LOWER DISCRETIONARY ACCRUALS IN SECOND TIER CLIENTS POST-SOX: CLIENT QUALITY OR AUDITOR QUALITY?

by

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ABSTRACT

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Advisor: Professor Aloke Ghosh

I investigate the audit quality in second tier firms BDO, Crowe Horwath, Grant Thornton, and McGladrey and Pullen. I compare the audit quality in second tier firms pre and post-SOX using discretionary accruals and controlling for client quality using propensity-score matching and firm-fixed effects. I also examine the relative audit quality of Big N and second tier auditors before and after SOX. I find no difference in accrual quality using a propensity score-matched pooled sample from 1988-2010. However, when I include an indicator variable for the post-SOX period, I find that accrual quality is higher for Big N clients in the pre-SOX period, but not in the post-SOX period. Using the full sample and controlling for self-selection with firm-fixed effects, I also find that audit quality was significantly different between Big N and second tier clients pre-SOX and may remain so post-SOX, although second tier improvements have significantly narrowed the gap in audit quality between the two groups. I additionally consider the possibility that the large number of firms switching down to second tier auditors from Big N auditors during the post-SOX period could be influencing the results. I look at a sample of firms that did not switch between the Big N and second tier auditors. I also look at the switching firms. I find no evidence that the newest second tier clients explain the increase

in accrual quality. I find consistent results using going concern opinions and restatements as measures of audit quality.

DEDICATION

This dissertation is dedicated in loving memory of my father Lynn Peltier and my grandparents Sylvia Billiot, Elie Billiot, Isabella Peltier, and Wilbert Peltier, Sr. Thank you for shaping the person I am today.

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This dissertation is the culmination of my doctoral studies, but to get to the end there must be a beginning. I want to begin by acknowledging those that helped me get started on this track. First and foremost my mother who pushed me and my sisters so hard to get the education she never did. For a woman without a high school diploma to have raised three daughters with graduate-level education, she must have done something right. Also thanks to my sisters for providing me with support I always knew I could count on. I also acknowledge the support of the rest of my family back home in Louisiana, Kansas, Oklahoma, and Missouri and my in-laws in France for keeping me grounded and supporting me without ever really understanding what it was I was doing or why it was taking so long.

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I imagine the PhD process is a really lonely one without the support of others going through the same process. Luckily for me, I had two great support groups. The students in Baruch's accounting doctoral program were always willing to provide help or lend a kind ear whenever I needed it. I especially want to thank Ping Wang, Bo Zhang, Hakyin Lee, and Rob Pawlewicz for their assistance as we navigated through the Baruch PhD program together.

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1. Introduction

The market for audits has undergone significant changes since the turn of the twenty-first century. The combination of Andersen's demise and the Sarbanes Oxley Act (SOX) requirements proved too great of a strain on the Big 4's resources and consequently they had to shed some of their clients to smaller auditors. While the Big 4 kept almost all of their larger clients, they gave up some of their smaller or riskier clients. For companies with revenues between $100 million and $500 million, only 71% were audited by the Big 4 in 2006 compared to 90% in 2002. Additionally, from 2002 to 2006 half of the Big 4's smallest public companies (those with less than $100 million of revenues) engaged a smaller auditor (U.S. Government Accountability Office 2008).[1]

Small public firms' migration from Big 4 auditors to smaller auditors could signal a lower level of audit quality. Markets have long held the belief that Big N[2] auditors provide higher levels of audit quality than smaller auditors and accounting research has generated theoretical models and found empirical support for that belief (Becker et al. 1998; DeAngelo 1981; Krishnan 2003; Teoh and Wong 1993). Audit quality is argued to be higher for Big N auditors because for Big N auditors the cost of possible litigation or

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[1] This was mainly due to Big 4 resigning from smaller audits or raising fees above what clients were willing to pay in response to increased demand following AA and SOX (U.S. Government Accountability Office 2008 P.18).

2 Big N refers to the auditors that were Arthur Andersen, Arthur Young & Co., Coopers & Lybrand, Ernst & Whinney, Deloitte Haskins & Sells, Peat Marwick Mitchell, Price Waterhouse and Touche Ross prior to 1989. They were called the Big 8 until 1989, mergers created the Big 6 from 1989-1998, the Big 5 from 1998-2002, and following the demise of Arthur Andersen are the Big 4.

loss of reputation from allowing a client to misreport far outweighs any benefit from a continued relationship with that client. For second tier auditors that have no more than a few hundred clients, the cost benefit tradeoff is more complex since there is less to lose in terms of litigation and reputation and relatively more to gain from retaining the client.[3]

There are reasons to believe that the costs of misreporting increased post-SOX for second tier auditors. First, SOX increased the disclosures required of auditors. Increased disclosures increase litigation risk by increasing auditors' responsibility to third parties. SOX also created the Public Company Accounting Oversight Board (PCAOB) and required the PCAOB to inspect auditors regularly. Finally, second tier auditors saw their revenues triple on average from 2002 to 2008 (Public Accounting Report 2002; 2008). Deeper pockets provide plaintiffs an increased incentive to pursue litigation since they are more likely to receive damages that exceed the cost of litigation. To offset the increase in potential costs post-SOX, second tier auditors may have increased audit quality to reduce their expected costs from client misreporting.

A few studies have considered second tier audit quality post-SOX using discretionary accruals, cost of equity, earnings response coefficients, and going concern opinions as measures of audit quality (Cassell 2008; Krishnan et al. 2010; Cassell et al 2011; Boone et al. 2010; Carver et al. 2010). Most of the studies find that in the post-SOX period second tier auditors appear to have improved their level of audit quality and may even provide a level of audit quality similar to Big 4 auditors. However, Carver et al.

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[3] Second tier firms in this study refer to Grant Thornton, BDO, McGladrey and Pullen, and Crowe Horwath (previously Crowe Chizek & Company). The reason for this definition of second tier firms is discussed in Section IV.

(2010) find evidence that clients switching from Big 4 to second tier auditors post-SOX report increased discretionary accruals following the switch while clients switching laterally report no change in discretionary accruals.[4]

There are a few concerns with the prior studies. First, most of the studies use discretionary accruals as the measure of audit quality and a recent study (Lawrence et al. 2011) questions whether discretionary accruals is a valid measure of audit quality. Their evidence is based on a sample of firms matched on propensity score.

