knowledge spillover is supported by the economies of scope theory, also commonly known as synergy theory. When the production of two or more goods or services requires a common input, their joint production yields economies of scope or synergy. The outcome is a more efficient allocation of scarce resources without the need to duplicate efforts to recreate the required input (e.g., Carlton and Perloff 2005). In the context of the external audit production function, the joint supply of audit and non-audit services requires scarce resources (i.e., audit staff, expertise, time etc) to be efficiently and effectively allocated. Knowledge about the client including its operating environment is a common factor in the production functions of the audit firm. Such knowledge is enriched when the audit firm provides both audit and non-audit services because there is exchange of information between the audit and non-audit production functions. Consequently, there is a reduction in transaction costs and production factors such as start-up time and learning effects resulting in more efficient audits (e.g., Simunic 1984; Davis et al. 1993; O'Keefe et al. 1994; Knechel and Payne 2001). Such synergistic benefits do not arise if the incumbent auditor does not provide or provides low levels of non-audit services. Using audit lag as the proxy for audit efficiency (Knechel and Payne 2001), I predict:

H_1: There is a negative association between the provision of non-audit services and audit lag.

The SOX came into force in July 2002 and beginning 180 days after the date of commencement of the operations of the Public Company Accounting Oversight Board (PCAOB), banned the provision of most non-audit services by the audit-firm to its audit clients. The extent of any pre-SOX knowledge spillover effects on audit efficiency is expected to decline following the ban. Consequently, the beneficial impact of non-audit services on the efficient production of the audit is predicted to decline after the ban came into effect. Since the PCAOB became operational on January 6, 2003, the ban would affect the joint provision knowledge spillover effect on audit lag for fiscal-years ending on or after July 2003. However, some audit clients may have realigned their source of non-audit services in anticipation of the SOX imposed ban and thus the effective date is the date the SOX was passed into law. When testing Hypothesis 2, I conduct tests based on three dates (Pre-SOX date is (i) pre-July 2002, (ii) pre-Jan 2003, and (iii) pre-July 2003).

H_2: The negative association between the provision of non-audit services and audit lag is stronger in the pre-SOX period than in the post-SOX period.

Audit-firm tenure and audit lag

Although regulators and the accounting profession have heatedly debated implications of auditor tenure for more than 45 years (c.f., Mautz and Sharaf 1961; U.S. Senate 1976; 1977; AICPA 1992; SEC 1994; PwC 2002), there is limited empirical research examining effects of audit-firm tenure. Prior research focuses on audit-firm

tenure effects on audit quality because regulators are concerned with the quality of the financial information. The results of this literature, however, are mixed (c.f., Casterella et al. 2002; Myers et al. 2003a; 2003b; Carcello and Nagy 2004). The accounting profession argues that longer tenure increases client-specific knowledge and expertise, reduces start-up costs and learning effects thus yielding audit efficiencies which tenure limits will erode (AICPA 1978; 1992). However, empirical research has yet to support the accounting profession's claim that longer audit-firm tenure yields audit efficiency. In the single study on the association between audit-firm tenure and audit lag across 410 municipal audits for fiscal year 1992, Payne and Jensen (2002) find audit-firm tenure is not related to audit lag. They conclude there is no evidence to suggest that longer tenure yields a timelier audit for municipal cities across the USA. The results of this study are not applicable to listed companies because municipals have unique financial reporting and audit requirements, they have different operating and financial structure, they are not in the business of making a profit and do not trade on capital market. The audit implications of municipals are therefore different from listed companies.

The premise of the accounting profession's contention is that as the auditor's tenure with the client increases, the auditor becomes more familiar and knowledgeable about the client's business operations, processes and systems, and associated risks. In-depth knowledge about the client accumulated over the years cultivates experience and expertise. Such client-specific knowledge and expertise enables the auditor to conduct a more effective and timely audit. The audit is completed in less time because the auditor's client-specific knowledge and expertise reduces start-up costs and the learning curve declines. Conversely, the lack of familiarity with a new client raises start-up costs and

there is a considerable learning effect (Payne and Jensen 2002). Auditors assert that audits of new clients are more risky and pose special problems (Geiger and Raghunandan 2002; Carcello and Nagy 2004) that are likely to delay the audit. The preceding arguments suggest audit lag reduces with longer audit-firm tenure, ceteris paribus. Therefore, I hypothesize:

H_3: There is a negative association between audit-firm tenure and audit lag.

III. METHOD

Sample

I obtain an initial sample of 21,702 companies with audit and non-audit fee data available in Compustat over the period 2000 to 2003 inclusive. I require fee data to proxy for the extent of non-audit services provided by the audit firm. I acknowledge that the use of fees paid by a client includes both the cost of the service to the audit firm and a profit margin and such costs and margins could be different across audit firms. Due to the nature of the data, I am unable to isolate these components in the fee data.[1] However, to achieve homogeneity in pricing and market niche, and audit quality, I restrict the sample to the Big5/4 audit firms; this eliminates 360 companies. Consistent with prior research, I exclude from the sample companies in the utilities (two-digit SICs between 44 - 49; n = 546) and financial industries (two-digit SICs between 60 - 64; n = 5,197). These industries are highly regulated and have unique financial reporting and audit implications. Furthermore, OLS estimation for audit lag for companies in these industries is structurally different from industrial companies (Ashton et al. 1987). I exclude 68

[1] I report sensitivity test results using 'unexpected' fees to surrogate profits earned from non-audit services.

companies not listed on the NYSE, AMEX and Nasdaq to ensure a more homogenous sample with respect to listing requirements. After excluding companies with missing data in proxy statements and Compustat (n = 10,036), the sample comprises 5,495 firm-year observations over the period 2000 to 2003 inclusive. As explained later, I exclude 102 observations that are outliers. This yields a final sample of 5,393 observations for the multivariate analyses.

Empirical model

I use OLS procedures to test the research hypotheses. This is consistent with prior studies on audit lag (e.g., Ashton et al. 1987; 1989; Bamber et al. 1993; Knechel and Payne 2001). I regress audit lag on the level of non-audit services fees to test hypothesis 1 and on non-audit services fees by pre-SOX period and year interactions to test hypothesis 2. I regress audit lag on audit-firm tenure to test hypothesis 3. I include control variables based on findings in prior research. Equation 1 presents the empirical model.

$$\begin{aligned} LN\_AULAG = {} & a + \beta_1 LN\_NASFEE \text{ (or } \beta_1 LN\_NASFEE + \beta_2 LN\_NASFEE * \text{Pre-SOX} \\ & \text{or } \beta_1 LN\_NASFEE + \beta_2 \_ \beta_4 LN\_NASFEE * \text{year)} + \beta_2 TENURE + \\ & \beta_3 LN\_TA + \beta_4 LEVERAGE + \beta_5 CACL + \beta_6 LOSS + \beta_7 EPS\_UP + \\ & \beta_8 EI\_POS + \beta_9 BIZNUM + \beta_{10} AGE + \beta_{11} FYE\_DEC + \beta_{12} AUOP + \\ & \beta_{13} LN\_AUFEE + \beta_{14\text{-}18} INDUSTRY + \varepsilon_i \end{aligned} \quad \text{(Eq. 1)}$$

where

LN_AULAG	=	the natural logarithm of audit lag, where audit lag is the number of days between the fiscal year-end date and the audit report date;
LN_NASFEE	=	the natural logarithm of total non-audit services fees;
LN_NASFEE * Pre-SOX	=	interaction term between LN_NASFEE and Pre-SOX (Pre-SOX = 1 if fiscal year-end is prior to July 2002);
LN_NASFEE * year	=	interaction term between LN_NASFEE and year for 2001, 2002 and 2003;
TENURE	=	the number of consecutive years a client has had the same auditor;

LN_TA	=	the natural logarithm of total assets;
LEVERAGE	=	ratio of debt to assets;
CACL	=	ratio of current assets to current liabilities;
LOSS	=	1 if net income is negative, 0 otherwise;
EPS_UP	=	1 if EPS increases over the prior year, 0 otherwise;
EI_POS	=	1 if extraordinary items is positive, 0 otherwise;
BIZNUM	=	the number of business segments;
AGE	=	age of the client measured as the number of years for which total assets is reported in Compustat since 1985;
FYE_DEC	=	1 if fiscal year-end is December, 0 otherwise;
AUOP	=	1 if audit opinion is 'unqualified opinion with explanatory paragraph', 0 otherwise;
LN_AUFEE	=	the natural logarithm of audit fees;
INDUSTRY	=	indicator variables for Drugs (SIC 2833-2836), Computer Equipment (3570-3577), Electronics (3600-3674), Retail (5200-5961) and Computer Programming (7370-7374); and
ε_i	=	Error term.