The issue is one of self-selection. Big N auditors have higher reputation and litigation concerns and have the ability to audit almost any client. They, therefore, are very selective in choosing clients. Large firms similarly are selective in choosing auditors since smaller auditors are less likely to have the expertise and resources to adequately audit them. This leaves smaller, riskier firms unable to engage (or afford) a Big N auditor and forced to seek a non-Big N auditor. There are also cases of poor quality firms that actually seek a less adequate audit firm i.e. audit opinion shopping.

A second concern is that if audit quality proxies are driven by client characteristics then pre vs post-SOX studies comparing Big N and non-Big N auditors are especially susceptible to incorrect inferences. In the pre-SOX period the auditor-client alignment decisions were made by both the auditors and the clients. In the post-SOX period, Big 4 auditors faced resource constraints from incoming Andersen clients and SOX regulations. It reduced the client's power in auditor-client negotiations and resulted

[4] The main focus in the Carver et al. (2010) paper is Big 4 as compared to non-Big 4, however, as a sensitivity analysis they consider only second tier firms rather than all non-Big 4 and they report that the inferences do not change.

in different client portfolios post-SOX compared to pre-SOX. High quality clients switching down from Big N auditors may explain the documented increase in accrual quality for the second tier firms.

I use three distinct approaches to determine whether audit quality has increased post-SOX for Second tier auditors or whether a vastly different second tier clientele in the pre and post-SOX periods can explain the results in prior literature. First I use propensity score matching. A limitation of propensity score matching and other matching techniques to control for auditor choice is that matched samples generally result in a significantly reduced sample size. Specifically in my sample, in matching a Big N firm to a second tier firm I retain most second tier firms, but roughly only 10% of Big N firms. Also since size is usually a matching criterion, the Big N firms in the matched sample tend to be significantly smaller than the average Big N firm. Drawing inferences about relative audit quality of Big N and second tier auditors, therefore, becomes problematic.

My second approach to control for client characteristics that influence discretionary accrual reporting is to use firm-fixed effects. Firm-fixed effects control for time-invariant, unobservable attributes and help to reduce concerns about self-selection and omitted correlated variables. In my study, the firm-fixed effects control for client characteristics that influence discretionary accruals, allowing the auditor variables to capture the portion of discretionary accruals attributable to the auditor.

My third approach is to consider separately the two potentially different subsamples of second tier firms post-SOX—those that were audited by the second tier both before and after SOX and those that switched to a second tier auditor post-SOX after being audited by a Big N auditor pre-SOX. I do this in two ways. I first limit my sample

to firms that remained within either the Big N or second tier audit group throughout the sample period. Any firms that switched at any time between a Big N and a second tier auditor are excluded. My second specification uses the entire sample of firms, but includes a separate dummy variable for each of the subsamples post-SOX.

Using the propensity score matched sample, I find that overall from 1988-2008 there is no significant difference between second tier and Big N accrual quality. When I include an interaction for the post-SOX period, I find that pre-SOX second tier clients had significantly higher accruals than Big N clients, but post-SOX they reported significantly lower accruals than they did in the pre-SOX period. There is no evidence that Big N clients saw a post-SOX decrease in discretionary accruals. These results are consistent with Lawrence et al. 2011 but provide a different explanation for their findings. It appears as if the lack of an insignificant difference between Big N and non-Big N clients may be due to a shift in the relative quality of the two groups and not a failure in prior literature to adequately control for client characteristics.

Using the full sample of 39,027 firm-years and controlling for client-specific characteristics using firm-fixed effects, I find that in the pre-SOX period second tier clients had lower accrual quality than Big N clients. In the post-SOX period both Big N and second tier clients improved their accrual quality. In fact the improvement for second tier firms exceeded the improvement for Big N firms. However, using a regression on the post-SOX period only, I find evidence that the second tier still report significantly higher discretionary accruals than the Big N. This finding contrasts with the finding in much of the recent second tier literature but is consistent with the Carver et al. (2010) result.

I also find that the results do not appear to be driven by clients switching from Big N to second tier auditors. Using a sample of firms that never switched between a Big N and a second tier auditor, I find weaker, but consistent, evidence that while second tier clients reported higher discretionary accruals pre-SOX they reported significantly lower accruals post-SOX with an improvement that exceeded Big N clients. In an alternative specification, I control separately for those firms that do switch from a Big N to second tier auditor post-SOX. I find that these firms report discretionary accruals similar to Big N clients while the clients that remained with the second tier throughout most of the sample period reported a significant decrease in their discretionary accruals post-SOX.

The benefit of using discretionary accruals is that all firms report accruals, so we can estimate discretionary accruals for all firms. The problem with discretionary accruals as a proxy for audit quality is that accruals are highly influenced by managerial choices and firm characteristics as discussed above. To provide further evidence on second tier audit quality, I examine two more direct measures of audit quality. I investigate the probability of second tier auditors to issue going concern opinions to financially distressed clients. I also test the likelihood that second tier auditors audit financial statements that are later restated.

Going concern opinions signal auditor independence and are therefore considered high quality outcomes. I find that pre-SOX second tier auditors were significantly less likely than Big N auditors to issue going concern opinions. In the post-SOX period there is no difference in Big N and second tier auditors' propensity to issue going concern opinions to financially distressed clients.

Restatements are considered low audit quality outcomes. I find that pre-SOX there is no difference in the frequency with which Big N and second tier auditors audit financial statements that are later restated. However, in the post-SOX period, second tier auditors are significantly less likely to audit financial statements that are later restated.

I contribute to the literature by providing robust evidence that in the post-SOX period, second tier audit quality has improved significantly so that the difference between second tier and Big N audit quality has significantly narrowed. More importantly, this finding is robust to various controls for self-selection, a thorough list of control variables, and examinations of different subsamples of second tier clients. Because the relationship between auditors and discretionary accruals holds up to a multitude of tests, I also provide support for the use of discretionary accruals as a measure of audit quality. Further, I am able to show that the accrual quality results are largely consistent with other measures of audit quality.

The next section discusses relevant literature. Section III explains the motivation for the study and Section IV discusses the research design. Section V explains the sample and data. Section VI discusses the results and Section VII concludes the study.

2. Literature Review

DeAngelo (1981) defines audit quality as the probability that an auditor will both discover and report a breach in the client's accounting system. Discovering the breach is a question of auditor competence while reporting on the breach is a question of auditor independence. DeAngelo argues that since large auditors have thousands of clients, it is not worth risking the reputation of the firm by allowing any one client to misreport. However for smaller auditors a single client can be the main source of revenue for the audit firm and in such a case the expected cost of misreporting may not be sufficient to offset the perceived benefit of retaining the client. Dopuch and Simunic (1982) argue that more audit work leads to higher audit quality and since larger auditors have more resources to perform audit work, audit quality should be higher for larger auditors. Dye (1993) argues that Big N firms provide higher audit quality because they have more wealth at risk from litigation.

Consistent with the above theoretical arguments, subsequent literature validates the use of Big N vs non-Big N as an audit quality proxy. Becker et al. (1998) find that discretionary accruals are significantly higher for non-Big N clients. Lennox (1999) and Geiger and Rama (2006) find that large auditors are more accurate in issuing going concern reports than are small auditors. Khurana and Raman (2004) find that cost of equity is significantly lower for Big N firms compared with non-Big N firms in the the US. Eichenseher et al. (1989) and Nicholls and Smith (1983) find a favorable market reaction to switches from a small auditor to a Big N auditor and an unfavorable market reaction to switches from a Big N auditor to a smaller auditor. Beatty (1989) and

Willenborg (1999) show that there is less underpricing for initial public offerings which are audited by large auditors.

Craswell et al. 1995 consider three quality segments of the audit market: industry specialist Big 6, other Big 6, and non-Big 6 auditors. Francis et al. (1999) use discretionary accruals as a measure of audit quality and find three levels of auditor quality: the Big 6 international firms, followed by lesser quality for second tier national firms, and the lowest level of audit quality for regional and local firms.

This literature precedes the scandal period, Arthur Andersen's demise, and SOX regulations. Given the changes in the audit environment, it is possible that the old findings no longer hold. Two papers provide theoretical arguments for how audit quality should respond to the recent regulations. Francis and Wang (2008) argue that as investor protection regimes become stronger the Big N will more strictly enforce earnings quality because they are very sensitive to reputation concerns. On the other hand, smaller auditors have less reputation at risk and therefore do not want to risk losing clients in order to enforce stricter earnings quality. The gap between the earnings quality reported by Big N and smaller auditors will therefore increase because the Big N will become much stricter with their clients, but smaller auditors will change very little. Choi et al. (2008) argue that a new liability regime will induce all auditors to meet the minimum level of audit quality required by the new regime. In response auditors will increase their effort. However, because the Big N were already providing a sufficiently high level of audit quality, their increase in effort will be minimal. The smaller auditors will have a

higher hurdle to meet since their quality was lower than the Big N. In the end, the gap in audit quality will be narrowed under the new liability regime.[5]

Recent empirical findings mostly support the Choi et al. (2008) argument and question whether there remains a difference in quality between Big N and smaller auditors following SOX. Most of the evidence concerns the second tier of auditors. Boone et al. (2010) examine audit quality for Big 4 firms compared to second tier[6] audit firms from 2003 to 2006. They find no difference in audit quality as proxied by discretionary accruals, but evidence that the Big N still provide higher audit quality as evidenced by going concern opinions and cost of equity. Cassell (2008) uses all tiers of auditors and proxies for audit quality using discretionary accruals. He finds that pre-Andersen second tier clients' accrual quality was similar to small clients' accrual quality and was significantly lower than Big N clients' accrual quality. However, post-SOX second tier clients' accrual quality was similar to Big N clients' accrual quality and significantly higher than small clients' accrual quality. Cassell et al. (2011) find similar results with cost of equity capital as the measure of audit quality. Krishnan et al. (2010) find that in the pre-SOX period clients switching from Big N to second tier auditors reported increased discretionary accruals following the switch, but post-SOX such clients no longer report increased discretionary accruals. However, Carver et al. (2010), using a different research design than Krishnan et al. (2010), find evidence that clients switching down between 2003 and 2005 report a significant increase in discretionary accruals while

[5] These papers are not directly comparable to mine since they concentrate on international settings and test investor protection/liability regimes across several countries. Additionally, the Choi et al. (2008) paper considers audit fees as a measure of audit quality.

[6] Boone et al. 2010 only consider Grant Thornton and BDO while the other studies cited in this paragraph also include McGladrey and Pullen and Crowe Horwath.

clients switching laterally do not report a significant change in their discretionary accruals.

Most of the results concerning post-SOX second tier audit quality are based on discretionary accruals as a measure of audit quality. Lawrence et al. (2011) question whether discretionary accruals, cost of equity, and analyst forecast accuracy are effective measures of audit quality. They match Big N and non-Big N firms based on the propensity to choose a Big N auditor. Using this matched sample over the 1988 to 2006 period, they find no difference in the audit quality proxies across Big N and non-Big N firms. They conclude that client characteristics drive the results that were previously interpreted as evidence of auditor quality.

Most of the above research finds no difference between Big N and second tier clients post-SOX. However much of it is based on a short post-SOX period when much change was occurring (Boone et al. 2010; Carver et al. 2010; Krishnan et al. 2010). Additionally Cassell (2008) allows for a comparison before and after SOX, but fails to adequately control for client characteristics both in terms of proper control variables for absolute discretionary accruals and in addressing the self-selection issue inherent in auditor choice. Lawrence et al. (2011) accounts for the self-selection issue but ignores any possible variation over the 1988 to 2006 sample period.

In this paper I readdress the question of second tier audit quality improvements post-SOX. I use a pre and post-SOX sample, include many control variables found to be associated with auditor choice and discretionary accruals, and address the self-selection issue in several ways. Additionally, I consider the possibility that the movement of high

quality Big N clients down to second tier auditors may explain the documented improvement in second tier audit quality when in fact it is driven by client quality.

3. Motivation and Hypothesis Development

Audit quality is argued to be higher for Big N auditors because for Big N auditors no one client is important enough for the firm to risk its reputation or costly litigation in order to retain the future revenue stream from the client relationship. For second tier auditors that have between one and four hundred clients, a single client is more significant to the firm and expected costs to litigation or reputation are lower. For the second tier firms, the cost benefit tradeoff is more complex and therefore the incentive to provide high audit quality is lower.