Dependent and independent variables

The dependent variable is the natural logarithm of audit lag which is defined as the number of days between the fiscal year-end date and the audit report date. Audit lag as an audit production quantity or efficiency variable is consistent with the notion of knowledge spillover (Knechel and Payne 2001; Payne and Jensen 2002).

The two independent variables of interest are non-audit services fees and audit-firm tenure. I measure non-audit services fees as the natural logarithm of non-audit services fees paid to the auditor (LN_NASFEE) disclosed in proxy statements. Total non-audit services fees comprise the following categories: 'financial information systems design and implementation fees', 'tax fees', and 'all other non-audit fees' paid to the auditor. Because it is not clear what types of non-audit services fees are classified in 'audit-related fees', I perform sensitivity tests of this fee category on the effect of non-

audit services fees on audit lag.[2] In addition, I conduct sensitivity tests using various fee measures such as fee ratio and percentile ranking of fees (e.g., DeFond et al. 2002; Frankel et al. 2002). Consistent with Johnson et al. (2002), I measure audit-firm tenure (TENURE) as the consecutive number of years an auditor has been engaged by the client. I also conduct tests using various cut-offs for long and short audit-firm tenure because there may be a non-monotonic association between audit-firm tenure and audit lag. Consistent with Johnson et al. (2002), I define short audit-firm tenure as three years or less and long audit-firm tenure as nine years or more.

Control variables

Variables that are significant in prior research and are available on Compustat are included in the empirical model as control variables.

Size

For various reasons such as having better internal controls, the need for more timely reporting, and the ability to influence the auditor, prior studies show larger companies have an inverse association with audit lag (e.g., Ashton et al. 1989; Bamber et al. 1993; Knechel and Payne 2001). Consistent with prior studies, I use the natural logarithm of total assets (LN_TA) to proxy for client size.

[2] Fees paid to the auditor for 'financial information systems design and implementation' and 'tax services' are not disclosed for each of the years in the sample because of regulatory changes to fee disclosure requirements and the ban on non-audit services imposed by the SOX. Prior to the SEC's revised fee disclosure rules adopted on January 28, 2003 (SEC 2003a), many registrants voluntarily reported fees paid to the auditor for 'audit-related services' and it subsequently became clear some of the fees reported in this category were of a non-audit nature (SEC 2003b). Given such concerns, the SEC revised the fee disclosure rules from three categories ('audit fees', 'financial information systems design and implementation fees' and 'all other fees') to four categories ('audit fees', 'audit-related fees', 'tax fees' and 'all other fees'). In relation to the new fee disclosure categories adopted on January 28, 2003, the SEC states 'audit-related fees' may comprise fees paid to the auditor for assurance and related services that are reasonably related to the performance of the audit or review of the registrant's financial statements. The intent of the clarification is to ensure fees for non-audit services are not classified as audit-related.

Financial Risk

Companies with high financial risk exhibit greater risk of financial misreporting and failure. These risks are associated with audit delay (Ashton et al. 1987; Ashton et al. 1989; Bamber et al. 1993). Beasley (1996) and Kinney et al. (2004), and DeFond et al. (2002) show debt structure and profitability significantly influence the likelihood of financial misreporting and failure, respectively. I include LEVERAGE (measured as the ratio of debt to assets) and the current ratio (CACL is measured as the ratio of current assets to current liabilities) to proxy debt structure and liquidity, respectively. I include dummy variables for loss (LOSS) and improvement in earnings per share over the prior year (EPS_UP) as measures of profitability.[3]

Extraordinary Items

There often is significant uncertainty regarding the accounting treatment of extraordinary items that tends to extend audit investigations and negotiations between the auditor and the client (Ashton et al. 1989; Carslaw and Kaplan 1991; Bamber et al. 1993). Due to the principle of conservatism, such concerns typically arise with respect to positive or income increasing extraordinary items (Carslaw and Kaplan 1991). I include a dummy variable to represent the presence of positive extraordinary items (EI_POS).

Complexity

Ashton et al. (1987) report that industrial companies with greater lines of business have longer audit lag. Companies with greater lines of business are more complex and thus increase the risk of material misstatements. This demands greater audit attention

[3] I do not use a bankruptcy prediction model index such as the 'Z' score because models are industry and time specific. My sample comprises various industries and is based on more recent data.

thus increasing audit lag. I include the number of business segments (BIZNUM) to control for this effect.

Age

Myers et al. (2003a) document that audit-firm tenure is correlated with company age. They find that the effect of audit-firm tenure on earnings quality is sensitive to the inclusion of company age in the multivariate models. The age variable (AGE) is proxied by the number of years for which the client has data on total assets in Compustat since 1985. This approach is consistent with Myers et al. (2003a).

Fiscal Year-End

Knechel and Payne (2001) report that companies with fiscal year-end falling during the peak audit period experience longer audit lag. I measure this (FYE_DEC) as a dummy variable taking the value of 1 if the company's fiscal year-end is December, and 0 otherwise.

Audit Opinion

Companies with a modified opinion tend to experience a longer audit lag (Ashton et al. 1989; Bamber et al. 1993). Clients with financial reporting problems require considerable auditor-client negotiations that extend the time taken to complete the audit. Since none of my sample companies received a qualified opinion per se, I categorise audit opinion (AUOP) into 'unqualified with explanatory paragraph' (value = 1) and unqualified (value = 0).

Audit Fees

I include audit fees as control variable for several reasons. First, audit fee is

arguably a proxy for audit effort which affects audit lag (e.g., Davis et al. 1993; O'Keefe et al. 1994). Second, Palmrose (1986) and Carcello et al. (2002) posit higher audit fees is commensurate with high audit quality and higher quality audit could have implications for audit lag. Third, some clients may pay higher audit fees for a faster audit to facilitate timely announcements to the market. Finally, there is evidence to suggest that audit fees and non-audit services fees are related (Whisenant et al. 2003).

Industry

Frankel et al. (2002) suggest certain industries are inherently more risky. Such high-risk industries are characterized by poor controls, higher incidence of financial misstatements or higher probability of litigation. Auditors are naturally more cautious and expend more effort for riskier clients. However, auditors could adopt risk-management strategies such as the allocation of more senior and specialist staff and charge a risk premium which could reduce audit lag. Consistent with Frankel et al. (2002) I classify companies with the following SIC industry codes as high risk: Drugs (2833-2836) [DRUG], Computer Equipment (3570-3577) [COM_EQ], Electronics (3600-3674) [ELEC], Retail (5200-5961) [RETAIL] and Computer Programming (7370-7374) [COM_PRG].

IV. RESULTS

Descriptive Data

Table 1 presents the descriptive results for the entire sample. The mean (median) audit lag (AULAG) is 43.7 (39) days. The minimum audit lag is six days and the maximum is 435 days. This suggests the presence of outliers. I remove 21 companies with an audit lag difference of three standard deviations from the mean when performing

multivariate analyses to test the hypotheses.