Given the evidence that smaller auditors provide lower audit quality, small public firms' migration from Big N auditors to smaller auditors in 2001 and later could signal a lower level of audit quality in the market. On the other hand, allowing clients to misreport may have become much more costly for second tier auditors post-SOX. First, the increased disclosures required by SOX, especially the auditor's report on internal controls, increase the information that auditors provide to financial statement users. This increases the auditor's responsibility to third parties and makes lawsuits more likely. SOX also created the Public Company Accounting Oversight Board (PCAOB) and required the PCAOB to inspect auditors regularly. Finally, second tier auditors saw their revenues triple on average from 2002 to 2008 (Public Accounting Report 2002; 2008). This means that second tier auditors have more revenue at risk from litigation and suing second tier auditors has become more attractive since the damages awarded are more likely to offset the cost of litigation.

Based on the above arguments I expect that audit quality in second tier firms has increased post-SOX. Managers who want to manipulate earnings often do so via the discretionary component of accruals. If financial statement users detect managerial manipulation, lawsuits become more likely. Knowing this, a high quality auditor should constrain management's ability to manipulate earnings using discretionary accruals.

H1a: Ceteris paribus, second tier clients report lower discretionary accruals post-SOX than pre-SOX.

While these same arguments could be made for Big N auditors, Big N auditors were already providing high audit quality prior to Andersen's demise. In fact, Big N auditors are actively lobbying to reduce their litigation risk and many believe that the remaining Big 4 are "too big to fail." Further, Choi et al. (2008) suggest that when the legal and regulatory regimes become more demanding, the non-Big N auditors have to make greater improvements in audit quality than do the Big N auditors to compensate for their lower audit quality before the regime change. Under the new regime, audit quality should therefore be more similar between the two auditor groups.

Based on the above discussion, I believe that in response to increased regulatory, litigation, and reputation threats post-SOX the second tier firms provide audit quality similar to Big N audit quality. I therefore test the following three hypotheses (stated in the null form).

H2a: Ceteris paribus, discretionary accruals do not differ between second tier and Big N clients post-SOX.

The portfolio of second tier clients changed significantly post-SOX. The second tier auditors engaged many former Big N clients after the Big N shed these clients due to

Andersen and SOX induced capacity constraints. About half of second tier clients in the post-SOX period had been Big N clients in the pre-SOX period.[7] This makes it very possible that the subsample of clients switching between Big N and second tier auditors post-SOX explain the documented effect of no difference between the discretionary accruals of second tier and Big N clients.

H3a: Ceteris paribus, the association between discretionary accruals and second tier auditors post-SOX is similar across the sample of firms audited by the second tier pre and post-SOX and the sample of firms switching from the Big N to the second tier post-SOX.

[7] Of the Tier 2 post-SOX observations, about half had been audited by the Big 4 for most of the pre-SOX period.

4. Research Design

4.1 Second Tier Auditors

In this study I compare audit quality provided by second tier auditors with audit quality provided by Big N auditors. I also compare second tier audit quality in the pre-SOX period with audit quality in the post-SOX period. I exclude clients of small auditors from my analysis.

I group Grant Thornton (GT), BDO, McGladrey and Pullen (MP), and Crowe Horwath (CH) (previously Crowe Chizek & Company) as the second tier auditors. The Government Accountability Office's 2008 report refers to these four audit firms as the midsize firms. Additionally, the PCAOB performs annual inspections of these firms and the Big 4 while other auditors are inspected less often.[8] This definition of second tier auditors is also widely used in the accounting literature (e.g. Hogan and Martin 2009 ; Cassell 2008; Krishnan et al. 2010). Some literature excludes CH (e.g. Cassell et al. 2011) or only considers GT and BDO (e.g. Boone et al. 2010).

Public Accounting Report (PAR) ranks these firms as the "next four" following the Big 4 auditors based on the number of SEC clients audited and net audit revenues. Based on the PAR reports, in order of most to fewest SEC clients, the ranking is GT, BDO, MP, and CH. In terms of net audit revenue, MP moves ahead of BDO. Based on the 2008 PAR, GT's audit revenues are only $1.2 million compared to KPMG's $5.3

[8] Annual inspections are required when a firm audits at least 100 SEC registrants. According to PAR 2008 Grant Thornton, BDO, McGladrey and Pullen, and Crowe Horwath audited 361, 345, 159, and 107 SEC clients, respectively.

million and GT's 361 SEC registrants are just over a third of KPMG's 1,033 SEC registrants.[9]

4.2 Accrual Quality

To measure accrual quality in second tier firms, I perform a multivariate regression of discretionary accruals as a function of well-established explanatory variables from prior research with experimental variables to capture the shift in accrual quality across the pre and post-SOX periods and the difference between Big N and second tier clients. I measure discretionary accruals using the Jones (1991) model as modified by Dechow et al. (1995) and adjusted for performance as in Kothari et al. (2005).[10] I estimate the following model by year and industry (based on 2-digit SIC codes) and I eliminate industry-years with fewer than 10 firm-year observations:

$$TA_t/AT_{t-1} = \alpha + \beta_1\ 1/AT_{t-1} + \beta_2\ (\Delta SALES_t - \Delta AR_t)/AT_{t-1} + \beta_3\ PPE_t/AT_{t-1} + e_t \quad (1)$$

where

TA = Total accruals, net income - operating cash flows (Compustat NI-OANCF)

AT = Total assets (Compustat AT)

SALES = Total sales (Compustat SALE)

AR = Accounts receivable (Compustat RECT)

PPE = Property, plant, and equipment (Compustat PPEGT)

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[9] PAR gives net (total) revenues and a breakdown of the percentage of revenues that come from audit and attestation, tax, consulting, and other services. Based on the net revenue and percentage of revenue from audit and attestation, I calculate the net audit revenue. Considering net revenue, CBIZ & Mayer Hoffman McCann has marginally higher revenue than CH, but only 27 SEC registrants to CH's 107. The highest number of SEC clients among other auditors is 68 (Beard Miller Co.) with Moss Adams and UHY close behind with 67 SEC registrants.

[10] I also use the performance adjusted Jones model and find similar results.

ROA = Return on assets (Compustat NI/ lagged AT)

The residual e_t from model 1 is the firm-year estimate of discretionary accruals. Following Kothari et al. (2005), I then match each firm with another firm in the same industry and year with the closest return on assets (*ROA*). I then take the difference between the firm's discretionary accruals e_t and the matched firm's discretionary accruals e_t. The absolute value of this difference is the performance-matched measure of discretionary accruals and serves as the dependent variable *DISC_ACCRUALS* in my accrual quality analysis. I then run the following OLS regression.[11]

$$\begin{aligned} DISC\_ACCRUALS = {} & \alpha + \beta_1 TIER2 + \beta_2 POST + \beta_3 POST*TIER2 + \beta_4 TENURE \\ & + \beta_5 ASSETS + \beta_6 BM + \beta_7 ZFC + \beta_8 CFO + \beta_9 GROWTH \\ & + \beta_{10} DEBT + \beta_{11} IMPLICIT + \beta_{12} LOSS + \beta_{13} CFO\_VOL \\ & + \beta_{14} REV\_VOL + \beta_{15} RET\_VOL + \beta_{16} FINANCING \\ & + \beta_{17} CURRENT\_RATIO + \text{Fixed effects} + \varepsilon \end{aligned} \quad (2)$$

where

DISC_ACCRUALS = absolute value of the difference between the residual from model 1 and the matched firm's residual from model 1

TIER2 = 1 if the client is audited by a Second tier audit firm, 0 otherwise

POST = 1 if the firm-year's fiscal year end is after July 31, 2002, 0 otherwise

TENURE = the square root of the number of consecutive years that the firm has retained the current auditor

ASSETS = the natural log of total assets (Compustat AT) measured at fiscal

[11] Since the absolute value of accruals is bounded by 0 and 1, an OLS regression may yield biased results. However, the discretionary accruals literature often estimates an OLS regression when the dependent variable is unsigned accruals (Francis and Yu 2009; Lawrence et al. 2011). I also estimate tobit regressions for the accruals sample and find similar results.

year end

BM = ratio of book value of equity to market value of equity [Compustat CEQ / (CSHO*PRCC_F)]

ZFC = -4.803 - 3.6(*ROA*) + 5.4*(DEBT)* - 0.1(current assets/current liabilities), Zmijewski (1984) financial condition score

CFO = operating cash flows scaled by lagged total assets (Compustat $OANCF/AT_{t-1}$)

GROWTH = percentage change in sales over prior year (Compustat SALE)

DEBT = ratio of total debt to total assets (Compustat LT / AT)

IMPLICIT = factor analysis of the ratio of R&D to total assets, membership in a durable goods industry, and labor intensity (percentage of assets not in property, plant, and equipment) as in Matsumoto (2002)

LOSS = 1 if net income is negative

CFO_VOL = the standard deviation of *CFO* over the current and prior four years

REV_VOL = the standard deviation of sales deflated by total assets (Compustat SALE/AT) over the current and prior four years

RET_VOL = the standard deviation of annual stock returns over the current and prior four years

FINANCING = amount of debt and/or stock issued scaled by lagged total assets (Compustat $DLTIS + SSTK / AT_{t-1}$)

CUR_RATIO = ratio of current assets to current liabilities (Compustat ACT/LCT)

Fixed effects include firm-fixed effects, industry fixed effects, and year fixed effects. Depending on the sample one or two of the fixed effects groups are included in the regression.

The experimental variables are the indicator variables *TIER 2* and *POST*. I expect the coefficient on *TIER 2* to be positive and significant suggesting that in the pre-SOX period second tier clients reported significantly higher discretionary accruals than Big N clients. The coefficient on *POST* captures whether there was a significant shift in Big N accrual quality in the post-SOX period. The interaction *POST * TIER 2* is the experimental variable of interest and is incremental to the *TIER2* and *POST* variables. A significantly negative coefficient suggests that in the post-SOX period second tier clients saw a greater decrease in discretionary accruals than did the Big N. An insignificant coefficient would be inconsistent with second tier audit quality moving toward Big N audit quality.

The choice of control variables is largely consistent with (Francis and Yu 2009). Assets (*ASSETS*) should be negatively associated with discretionary accruals since larger clients are more likely to have higher earnings quality (Becker et al. 1998). Audit quality generally increases with auditor tenure (*TENURE*) (Myers et al. 2003; Johnson et al. 2002). Operating cash flows (*CFO*) influence the magnitude of discretionary accruals (Dechow et al. 1995) and operating cash flow volatility (*CFO_VOL*) is positively correlated with accruals (Doyle et al. 2007; Hribar and Nichols 2007). Sales growth (*GROWTH*) is positively associated with abnormal accruals (Menon and Williams 2004) as is its volatility (*REV_VOL*) (Hribar and Nichols 2007).

I also control for incentives to manage earnings via accruals. Since capital market pressures are an incentive to manipulate accruals, I include stock return volatility (*RET_VOL*) book-to-market ratio (*BM*) (Matsumoto 2002; Hribar and Nichols 2007), and a proxy for debt covenant constraints *DEBT* (DeFond and Jiambalvo 1994). Francis and Yu 2009 argue that firms that report losses have lower incentives to manage discretionary accruals than do firms that report positive earnings. However, loss firms may also have incentives to take a "big bath" which would lead to large negative discretionary accruals. I also include the financial condition score from Zmijewski (1984) (*ZFC*) as a control for closeness to bankruptcy.

I also include other variables found to be associated with discretionary accruals. I include the amount of financing raised during the fiscal year (*FINANCING*). Pending issuances of equity or debt provide an incentive to manipulate earnings upward (Rangan 1998; Teoh et al. 1998a, 1998b) and investing the proceeds often results in positive accruals (Ball and Shivakumar 2008; Chung and Kallapur 2003). I also include *IMPLICIT*, which is a factor analysis of R&D expenditures, the portion of assets not invested in property plant and equipment (labor intensity), and an indicator variables for membership in a durable goods industry (Boone et al. 2010; Matsumoto 2002). Bowen et al. (1995) argue that financial results contribute to the firm's reputation among implicit stakeholders[12] and that managers therefore have greater incentives to manage earnings

[12] Bowen et al. (1995) define implicit stakeholders as customers, suppliers, employees, and short-term creditors. Implicit claims are those non-contractual agreements or expectations between the firm and stakeholders. Terms of trade are the negotiated features of those implied claims. For example employees are implicit stakeholders since they have an implicit claim to reasonable working conditions, benefits, wages, promotions, job security, etc. Labor intensity captures the degree to which this is a concern for the firm. Customers are implicit stakeholders since they have an implicit claim to quality products, continuing

upward when they rely on favorable terms of trade with implied stakeholders. Matsumoto (2002) introduces factor analysis as a means to extract a measure of implicit claims *IMPLICIT* from several noisy proxies.