The mean (median) audit fees (AUFEE) is $922 thousand ($384 thousand) and the mean (median) of total non-audit services fees (NASFEE) is $1,137 thousand ($253 thousand). The maximum audit fees and non-audit services fees is approximately $80 million each. Taken together, it appears that a number of clients pay extremely large fees for audit and non-audit services. I remove 81 companies with non-audit services fees difference of three standard deviations from the mean. The removal of outliers related to audit lag and non-audit services fees reduces the sample to 5,393 observations. All multivariate analyses are performed on this sample.[4]

The average company engages the same auditor for the past seven years (TENURE) with a maximum of 18 years. The minimum is zero which represents tenure of less than 12 months. These companies represent a change in auditor during the current year and most of these relate to the restructuring of the Big 5 to the Big 4 following the indictment and demise of Arthur Andersen.[5] The average company in the sample reports total assets (TA) of $2,772 million with a debt to asset ratio (LEVERAGE) of 0.21 and a current ratio (CACL) of 3.01. These two ratios suggest that the average company in the sample is financially sound. The mean age (AGE) is 11 years with just over two reported business segments (BIZNUM).

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[4] The results are qualitatively similar if the data is winzorized at the 1 percent and 99 percent, respectively or if the analyses are performed on the full sample.

[5] Inclusion of an auditor change variable in the model is not significant and does not alter the results; the coefficients on non-audit services fees and audit-firm tenure remain negative and significant ($p < 0.01$). The results are qualitatively similar if I exclude companies whose auditor was Arthur Andersen. Clients of Arthur Andersen did not have significantly different audit lag relative to clients of the other Big 5. If I include dummy variables representing the Big 5/Big 4, the coefficients on non-audit services fees and audit-firm tenure remain negative and significant ($p < 0.01$). Results of these tests are reported in the 'Sensitivity Analyses' section.

A loss (LOSS) is recorded for 2,011 firm-years (36.6%) and an improvement in earnings per share (EPS_UP) is observed for 3,116 firm-years (56.7%). One-hundred and eighty-five firm-years (3.4%) report income increasing extraordinary items (EI_POS). Seventy-seven percent (4,240 firm-years) of the sample have a December fiscal year-end (FYE_DEC) and just over 42 percent (2,332 firm-years) received an unqualified audit opinion with explanatory paragraph (AUOP).

Insert Table 1 here

Table 2 classifies the variables in Table 1 by short and long audit lag, along with t-values for tests of differences across the two groups. Firms are classified in the short audit lag group if their audit lag is less than or equal to the median (39 days), and in the long audit lag group otherwise. The data in Table 2 indicate firms with short audit lag are significantly larger, more liquid, have less debt in their capital structure, are less likely to report a loss and are less likely to receive a modified opinion. More importantly, firms with short audit lag have significantly higher non-audit services fees and longer audit-firm tenure. Firms with long audit lag are significantly more complex (number of business segments), more likely to report income increasing extraordinary items, are more likely to operate in the retail industry, and have listed for a greater number of years. The differences in the non-fee variables reported in Table 2 are consistent with the prior audit lag literature (e.g., Ashton et al. 1987; 1989; Knechel and Payne 2001).

Insert Table 2 here

Table 3 reports descriptive data by year for audit lag, audit and non-audit services fees and audit-firm tenure, together with the F-value and Chi-Square statistics for tests of mean and median differences across years. While the mean audit lag is quite stable

across 2000 to 2001, it increases by 6% (2.37 days) in 2002 and by 18% (7.46 days) in 2003. There is evidence of considerable variation (SD) ranging from 19 to 25 days. Audit-firm tenure is higher in 2000 and 2001 and lower in 2002 and 2003. This is probably due to restructuring of the Big 5 into the Big 4 following the demise of Arthur Andersen. While non-audit services fees are declining across the years, audit fees are increasing. The differences in the mean and median across the period for all four variables are statistically significant.

Insert Table 3 here

The correlation results in Table 4 show none of the correlation coefficients are greater than the 0.80 threshold at which multicollinearity may pose potential problems (Gujarati 2003). Three noteworthy pairs of correlations (Pearson) are between: size and audit fees (LN_TA with LN_AUFEE r = 0.77), size and non-audit services fees (LN_TA with LN_NASFEE r = 0.60) and audit fees and non-audit services fees (LN_AUFEE with LN_NASFEE r = 0.60).[6] These correlations are expected and consistent with prior studies (e.g., Whisenant et al. 2003). The high correlations between size and fees arise because larger companies tend to be more complex and require more audit-firm resources. I conduct sensitivity tests to assess how client size affects the results. With the exception of the correlation between audit-firm tenure and firm age (TENURE with AGE r = 0.48) which is consistent with Myers et al. (2003a), all other correlations are below 0.40.

Insert Table 4 here

Multivariate Results

[6] I also examine the VIF (variance inflation factors) and condition indices across all tabulated and untabulated OLS results and find that all VIFs are less than 4.0 and condition indices are below 5.0. These are well below the threshold of 10 at which multicollinearity could pose a mild problem (Gujarati 2003).

Non-audit services and audit lag

The OLS results for the tests of the hypotheses are presented in Table 5. The reported t-statistics are based on standard errors adjusted for heteroskedasticity (White 1980). Model 1 reports results relating to the effect of non-audit services on audit lag generally, Model 2 reports results relating to the effect of non-audit services conditional on the effective date of the SOX on audit lag (pre versus post-SOX), and Model 3 presents results that illustrate the pattern of effect non-audit services have on audit lag across fiscal years 2001 to 2003 relative to 2000.

Consistent with hypothesis 1, Model 1 OLS results show the coefficient on non-audit services fees (LN_NASFEE) is negative and significant (β_1 = -0.017, t = -4.00, p < 0.01). This suggests that audit lag reduces with increasing levels of auditor provided non-audit services. The negative and significant coefficient on non-audit services fees is consistent with the knowledge spillover hypothesis and sugests that as the level of non-audit services provided by the auditor increases, the audit becomes more efficient. This finding is consistent with the accounting profession's long standing argument that the joint provision of audit and non-audit services, and increasing levels of non-audit services yield synergies and, hence, audit efficiency.

Given the SOX banned most auditor provided non-audit services, I expect the presence of knowledge spillover effects prior to the ban to erode following the ban. I test this as follows. First, I classify firm-fiscal-years ending prior to July 2002 as pre-SOX and firm-fiscal-years ending on or after July 2002 as post-SOX.[7] The variable Pre-SOX

[7] Results based on pre-SOX cut-off defined as pre-Jan 2003 and pre-July 2003 are qualitatively similar and for brevity, they are not tabulated. The coefficient on the interaction term LN_NASFEE * Pre-SOX is

equals 1 if a firm-fiscal-year is pre-SOX and 0 otherwise. I then interact this variable with LN_NASFEE. The coefficient on this interaction variable is expected to be negative. Second, I interact LN_NASFEE with each of the fiscal-years 2001, 2002 and 2003 with fiscal year 2000 assumed in the constant term. The coefficients on fiscal years 2001 and 2002 are expected to be negative.

Model 2 OLS results in Table 5 show the coefficient on LN_NASFEE * Pre-SOX is negative and significant (β_2 = -0.009, t = -3.67, p < 0.01). This suggests that in the pre-SOX period auditor provided non-audit services had the effect of reducing audit lag when compared to auditor provided non-audit services in the post-SOX period. Model 3 in Table 5 reports the results of the OLS investigating the behavior of the association between non-audit services fees and audit lag over-time. Model 3 results in Table 5 show the coefficients on LN_NASFEE * 2001 (β_{2001} = -0.005, t = -1.78, p < 0.05) and LN_NASFEE * 2002 (β_{2002} = -0.010, t = -2.89, p < 0.01) are negative and significant whereas the coefficient on LN_NASFEE * 2003 is positive and significant (β_{2003} = 0.016, t = 4.68, p < 0.01). An F test of the coefficients for the pre-SOX ban period ($\beta_{2001} + \beta_{2002}$ < 0) shows the joint coefficient is negative and significant (F = 7.74, p < 0.01). Furthermore, the pre-SOX individual and joint coefficients are significantly different (p < 0.01) from the coefficient on the post-SOX ban period. Overall, the results in Table 5 provide evidence consistent with the argument that the ban on most non-audit services brought by the SOX has had the effect of eroding audit efficiency arising from the knowledge spillover benefits associated with auditor provided non-audit services. These results are consistent with hypothesis 2.