4.3 Controlling for Client Quality

I use four methods to control for client quality. First in all models I include several client characteristics found by prior literature to be associated with discretionary accruals and potentially also correlated with auditor size. Second, I use propensity score matching as in Lawrence et al. (2011). Third, as an alternative to propensity score matching, I include firm-fixed effects. Finally, I examine clients that were audited by the same auditor group throughout the sample period separately from clients that switched from a Big N auditor down to a second tier auditor post-SOX

Propensity score matching is one technique for creating a matched sample of experimental and control firms. The advantage of propensity score matching over other matching techniques is that it allows one to use many matching criteria to define the match without actually matching on several dimensions. This is achieved by modeling the propensity (usually via logistic estimation) of the treatment effect. Once the propensity is modeled, the predicted value is used as the criterion on which the firms are matched. In this sample, that means modeling the likelihood that a client is audited by a

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supply of products, continuing product availability, etc. R&D captures a dimension of this relationship. Bowen et al. (1995) find evidence that firms may also manage earnings to show consistent positive earnings in order to influence their reputation with implied stakeholders and therefore retain favorable terms of trade.

Big N auditor then matching a second tier client to a Big N client with the closest estimated propensity for choosing a Big N auditor.

I follow Lawrence et al. (2011) in implementing the propensity score matching. Similar to Lawrence et al. 2011,[13] I estimate the following logistic regression

$$BIG\ N = \alpha + \beta_1 ASSETS + \beta_2 REVTOASSETS + \beta_3 CUR\_RATIO + \beta_4 DEBT + \beta_5 ROA + \beta_6 GROWTH + \beta_7 MVE + \text{Industry Fixed Effects} + \text{Year Fixed Effects} + \varepsilon \quad (3)$$

where

REVTOASSETS = the ratio of total sales revenue to total assets

MVE = the natural logarithm of the market value of equity

Industry fixed effects are based on the Fama French industry classification.

All other variables are as previously defined.

I then use the predicted value from model 3 to match a second tier firm to the Big N firm with the closest probability of choosing a Big N auditor (propensity score).

One limitation of the propensity score-matching technique is that the sample size is significantly reduced. While I retain 89% of the second tier clients, less than 10% of the Big N clients are in the propensity score-matched sample. Also since size is a matching criterion, the Big N firms in the matched sample will be among the smaller of the Big N's clients. Drawing inferences about relative audit quality, therefore, becomes problematic. Additionally, since prior literature argues that reputation and litigation concerns drive audit quality, and since larger clients pose larger threats to litigation and reputation, it is possible that the small sample of Big N clients that remain are those Big

[13] The Lawrence et al. (2011) model for estimating propensity score includes assets, the ratio of revenue to assets, current ratio, leverage, roa, and industry and year fixed effects. With this specification I still find a significant difference between the Big N and Tier 2 firms in terms of size, both market value of equity and assets. I, therefore, add market value of equity and sales growth to the model. After doing so the Big N and Tier 2 firms are no longer significantly different on any of the variables included in the model.

N clients with the lowest audit quality. By eliminating so many Big N clients we may be losing the full picture of Big N audit quality.

In controlling for self-selection, an alternative to using a matched sample is to use firm-fixed effects. To retain a larger sample of firms, I re-estimate Model 2 using firm-fixed effects as a method of correcting for the self-selection bias resulting from the Big N and second tier auditing characteristically different firms. The firm-fixed effects model controls for any time-invariant firm-specific determinants of discretionary accruals. Because I use 22 years of data, firm-fixed effects should capture the component of discretionary accruals that is driven by firm characteristics, leaving the experimental variables to capture the auditor effects.

Propensity score matching and firm-fixed effects abstract away the client specific component of discretionary accruals leaving the auditor variables to capture the portion of discretionary accruals attributable to auditor effort. To provide additional evidence that the coefficients are actually capturing auditor effects, I consider the subset of firms most likely to be biasing the results, the subset of firms that switch down to a second tier auditor post-SOX from a Big N auditor pre-SOX. This is a more direct test of whether the second tier auditors are actually putting in more effort post-SOX to limit their clients' use of discretionary accruals or if former Big N clients with lower accruals explain the similarity between Big N and second tier accrual quality post-SOX.

4.4 Going Concern Modified Opinions

An alternate measure of audit quality is the issuance of a going concern opinion. Consistent with prior literature (Boone et al. 2010; Carey and Simnett 2006; Francis and

Yu 2009; Geiger et al. 2005; Hopwood et al. 1994; Mutchler et al. 1997; Reynolds and Francis 2000), the going concern opinion sample is limited to firms with negative net income or cash flow from operations. Hereafter, I refer to these firms as distressed or financially distressed firms. To test audit quality using modified opinions I run the following logistic regression.

$$GOING\_CONCERN = \alpha + \beta_1 TIER2 + \beta_2 TENURE + \beta_3 REV\_VOL + \beta_4 LASSETS + \beta_5 DEBT + \beta_6 RET\_VOL + \beta_7 LLOSS + \beta_8 ZFC + \beta_9 BM + \beta_{10} LagRET + \beta_{11} RET + \beta_{12} CLEV + \beta_{13} INVEST + \beta_{14} FUTURE\_FINANCE + \beta_{15} AGE + \varepsilon \quad (5)$$

GOING_CONCERN = 1 if the client receives a going concern audit opinion, 0 otherwise

LLOSS = 1 if net income in the prior fiscal year is negative, and 0 otherwise

RET = buy and hold fiscal year return calculated from CRSP monthly returns

LagRET = prior year's *RET*

CLEV = *DEBT* in current fiscal year less *DEBT* in prior fiscal year

INVEST = total current assets less receivables and inventory scaled by total assets Compustat (ACT-RECT-INVT)/AT

FUTURE_FINANCE = 1 if the firm issues debt or equity in the subsequent year, 0 otherwise

AGE = number of years for which assets are reported in Compustat

All other variables were defined previously.