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negative and significant for both variables ($\beta_{\text{pre-Jan 2003}}$ = -0.021, t = -7.91, p < 0.01; $\beta_{\text{pre-July 2003}}$ = -0.017, t = -5.64, p < 0.01).

Insert Table 5 here

I conduct the following additional tests to determine if my results are sensitive to fee measures. First, I follow Frankel et al. (2002) and compute percentile ranks for non-audit services fees and, second, consistent with DeFond et al. (2002), I use the ratio of non-audit services fees to total fees, and re-estimate the OLS models in Table 5. I find the coefficients on non-audit services fees (LN_NASFEE), non-audit services fees by year (LN_NASFEE * 2001 and LN_NASFEE * 2002) and non-audit services fees by Pre-SOX remain (LN_NASFEE * Pre-SOX) negative and significant ($p < 0.05$ for the percentile measure and $p < 0.01$ for the ratio measure). The coefficient on LN_NASFEE * 2003 is positive and significant ($p < 0.01$) for both variations of the non-audit services fees measure. These results are consistent with those reported in Table 5 and suggest my tests are robust to fee measures.

Audit-firm tenure and audit lag

The OLS results in Table 5 across all three models show that consistent with hypothesis 3, the coefficient on audit-firm tenure (TENURE) is negative and significant ($p < 0.01$). This suggests that audit lag reduces with increasing audit-firm tenure. The negative and significant coefficient on audit-firm tenure is consistent with and supports the accounting profession's argument that longer audit-firm tenure is associated with a more efficient audit and shorter audit-firm tenure with a less efficient audit. As mentioned earlier and consistent with Johnson et al. (2002), I use cut-offs to determine short (3 years or less) and long (9 years or more) audit-firm tenure and investigate how

these affect audit lag.[8] I find the coefficient on short audit-firm tenure is positive and significant ($p < 0.01$) whereas the coefficient on long audit-firm tenure is negative and significant ($p < 0.01$). These observations support the accounting profession's argument that short audit-firm tenure is associated with start-up costs and steep learning curves that result in less efficient audits. Conversely, long audit-firm tenure increases the auditor's experience and expertise with the client's business thus producing more efficient audits.

Control variables

Consistent with the prior literature, there are significant associations between audit lag and all but one of the control variables; the exception is an industry variable, DRUGS. As expected and consistent with the prior literature, the coefficients on leverage, loss, positive extraordinary items, number of business segments, fiscal year-end is December, and unqualified audit opinion with explanatory paragraph are positive and significant. These results suggest firms with fiscal year-end falling during the peak audit period, and firms that are financially risky, complex, and with reporting problems experience audit delays. Conversely, the coefficients on liquidity and improvement in EPS are negative and significant suggesting better financial performance reduces audit lag. Likewise, larger firms experience shorter audit lag. I find the coefficient on age of the company is positive and significant. I observe mixed results for industry effects. The coefficient on DRUGS is not significant. The coefficient on RETAIL is positive and significant suggesting high levels of inventory delay the audit. The coefficients on COMP, COMP_EQUIP, and ELEC are negative and significant. Companies in these high-tech industries may have invested in technologically advanced information

[8] I acknowledge that any cut-off for audit-firm tenure is necessarily arbitrary.

processing systems thus yielding a more efficient audit. Moreover, the mixed results for industry effects suggest either auditors allocate more audit resources or allocate more senior and specialist staff to the audit of such clients. Further research using proprietary data can investigate such conjectures.

Finally, I observe a positive and significant coefficient on audit fees. This suggests higher audit fees representing greater audit effort due to the complexity and riskiness of the client prolong the audit (Davis et al. 1993; O'Keefe et al. 1994).

Sensitivity Analyses

I conduct a series of sensitivity analyses in order to test the robustness of the results. First, I investigate a potential alternative explanation of my results that relates to audit quality. Second, I test for the robustness of the results to sub-samples stratified by company size. Third, I conduct yearly analyses. Fourth, I consider potential endogeneity between audit lag and non-audit services. Next, I explore the effects of 'unexpected' non-audit services fees on audit lag. Finally, I consider the effects of a particular Big 5 auditor on the results.

Audit quality

It is plausible that the inverse association between non-audit services fees and audit lag is potentially a function of the auditor performing a sub-standard audit. That is, auditors may not disagree or challenge management of clients paying higher non-audit services fees thus manifesting in a shorter audit lag. I address this potential alternative explanation through the following empirical tests.

First, I investigate if audit lag is a determinant of audit quality. If the alternative argument is valid then I expect to find a significant negative association between audit lag and audit quality. That is, if audit quality is reducing in shorter audit lag then the observed negative association between non-audit services fees and audit lag could have an alternative explanation. I estimate discretionary accruals using the performance-adjusted cross-sectional modified-Jones model and compute the absolute value of discretionary accruals (ABSDACC) as a proxy for audit quality (Kothari et al. 2005). I employ ABSDACC as a dependent variable and regress this on audit lag, audit-firm tenure and control variables. The results of this OLS (LAG Model) are reported in Table 6. The coefficient on audit lag is not significant ($p > 0.10$) and suggests audit lag does not affect audit quality. Consistent with prior research (e.g., Myers et al. 2003a), I find the coefficient on audit-firm tenure is negative and significant ($p < 0.01$) implying that longer audit-firm engagement with the client does not reduce but enhances audit quality.

Second, the alternative argument suggests that audit quality is lower for clients paying high non-audit services fees with short audit lag. This view suggests an interaction effect between non-audit services fees and audit lag on audit quality. I compute the interaction variable as follows. Using the median as the cut-off, firms with high non-audit services fees and short audit lag are coded 1, and 0 otherwise. I re-estimate the audit quality OLS (NAS*LAG Model) and report the results in Table 6. The coefficient on the interaction term (HINAS_SHORTLAG) is negative and marginally significant ($p < 0.10$) indicating that audit quality increases when non-audit services fees are high and audit lag is short. This suggests that clients paying high non-audit services fees do not exhibit low audit quality when audit lag is short. The coefficient on audit-

firm tenure is negative and significant ($p < 0.05$) and is consistent with the notion that long auditor-client engagement enhances rather than diminishes audit quality.

Insert Table 6 here

Finally, I re-estimate the OLS models reported in Table 5 by incorporating ABSDACC and find no significant ($p > 0.10$) association between ABSDACC and audit lag. All other results, particularly those relating to non-audit services fees and audit-firm tenure remain negative and significant ($p < 0.05$ or better). The preceding results suggest that after controlling for audit quality, the likely explanation for the inverse effects of non-audit services fees and audit-firm tenure on audit lag is due to audit efficiency arising from knowledge spillover and developed client-expertise.[9]

Company size and audit lag

The SEC's accelerated filing rules demarcates companies into three categories; 'large accelerated filers' are companies with market capitalization more than $700 million and 'accelerated filers' are companies with market capitalization between $75 million and $700 million. Effective fiscal years ending December 15, 2006 these registrants will be required to file their 10-K within 60 and 75 days of the fiscal year-end, respectively. Companies with a market capitalization less than $75 million are not subject to accelerated filing; they will continue to file 10-K within 90 days of the fiscal

[9] The simple correlation between audit lag and ABSDACC is 0.013 ($p > 0.10$). I test the sensitivity of the discretionary accruals effect by estimating ABSDACC using the cross-sectional Jones-model and the cross-sectional modified-Jones model with and without adjustment for prior and/or current period performance (ROA) (Kothari et al. 2005). I then estimate OLS models to investigate if audit lag is a significant determinant of the various measures of ABSDACC. I find the coefficient on audit lag is not significant ($p > 0.10$) in any of the models. However, the coefficient on audit-firm tenure is consistently negative and significant across all OLS models. When I sensitize my results in Table 5 to various estimates of ABSDACC, I continue to find the coefficient on ABSDACC is not significant ($p > 0.10$).

year-end. Based on the company size thresholds subject to the new filing period, I stratify the sample into companies with market capitalization less than $75 million, between $75 million and $700 million, and greater than $700 million.