The experimental variable, as in the accruals model, is *TIER2.* For the set of control variables, I follow prior literature (DeFond et al. 2002; Francis and Yu 2009; Geiger and Rama 2003). Larger clients as measured by assets (*ASSETS*) have more resources to avoid bankruptcy and are therefore less likely to fail. Similarly, high cash and investment securities (*INVEST*) and issuing new debt or equity (*FUTURE_FINANCE*) reduce failure probability since clients with more liquid assets or the ability to raise capital can better deal with distress. Zmijewski's financial condition score (*ZFC*) captures the firm's probability of bankruptcy. Sales volatility (*REV_VOL*), debt (*DEBT*), prior losses (*LLOSS*), stock return volatility (*RET_VOL*) and increases in leverage (*CLEV*) all make it more likely that the client will fail. The book to market ratio (*BM*) proxies for risk and growth since risky and growth firms are more likely to fail as are younger firms (*AGE*). Stock returns (*RET* and *lagRET*) capture firm performance since firms with better performance are less likely to fail while firms with negative returns are more likely to fail. I include *TENURE* because prior literature generally shows that audit quality improves as tenure lengthens (Carcello and Nagy 2004; Johnson et al. 2002; Myers et al. 2003; U.S. Government Accountability Office (GAO) 2006).

4.5 Restatements

For the restatement analysis, I use restatement data from Audit Analytics, but eliminate any quarterly restatements. Since auditors review rather than audit quarterly financial statements there is a lower standard of audit quality. Also since the control variables are based on annual financial statements, they would not appropriately control for determinants of quarterly restatements. I match with Compustat data based on the

restatement period. The restatement flag is therefore matched to the year(s) in which the financial statements were misstated, but undetected, and not the year in which the restatement was announced.

$$RESTATE = \alpha + \beta_1 TIER2 + \beta_2 ACQD + \beta_3 ASSETS + \beta_4 NYSENASDAQ + \beta_5 N\_BUS\_SEG + \beta_6 N\_GEO\_SEG + \beta_7 COMP + \beta_8 SERV + \beta_9 RETAIL + \beta_{10} TENURE + \beta_{11} AGE + \beta_{12} ROA + \beta_{13} BM + \beta_{14} EP + \beta_{15} MKTADJRET + \beta_{16} LEVERAGE + \beta_{17} ISSUE + \beta_{18} EXANTE + \beta_{19} SIGN\_JDA + \varepsilon \quad (6)$$

where

RESTATE = 1 if the year's financial statements are later restated, 0 otherwise

ACQD = 1 if the company reports any merger and acquisition activity and 0 otherwise

NYSENASDAQ = 1 if the firm is listed on the New York Stock Exchange or NASDAQ, 0 otherwise

COMP, SERV, and RETAIL = 1 if the firm's main SIC code places it in the computer, service, or retail industry respectively, and 0 otherwise

EP = net income scaled by market value Compustat (NI/CSHO*PRCC_F)

MKTADJRETURN = the firm's monthly return in excess of the S&P monthly return compounded over the fiscal year

ISSUE = 1 if the company issues debt or equity during the fiscal year, 0 otherwise

EXANTE (financing need) = 1 if free cash flow is less than -0.1, and 0 otherwise. Free cash flow is Net Income - Accruals from Richardson et al. (2006) / average of last 3 years' capital expenditures

SIGN_JDA = firm-year measure of Kothari et al. (2005) performance adjusted discretionary accruals, the residual from model 1

All other variables are as previously defined.

If an auditor audits financial statements that are later restated, this is generally viewed as a negative outcome and a signal of lower audit quality. One could argue that audit quality differs depending on whether the auditor involved with the misstatement is also involved with the restatement i.e. the auditor at the time of the restatement announcement is the same as the auditor during the restatement period. 78% of the restatement observations have the same auditor in both the restatement period and at the restatement filing date. For robustness I also eliminate the 22% with different auditors and the results remain very similar.

The U.S. Government Accountability Office (GAO) has documented an increase in restatement frequency in the post-SOX period. They document that 16 percent of listed companies restated from 2002 to 2005, double the rate from 1997 to 2002 (U.S. General Accounting Office (GAO) 2003). Prior to 1997 the number of restatements was even lower than in the 1997-2002 period (U.S. General Accounting Office 2003). Because of the increase in restatements, the interpretation of coefficients in a pooled regression is complicated. Additionally, the GAO has suggested that while restatements are more frequent, the average severity of restatements has declined. I, therefore, choose to estimate separate regressions for the pre and post-SOX periods to allow the coefficients to differ across periods and to simplify coefficient interpretations.

RESTATE = 1 is considered a low-quality outcome and *RESTATE* = 0 is associated with higher audit quality. *TIER 2* captures whether second tier auditors were

more likely than Big N auditors to be involved with financial statements that are later restated. I expect *TIER 2* to be significantly negative in the pre-SOX period and insignificant in the post-SOX period. This would be consistent with second tier auditors providing lower audit quality than Big N auditors in the pre-SOX period, but increasing their audit quality to the level of Big N auditors in the post-SOX period

The choice of control variables is based on the restatement literature. Certain firm characteristics make restatements more likely and are also likely to differ between Big N and second tier clients. Firms undergoing mergers or acquisitions (*ACQD*) or with complex operations (*N_BUS_SEG, N_GEO_SEG*) are more likely to be involved in restatements. Also certain industries especially the computer (*COMP*), services (*SERV*), and retail (*RETAIL*) industries, have a significantly higher incidence of restatements (Dechow et al. 2010). Larger firms (*ASSETS*) and publicly traded firms (*NYSENASDAQ*) are under more scrutiny by analysts and the SEC so they are more likely to restate misstated financials. Longer (shorter) auditor tenure (*TENURE*) makes the auditor more (less) familiar with the client so catching misstatements becomes more (less) likely (e.g., (Carcello and Nagy 2004; Geiger and Raghunandan 2002; Ghosh and Moon 2005; Johnson et al. 2002; Mansi et al. 2004; Myers et al. 2003). Firm age (*AGE*) is included since it can capture the strength of the internal control system, as well as audit firm tenure and size effects (Romanus et al. 2008).

Managers have various incentives to misstate financial statements. The capital market provides incentives for management to misstate financials. Managers are concerned with stock price both for personal benefit (stock ownership and stock options) and also because of external pressure from analysts and investors to maintain or increase

stock price. Consistent earnings per share growth (*EPSGROWTHQRS*) and earnings (*ROA*) are major determinants of stock price. Managers of firms with low book to market ratios (*BM*), low earnings to price ratios (*EP*) or high market adjusted returns (*MKTADJRET*) are under even greater pressure not to disappoint the market.