My sample comprises 2,306 (43%) 'large accelerated filers', 2,348 (43%) 'accelerated filers' and 739 (14%) 'non-accelerated filers'. Consistent with the results reported in Table 5, the coefficients on non-audit services fees (LN_NASFEE) and audit-firm tenure (TENURE) are negative and significant ($p < 0.05$ or better) across all three sub-samples stratified by company size. The coefficients on LN_NASFEE are -0.017 ($p < 0.01$), -0.013 ($p < 0.01$), and -0.020 ($p < 0.05$) for 'large accelerated filers', 'accelerated filers' and 'non-accelerated filers' samples, respectively. Similarly, the coefficients on TENURE are -0.007 ($p < 0.01$), -0.003 ($p < 0.05$), and -0.007 ($p < 0.05$) for 'large accelerated filers', 'accelerated filers' and 'non-accelerated filers' samples, respectively. In addition, I find the coefficient on the interaction variable, non-audit services by Pre-SOX (LN_NASFEE * Pre-SOX), is negative and significant ($p < 0.01$) for the 'large accelerated filers' and 'accelerated filers' sub-samples. Finally, I find the results relating to the interaction variable, non-audit services by year (LN_NASFEE * YEAR), are qualitatively similar across the three sub-samples.[10]

Yearly Analyses

I test the sensitivity of the results by year because the sample period is

[10] Because of loss of power due to smaller sample size when these interaction tests are performed, some interaction coefficients are marginally significant and some are not significant. The coefficient on LN_NASFEE * 2001 is not significant ($p > 0.10$) for 'non-accelerated filers' and 'large accelerated filers'. These coefficients become significant ($p < 0.10$ or better) if audit-related fees are categorized as non-audit fees – see next section 'Yearly Analyses' for details. The coefficient on LN_NASFEE * 2002 is marginally significant ($p < 0.10$) for large accelerated filers. Results for other coefficients across all three sub-samples are qualitatively similar ($p < 0.05$ or better).

characterised by accounting scandals inviting increased scrutiny by regulators that resulted in various reforms imposed by the SOX and changes in the SEC fee disclosure rules. In addition, because the sample includes firms across the four years, yearly analyses address potential auto-correlation effects although the reported Durbin-Watson statistics in Table 5 show auto-correlation is unlikely. First, I re-estimate Model 1 in Table 5 for each of 2000, 2001, 2002 and 2003 and observe the following results. The coefficient on non-audit services fees is consistently negative for all years. However, the coefficient is significant ($p < 0.05$ or better) only in 2000 and 2002 which is consistent with the notion of knowledge spillover. The non-significance in 2003 is expected because of the erosion of knowledge spillovers due to the SOX ban on most non-audit services. The non-significance of the non-audit services fees coefficient in 2001 is surprising but probably due to the abnormally increased scrutiny on fees paid to audit-firms as a consequence of the Enron led string of accounting scandals. The SEC (2003b) accuses some clients of classifying non-audit services fees into a new category of fees known as 'audit-related fees' in 2000 and 2001. The SEC accuses auditors of proposing this new classification to their clients to avoid percpetions of breach of independence that might have been apparent if such fees were correctly classified as non-audit services fees (SEC 2003b). However, on January 28, 2003, the SEC adopted new fee disclosure rules and specified that the new fourth category 'audit-related fees' should comprise fees paid to the audit-firm for assurance and related services that are reasonably related to the performance of the audit or review of the registrant's financial statements (SEC 2003a). The intent of the SEC is to ensure fees for non-audit services are not classified as 'audit-related'. Because of the preceding issues, I perform sensitivity tests by including 'audit-

related fees' as a variable in the OLS models and as a composite of the non-audit services fees variable.

Untabulated descriptive data shows an increase in the mean (median) 'audit-related fees' over 2000 to 2003. The mean (median) 'audit-related fees' is \$0.926 thousand (\$0.00), \$59 thousand (\$0.00), \$228 thousand (\$44) and \$267 thousand (\$56) in 2000, 2001, 2002 and 2003, respectively. When I include 'audit-related fees' in the yearly OLS models, I find the coefficient is negative in 2000 and negative and significant ($p < 0.05$) in 2001. It is positive in 2002 and positive and significant ($p < 0.05$) in 2003. These results suggest that the non-significance of the coefficient on non-audit services fees in 2001 is probably due to the reclassification of non-audit services fees as audit-related fees.[11] When I define non-audit services fees as the sum of all fees other than audit fees, I find the coefficient on non-audit services fees in the pooled and yearly OLS is qualitatively similar to the results in Table 5. In particular, the non-audit services fees coefficient is negative and significant ($\beta = -0.018$, $t = -1.68$, $p < 0.05$).

In all the yearly OLS, the coefficient on audit-firm tenure is consistently negative and significant ($p < 0.05$ or better) which is consistent with the results reported in Table 5. Similarly, the coefficient on audit fees is positive and significant ($p < 0.01$) and the coefficients on the control variables are qualitatively similar across all the yearly OLS.

Potential endogeneity between audit lag and non-audit services

The reported OLS results may be biased if audit lag and non-audit services fees

[11] I perform mean difference tests on non-audit services fees to understand the effect of the 'audit-related fees' classification in 2001. The non-audit services fees are significantly lower (mean LN_NASFEE = 5.45) for firms that report 'audit-related fees' than for firms that do not report 'audit-related fees' (mean LN_NASFEE = 5.74, $t = 2.604$, $p < 0.01$). The mean difference reverses when 'audit related fees' are added back to non-audit services fees ($p < 0.05$) suggesting the SEC's accusations appear valid.

are endogenously determined. It is plausible that longer audit lag due to problems with the client's internal control and reporting systems, and complexity of financial transactions lead to audit-firm provided non-audit services. I test for potential endogeneity between audit lag and non-audit services fees using the Hausman Specification test (Gujarati 2003). Based on this test, I find there is no evidence of endogeneity between audit lag (year t or year t-1) and non-audit services fees ($p > 0.25$).

Unexpected non-audit services fees and audit lag

A potential limitation of the analyses in Table 5 is that audit lag may be influenced by 'unexpected' fees generated from non-audit services provided to the audit client rather than the nominal amounts examined in Table 5. Unexpected high fees may be a surrogate for profits generated from a client (DeFond et al. 2002) and such clients may receive preferential treatment. To estimate unexpected non-audit services fees for the pooled and yearly samples, I estimate the DeFond et al. (2002) non-audit fee model. The estimated models have reasonable explanatory power and are comparable to DeFond et al. (2002) with adjusted R^2 ranging from 44% to 52%. Consistent with DeFond et al. (2002), I use the error terms (residual) from the estimated non-audit service fee models to compute the 'unexpected' portion of the non-audit services fees (UNEXP_NASFEE). I then perform fractional rank on the residuals by 2-digit SIC. I expect the coefficient on UNEXP_NASFEE to be negative if there is evidence of an efficiency effect.

I re-estimate models 1, 2 and 3 reported in Table 5 by substituting non-audit services fees with the fractionally ranked 'unexpected' non-audit services fees and observe the following results. The coefficient on UNEXP_NASFEE is negative and significant (-0.032, $p < 0.10$). The coefficient on UNEXP_NASFEE * Pre-SOX ($\beta_{July2002}$

= -0.135, $p < 0.01$; $\beta_{July2003}$ = -0.185, $p < 0.01$) is also negative and significant suggesting that when a client is a source of unusually high ('unexpected') non-audit services fees in the pre-SOX period, audit lag is shorter for such clients. The coefficient on UNEXP_NASFEE * 2001 is negative but not significant (-0.022, $p > 0.10$) whereas the coefficient on UNEXP_NASFEE * 2002 is negative and significant (-0.028, $p < 0.05$).[12] Finally, the coefficient on UNEXP_NASFEE * 2003 is positive and significant (0.064, $p < 0.01$). These 'unexpected' non-audit services fees results are consistent with those reported in Table 5. The coefficient on TENURE and other coefficients are qualititatively similar to those reported in Table 5.

Auditor Effects

I consider the effects of the auditor by including indicator variables representing each of the Big 5 with PWC in the constant term and by estimating separate OLS for each auditor. When I include the auditor indicator variables in the OLS reported in Table 5, I find the coefficients on non-audit services fees and audit-firm tenure remain negative and significant ($p < 0.05$ or better). With the exception of KPMG, the OLS results for each auditor sub-sample show negative and significant coefficients on non-audit services fees and audit-firm tenure. For the KPMG sub-sample, the coefficients on non-audit services fees and audit-firm tenure are not significant.

I also estimate Models 1, 2 and 3 in Table 5 on the non-Big 5/4 sample. I find the coefficients on non-audit services fees and tenure are not significant. These observations are consistent with the proposition that knowledge spillover arising from economies of

[12] As explained under 'Yearly Analyses', this result arises probably due to the classification of non-audit services fees as 'audit related' fees. Reclassifying 'audit related' fees as non-audit services fees results in a significant coefficient ($p < 0.05$).

scale and scope are restricted to large firms providing audit and non-audit services to their clients (Simunic 1984).

V. DISCUSSION AND CONCLUSION

In their numerous rebuttals of regulatory restrictions on the joint provision of audit and non-audit services and proposed mandatory rotation of audit firms, the accounting profession consistently and continuously argues that the provision of non-audit services by the audit firm and extended tenure with the client enhances rather than diminishes the value and performance of the audit. The accounting profession strongly argues that audit efficiency increases through knowledge spillover occurring between audit and non-audit services. Similarly, the accounting profession argues that extended tenure increases the auditor's knowledge and experience with the client that is fundamental to a quality and efficient audit. Despite these strongly held views, the accounting profession does not provide any evidence on, and neither does the academic literature support their case relating to audit efficiency.

I offer initial evidence in this study that supports the accounting profession's strongly held views. Specifically, I provide evidence that illustrates increasing levels of auditor provided non-audit services reduce audit lag. This result is consistent with the knowledge spillover hypothesis and suggests the provision of non-audit services by the audit firm increases the efficiency of the audit. This effect erodes following the SOX ban on most auditor provided non-audit services. I also provide evidence that demonstrates extended audit-firm tenure reduces audit lag while shorter audit-firm tenure increases audit lag. This finding is consistent with and supports the accounting profession's rationale that periodic mandatory rotation of audit firms will have adverse consequences

for the audit. The findings presented indicate longer tenure with a client yields audit efficiencies and challenges proposals calling for mandatory periodic rotation of audit-firms.

The results of this study have important implications for regulators, the accounting profession, and audit clients concerned about the escalating costs of the audit since the introduction of the SOX. The results pertaining to non-audit services and audit lag suggest audit efficiencies flow from the joint provision of audit and non-audit services. Efficient production of the audit reduces audit lag that has implications for audit costs and reporting timeliness. The loss of synergies between audit and non-audit services following the SOX imposed ban on most auditor provided non-audit services will impose a greater cost burden on the firm and ultimately on the shareholders. The significance of audit lag as a determinant of reporting timeliness (e.g., Ashton et al. 1989) will become more important in the era of accelerated filing with the SEC coming into force on December 15, 2006. The results of this study suggest the joint provision of audit and non-audit services appears to facilitate accelerated filing. In the context of existing empirical evidence showing the joint provision of audit and non-audit services does not reduce audit quality (e.g., DeFond et al. 2002; Ashbaugh et al. 2003; Kinney et al. 2004), the evidence in this study suggests regulators hastily introduced restrictive reforms based on anecdotes. The lesson to learn is that reforms to mandatory periodic rotation of audit firms ought to be informed through rigorous research rather than overly rely on anecdotes; a view consistent with DeFond and Francis (2005). The significant association between longer audit-firm tenure and audit efficiency suggests mandatory periodic rotation of

audit firms is inconsistent with the qualitative characteristic timeliness of financial information.

There are several issues worthy of further research. First, I did not investigate how various types of non-audit services influence audit lag. The primary limitation to such investigation is the availability of accurate and reliable data on the nature and amount of non-audit services in each category. Such data is best obtained through proprietary sources. Second, I employ the non-audit services fees paid to the auditor as a surrogate for the extent of auditor provided non-audit services. This measure is limited to the extent that fees do not correspond with input audit production factors. However, prior research shows fees and audit hours are highly correlated (e.g., O'Keefe et al. 1994). Third, audit lag as examined in this study comprises three components; scheduling lag – the time between the fiscal year-end and commencement of audit work; fieldwork lag – the time taken to complete the fieldwork; and reporting lag – the time between completion of fieldwork and the audit report date (Knechel and Payne 2001). The joint provision of audit and non-audit services could differentially influence these components of audit lag. It is clear that access to proprietary data from audit firms is vital to advance our understanding of the association between non-audit services and audit lag, and to better inform policy debates between the accounting profession and regulators. Finally, there have been a number of regulatory changes to audit and reporting requirements over the recent few years, and these changes may influence the production function of the audit. I attempted to control for such effects through the non-audit services fees by year interaction effects, and by performing yearly sensitivity tests. These tests also provide some control for changes in audit technology. However, further research is encouraged

to better understand how regulatory changes and audit technology influence the efficiency of the audit, and how they affect knowledge spillover arising from the provision of a restricted set of auditor provided non-audit services. As auditors develop experience and expertise in providing this new set of non-audit services and 'audit-related services' (e.g., SOX 404 requirements), knowledge spillover could re-emerge thus improving the efficiency of the audit.

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TABLE 1
Descriptive Statistics for Full Sample (N = 5,495)

Variables[a]	Mean	Median	SD	Min	Max
AULAG (days)	43.73	39.00	21.71	6.00	435.00
TA ($ millions)	2,772	465	9,604	1.68	174,278
LEVERAGE	0.21	0.18	0.22	0.00	2.17
BIZNUM	2.33	1.00	1.67	1.00	10.00
AGE (years listed)	11.22	11.00	5.10	1.00	18.00
CACL	3.01	2.07	3.41	0.01	64.14
TENURE (years)	7.27	6.00	5.52	0.00	18.00
AUFEE ($ thousands)	922	384	2,059	2.26	79,984
NASFEE ($thousands)	1,137	253	3,772	0.00	80,000

	Number	Percent
LOSS = 1	2,011	36.6%
EPS_UP = 1	3,116	56.7%
EI_POS = 1	185	3.4%
FYE_DEC = 1	4,240	77.2%
AUOP = 1	2,332	42.4%
DRUG (2833-2836)	359	6.5%
COM_EQ (3570-3577)	159	2.9%
ELEC (3600-3674)	497	9.0%
RETAIL (5200-5961)	502	9.1%
COM_PRG (7370-7374)	691	12.6%

[a] Variable Definitions:

AULAG	= audit lag measured as the number of days between the fiscal year-end date and audit report date;
TA	= total assets;
LEVERAGE	= ratio of debt to assets;
BIZNUM	= number of business segments;
AGE	= age of the client measured as the number of years for which total assets is reported in Compustat since 1985;
CACL	= ratio of current assets to current liabilities;
TENURE	= the number of consecutive years a client has had the same auditor;
AUFEE	= audit fees;
NASFEE	= total non-audit services fees;
LOSS	= 1 if net income is negative, 0 otherwise;
EI_POS	= 1 if extraordinary items is positive, 0 otherwise;
FYE_DEC	= 1 if fiscal year-end is December, 0 otherwise;
AUOP	= 1 if audit opinion is 'unqualified with explanatory paragraph', 0 otherwise;
EPS_UP	= 1 if EPS increases over the prior year;
DRUG (2833-2836)	= 1 if company operates in the drugs industry;
COM_EQ (3570-3577)	=1 if company operates in the computer equipment industry;
ELEC (3600-3674)	=1 if company operates in the electronics industry;
RETAIL (5200-5961)	=1 if company operates in the retail industry; and
COM_PRG (7370-7374)	=1 if company operates in the computer programming industry.

TABLE 2
Comparison of Short and Long Audit Lag for Full Sample (N = 5,495)

	Short audit lag		Long audit lag		
Variables	**Mean**	**Median**	**Mean**	**Median**	**t-value[a]**
TA ($ millions)	3,120	595	2,417	382	8.011***§
LEVERAGE	0.187	0.145	0.241	0.208	-9.135***
BIZNUM	2.250	1	2.410	1	-3.603***
AGE (years listed)	11.020	11	11.420	11	-2.887***
CACL	3.300	2.290	2.710	1.920	6.503***
TENURE (years)	7.570	6	6.970	6	4.042***
AUFEE ($ thousands)	934	398	909	368	2.785***§
NASFEE ($thousands)	1,365	317	904	206	7.868***§
LOSS	0.340	0	0.390	0	-3.319***
EI_POS	0.030	0	0.040	0	-2.453***
FYE_DEC	0.770	1	0.770	1	-0.029
AUOP	0.380	0	0.470	0	-7.419***
EPS_UP	0.570	1	0.560	1	0.325
DRUG	0.059	0	0.071	0	-1.772
COM_EQ	0.036	0	0.021	0	3.340***
ELEC	0.114	0	0.067	0	6.144***
RETAIL	0.082	0	0.101	0	-2.381**
COM_PRG	0.160	0	0.090	0	7.868***

Variable Definitions = all variables are defined in Table 1.
***, ** = represent significance at 0.01 and 0.05 levels, respectively.
[a] = the Wilcoxon Z and Median tests produce identical results.
§ = tests are based on natural logarithm transformed values.

TABLE 3
Descriptive Statistics by Year for Audit Lag, Tenure and Fees for Full Sample (N = 5,495)

Variables	Total Mean (Median) [SD]	2000 Mean (Median) [SD]	2001 Mean (Median) [SD]	2002 Mean (Median) [SD]	2003 Mean (Median) [SD]	Test Statistic F-value[a] Chi-Sq.[a]
Audit Lag (days)	43.73	41.24	41.27	43.64	48.73	36.82***§
	(39.00)	(38.00)	(37.00)	(38.00)	(47.00)	112.68***§
	[21.71]	[19.28]	[20.83]	[24.59]	[20.86]	
Tenure (years)	7.27	7.34	7.68	6.63	7.46	42.21***
	(6.00)	(6.00)	(6.00)	(5.00)	(5.00)	6.29*
	[5.52]	[5.11]	[5.29]	[5.73]	[5.84]	
NASFEE	1,137	1,768	1,447	773	577	97.20***§
($thousands)	(253)	(377)	(337)	(192)	(170)	143.06***§
	[3,772]	[5,225]	[4,669]	[2,257]	[1,488]	
AUFEE	922	671	754	988	1,269	78.78***§
($thousands)	(384)	(280)	(319)	(423)	(512)	182.20***§
	[2,059]	[1,232]	[1,539]	[1,812]	[3,091]	

Variable Definitions = all variables are defined in Table 1.
[a] = Analysis of Variance F-value for mean difference and Median test Chi-Square value for median difference tests.
***, **, * = represent significance at 0.01, 0.05, and 0.10 levels, respectively.
§ = tests are based on natural logarithm transformed values.

Table 4
Pearson and Spearman Correlation Coefficients (N = 5,495)

#	Variable[a]	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	LN_NASFEE	1.000	**0.225**	**0.601**	**0.149**	**-0.179**	**-0.138**	**-0.062**	**0.040**	**0.287**	**0.196**	**0.031**	**0.026**	**0.599**	**-0.097**	-0.001	-0.015	-0.002	**-0.023**
2	TENURE	**0.200**	1.000	**0.244**	**0.042**	**-0.088**	**-0.119**	-0.017	0.001	**0.157**	**0.477**	**-0.097**	0.008	**0.216**	-0.011	0.017	**0.038**	**0.023**	**-0.153**
3	LN_TA	**0.642**	**0.204**	1.000	**0.305**	**-0.243**	**-0.272**	**-0.023**	**0.095**	**0.354**	**0.379**	-0.003	**0.177**	**0.779**	**-0.122**	**-0.045**	**-0.068**	**0.087**	**-0.177**
4	LEVERAGE	**0.239**	**0.076**	**0.433**	1.000	**-0.258**	**0.044**	**-0.069**	**0.115**	**0.156**	**0.117**	**0.099**	**0.126**	**0.241**	-0.021	**-0.084**	**-0.082**	**-0.028**	**-0.235**
5	CACL	**-0.238**	**-0.070**	**-0.374**	**-0.479**	1.000	**0.138**	**-0.023**	**-0.040**	**-0.197**	**-0.181**	-0.002	**-0.114**	**-0.305**	**0.289**	**0.046**	**0.144**	**-0.075**	**0.031**
6	LOSS	**-0.140**	**-0.106**	**-0.271**	-0.026	**0.085**	1.000	**-0.270**	0.007	**-0.104**	**-0.247**	**0.078**	0.014	**-0.104**	**0.142**	**0.077**	**0.076**	**-0.146**	**0.165**
7	EPS_UP	**-0.067**	-0.190	-0.022	**-0.073**	-0.021	**-0.268**	1.000	0.012	**-0.041**	0.150	0.008	**0.063**	0.007	-0.019	**0.026**	**-0.031**	**0.052**	**0.022**
8	EI_POS	**0.044**	-0.004	**0.089**	**0.121**	**-0.077**	0.009	0.012	1.000	**0.048**	**0.033**	**0.040**	**0.057**	**0.081**	-0.005	-0.006	-0.010	**-0.029**	**-0.028**
9	BIZNUM	**0.308**	**0.122**	**0.344**	**0.228**	**-0.214**	**-0.113**	**-0.045**	**0.043**	1.000	**0.335**	**0.060**	**0.116**	**0.401**	**-0.098**	**-0.034**	**-0.075**	**-0.140**	**-0.088**
10	AGE	**0.186**	**0.385**	**0.375**	**0.187**	**-0.188**	**-0.239**	0.023	**0.032**	**0.343**	1.000	**-0.134**	**0.151**	**0.360**	-0.017	**-0.028**	0.010	**0.033**	**-0.265**
11	FYE_DEC	0.038	**-0.102**	-0.009	**0.093**	**-0.071**	**0.075**	0.008	**0.040**	**0.049**	**-0.133**	1.000	**0.041**	**0.048**	**0.103**	**-0.056**	**-0.075**	**-0.293**	-0.003
12	AUOP	0.040	-0.009	**0.181**	**0.146**	**-0.152**	0.018	**0.063**	**0.057**	**0.115**	**0.183**	**0.041**	1.000	**0.282**	**-0.032**	-0.012	**-0.045**	**-0.061**	**-0.045**
13	LN_AUFEE	**0.635**	**0.185**	**0.774**	**0.341**	**-0.367**	**-0.105**	0.003	**0.072**	**0.393**	**0.358**	**0.031**	**0.276**	1.000	**-0.115**	-0.004	**-0.045**	**-0.053**	**-0.038**
14	DRUG	**-0.103**	0.002	**-0.124**	**-0.038**	**0.223**	**0.137**	-0.019	-0.005	**-0.113**	-0.016	**0.103**	**-0.032**	**-0.131**	1.000	**-0.045**	**-0.084**	**-0.084**	**-0.100**
15	COM_EQ	0.002	0.017	**-0.044**	**-0.099**	**0.093**	**0.081**	0.026	-0.006	**-0.032**	**-0.290**	**-0.056**	-0.012	-0.005	**-0.045**	1.000	**-0.054**	**-0.054**	**-0.065**
16	ELEC	-0.024	**0.045**	**-0.068**	**-0.108**	**0.198**	**0.077**	**-0.031**	-0.010	**-0.064**	0.010	**-0.075**	**-0.045**	**-0.048**	**-0.084**	**-0.054**	1.000	**-0.102**	**-0.121**
17	RETAIL	-0.010	**0.033**	**0.090**	-0.019	**-0.095**	**-0.143**	**0.052**	**-0.029**	**-0.144**	**0.033**	**-0.293**	**-0.061**	**-0.054**	**-0.084**	**-0.054**	**-0.102**	1.000	**-0.122**
18	COM_PRG	-0.022	**-0.141**	**-0.186**	**-0.293**	**0.087**	**0.163**	0.022	**-0.028**	**-0.091**	**-0.262**	-0.003	**-0.045**	**-0.035**	**-0.100**	**-0.065**	**-0.121**	**-0.122**	1.000

Pearson (Spearman) correlations are shown above (below) the diagonal. Coefficients in bold only are significant at $p < 0.05$ (two-tailed).

[a]Variable Definitions:

LN_TA = natural logarithm of total assets;
LN_AUFEE = natural logarithm of audit fees; and
LN_NASFEE = natural logarithm of non-audit services fees.
All other variables are defined in Table 1.

TABLE 5
OLS Regressions of Audit Lag on Non-Audit Services Fees, Audit-Firm Tenure and Control Variables

LN_AULAG = $a + \beta_1$LN_NASFEE (or β_1LN_NASFEE + β_2LN_NASFEE * Pre-SOX or β_1LN_NASFEE + $\beta_{2_}\beta_4$LN_NASFEE * year) + β_2TENURE + β_3LN_TA + β_4LEVERAGE + β_5CACL + β_6LOSS + β_7EPS_UP + β_8EI_POS + β_9BIZNUM + β_{10}AGE + β_{11}FYE_DEC + β_{12}AUOP + β_{13}LN_AUFEE + $\beta_{14\text{-}18}$INDUSTRY + ε_i

	Model 1			Model 2			Model 3		
Variables[a] (predicted sign)	**Estimate**	**t-value[§]**	**VIF**	**Estimate**	**t-value[§]**	**VIF**	**Estimate**	**t-value[§]**	**VIF**
Intercept	3.810	93.89***		3.858	90.47***		3.860	91.50***	
LN_NASFEE (-)	-0.017	-4.00***	1.79	-0.008	-1.57*	2.44	-0.012	-2.77***	1.96
LN_NASFEE * Pre-SOX (-)				-0.009	-3.67***	1.87			
LN_NASFEE * 2001 (-)							-0.005	-1.78**	1.59
LN_NASFEE * 2002 (-)							-0.010	-2.89***	1.85
LN_NASFEE * 2003 (?)							0.016	4.68***	1.94
TENURE (-)	-0.006	-4.81***	1.34	-0.006	-4.37***	1.35	-0.006	-4.91***	1.35
LN_TA (?)	-0.100	-16.05***	3.45	-0.098	-15.58***	3.50	-0.098	-15.58***	3.51
LEVERAGE (+)	0.295	9.94***	1.30	0.302	10.15***	1.30	0.299	10.09***	1.30
CACL (-)	-0.008	-4.14***	1.31	-0.008	-4.32***	1.32	-0.008	-4.47***	1.32
LOSS (+)	0.046	3.27***	1.38	0.045	3.22***	1.38	0.052	3.74***	1.38
EPS_UP (-)	-0.017	-1.39*	1.13	-0.022	-1.79**	1.14	-0.030	-2.46***	1.17
EI_POS (+)	0.054	1.65**	1.02	0.063	1.93**	1.03	0.056	1.72**	1.03
BIZNUM (+)	0.017	4.27***	1.33	0.018	4.47***	1.33	0.018	4.57***	1.33
AGE (?)	0.007	4.57***	1.69	0.006	4.01***	1.73	0.006	4.02***	1.74
FYE_DEC (+)	0.023	1.58*	1.17	0.013	0.89	1.21	0.023	1.61*	1.17
AUOP (+)	0.085	6.89***	1.15	0.067	5.04***	1.34	0.079	5.82***	1.39
LN_AUFEE (?)	0.073	7.44***	3.46	0.063	6.16***	3.74	0.060	5.85***	3.82
DRUG (?)	-0.026	-1.02	1.20	-0.025	-0.97	1.20	-0.026	-1.03	1.19
COM_EQ (?)	-0.216	-6.07***	1.06	-0.215	-6.03***	1.07	-0.216	-6.10***	1.07
ELEC (?)	-0.181	-8.57***	1.14	-0.183	-8.77***	1.14	-0.183	-8.70***	1.14
RETAIL (?)	0.105	4.77***	1.24	0.102	4.66***	1.24	0.104	4.77***	1.25
COM_PRG (?)	-0.193	-9.85***	1.30	-0.194	-9.89***	1.30	-0.195	-9.99***	1.30
N[#]	5,393			5,393			5,393		
Adjusted R^2/F-value	15%	52.24***		15%	47.93***		16%	48.91***	
Durbin-Watson	1.958			1.961			1.986		

TABLE 5 (continued)
OLS Regressions of Audit Lag on Non-Audit Services Fees, Audit-Firm Tenure and Control Variables

[§] The reported t-values are based on White's (1980) corrected standard errors.
[#] Sample size differs from Tables 1 - 4 because OLS models exclude outliers defined as more than three standard deviations from the mean for audit lag and fee variables.
***, **, * represent significance at 0.01, 0.05, and 0.10 levels, respectively.
[a] **Variable Definitions:**

LN_AULAG	= natural logarithm of audit lag;
LN_TA	= natural logarithm of total assets;
LN_AUFEE	= natural logarithm of audit fees;
LN_NASFEE	= natural logarithm of non-audit services fees;
LN_NASFEE * Pre-SOX	= interaction term between LN_NASFEE and Pre-SOX (= 1 if fiscal year-end is prior to July 2002); and
LN_NASFEE * year	= interaction term between LN_NASFEE and 2001, 2002 or 2003.

All other variables are defined in Table 1.

TABLE 6
Audit Quality Sensitivity Test OLS Regressions

$$AUDIT\_QUALITY = a + \beta_1 LN\_AULAG + \beta_2 TENURE + \beta_3 LN\_MKTCAP + \beta_4 BOOKMKT + \beta_5 OCF\_TA + \beta_6 LOSS + \varepsilon_i \quad \text{(LAG Model)}$$

$$AUDIT\_QUALITY = a + \beta_1 HINAS\_SHORTLAG + \beta_2 TENURE + \beta_3 LN\_MKTCAP + \beta_4 BOOKMKT + \beta_5 OCF\_TA + \beta_6 LOSS + \varepsilon_i \quad \text{(NAS*LAG Model)}$$

		LAG Model		NAS*LAG Model	
Variables[a]	**Pred. Sign**	**Estimate**	**t-value**[§]	**Estimate**	**t-value**[§]
Intercept	?	0.088	0.930	0.087	2.16**
LN_AULAG	?	0.004	0.182		
HINAS_SHORTLAG	?			-0.043	-1.91*
TENURE	-	-0.004	-2.63***	-0.004	-2.45**
LN_MKTCAP	?	0.016	2.65***	0.019	3.19***
BOOKMKT	?	-0.001	-0.702	-0.001	-0.63
OCF_TA	?	-0.538	-9.40***	-0.537	-9.39***
LOSS	+	0.158	7.11***	0.160	7.18***
N[#]		5,306		5,306	
Adjusted R^2/F-value		5%	43.76***	5%	44.40***

[§] The reported t-values are based on White's (1980) corrected standard errors.
***, **, * represent significance at 0.01, 0.05, and 0.10 levels, respectively.
[#] The sample size drops to 5,306 because the estimation of discretionary accruals requires at least five companies per industry.

[a] **Variable Definitions:**

AUDIT_QUALITY	= Absolute value of discretionary accruals computed using the performance-adjusted cross-sectional modified-Jones model (Kothari et al. 2005);
LN_AULAG	= natural logarithm of audit lag;
HINAS_SHORTLAG	= 1 if non-audit services fees greater than the median and audit lag is less than or equal to the median, 0 otherwise;
TENURE	= the number of consecutive years a client has had the same auditor;
BOOKMKT	= book value of total assets to market capitalization;
LN_MKTCAP	= natural logarithm of market capitalization;
OCF_TA	= operating cash flow defalted by total assets; and
LOSS	= 1 if net income is negative, 0 otherwise.