Yet another incentive for manipulating earnings is to maintain or obtain financing. I use leverage as a proxy for debt covenant constraints since firms may misstate in order not to violate the covenants. Managers may also misstate to obtain favorable financing. I control for these effects by including actual issuance (*FINANCING*) as well as an ex-ante measure for how badly a firm needs to obtain financing (*EXANTE*). Since managers usually misstate via the accrual component of earnings. I control for discretionary accruals using signed Kothari et al. 2005 performance adjusted accruals (*ADJ_SIGN_JDA*).

5. Data and Sample

Table 1 displays the sample construction. I begin with all observations in Compustat North America Fundamentals Annual database from 1988-2010. I delete financial and utility firms and firms with negative book to market ratios. I also eliminate any Big N client-years in which the assets of the client exceed the assets of the largest second tier client in that year. This allows a comparison of audit quality among firms that conceivably could be audited by either a Big N or a second tier auditor. I also eliminate any firm-years not audited by either the Big N or second tier auditors. In Panel B I show the additional restrictions for the accruals sample. After requiring information to compute discretionary accruals and control variables and imposing the restrictions described above, the accruals sample is reduced to 39,027 firm-year observations.

In Panel C I show the sample construction for the going concern sample. The going concern sample begins with the intersection of Compustat, CRSP, and Audit Analytics. The sample only begins in 2000 since Audit Analytics data is not available prior to 2000. I also restrict the sample to distressed firms. After requiring data for the control variables, the sample contains 6,743 firm-year observations.

Panel D shows the restatement sample construction. I obtain the restatement sample control variables from Compustat and CRSP and restatement data from Audit Analytics. Audit Analytics only provides restatements from 2000, however since I merge based on the misstatement period and not the restatement announcement, I am able to identify misstatements as from 1988-2010. To reduce the bias imposed by different firm coverage in Audit Analytics and Compustat, I eliminate any firms that are not covered on

Audit Analytics. To reduce the bias caused by the time lag between misstatements and restatement announcements, I exclude the years 2009 and 2010 (Francis and Michas 2011). The final restatement sample contains 44,599 firm-year observations.

6. Results

The descriptive statistics for the control variables are reported in Table 2. Panel A displays the mean values for accruals and the control variables pre-SOX and tests the difference between Big N and second tier clients. As expected, Big N clients report significantly lower discretionary accruals than second tier clients. They also remain with their auditors longer, are larger, have lower book to market ratios, higher cash from operations, and lower volatility of cash flows, sales, and stock returns. Those relationships do not change significantly post-SOX, but many other control variables are significantly different across Big N and second tier firms post-SOX as reported in Panel B. Big N clients are more financially distressed (*ZFC* t-statistic -2.17), have higher sales growth, higher debt to asset ratios, and are less likely to report negative net income than are Second tier clients.

Table 3 Panel A investigates the relationship between auditor and discretionary accruals over the entire sample period. The coefficient on *TIER 2* is significantly positive (0.015 t-statistic 3.90) suggesting that pre-SOX second tier clients reported higher discretionary accruals than Big N clients. The coefficient on *POST* is negative and significant (-0.012 t-statistic -9.56), evidence that Big N clients reported significantly lower discretionary accruals post-SOX. The coefficient on *TIER 2 * POST* is also significantly negative (-0.010 t-statistic -2.08) which signals a post-SOX decrease in discretionary accruals for second tier clients that was even greater than the decrease for Big N clients. This suggests that the second tier clients saw an accrual quality

improvement in the post-SOX period not only compared to their pre-SOX level but also compared to the Big N.

In Panel B I examine whether the post-SOX improvement for second tier made them comparable to the Big N. In the pre-SOX period the coefficient on *TIER 2* is 0.014 (t-statistic 3.69), but in the post-SOX period it is more than cut in half to 0.006 (t-statistic 2.03). Overall these results suggest that second tier clients are reporting significantly lower levels of discretionary accruals post-SOX and are approaching the accrual quality of Big N clients, but are still reporting significantly higher discretionary accruals.

In Table 4 regressions I use propensity score matching to better control for differences in client characteristics between Big N and second tier firms. I use a sample matched by propensity score as discussed earlier and modeled in model 3. The resulting sample has 4,870 firm-year observations. Regression 1 is run on the entire sample period with no time period interactions. *TIER 2* is insignificantly different from zero. This result is similar to the result in Lawrence et al. 2011.[14] The authors draw the conclusion that this insignificance is due to improper controls for client characteristics. Regression 2 suggests an alternate explanation. In Regression 2 *TIER 2* is significantly positive (0.014 t-statistic 2.41) confirming prior evidence that pre-SOX second tier clients reported significantly higher discretionary accruals than Big N clients, even using a propensity score matched sample. However, *TIER 2 * POST* is significantly negative (-0.014 t-statistic -2.12), evidence that the second tier clients improved their accrual quality post-SOX.

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[14] Lawrence et al. (2011) look at all non-Big 4 firms not only Tier 2 firms. Their sample period spans 1988-2006 not 1988-2009 as mine does. Finally, they use a simplified model to test discretionary accruals which only controls for market value of equity, return on assets, current ratio, and leverage.

Panel B investigates whether second tier and Big N clients report similarly post-SOX. The coefficient on *TIER 2* is insignificant suggesting that post-SOX discretionary accruals are not significantly different between second tier and Big N clients. One limitation of this sample is the significantly reduced sample size. Also, to insure good matches only a small fraction of the Big N firms can be used. It is possible that the Big N have different incentives for maintaining audit quality in this group of firms than they do for the remainder of their clients.[15]

To better control for client characteristics and maintain a large, representative sample, I employ firm-fixed effects. I report these results in Table 5. The results are similar to those reported in Table 3, however the magnitude of the coefficients increases after controlling for firm-fixed effects. The coefficient on *TIER 2* is significantly positive and is consistent with prior findings that second tier clients report significantly higher accruals than do Big N clients. However post-SOX all clients reported lower discretionary accruals (*POST* = -0.014 t-statistic 8.36) and second tier firms saw and additional decline in discretionary accruals (*TIER 2 * POST* = -0.012 t-statistic -2.76). In Panel B, I only consider the post-SOX period. As the magnitude of the coefficients in Panel A suggest, second tier clients still report significantly higher discretionary accruals than do Big N clients post-SOX.

Even after controlling for the self-selection issue with propensity score matching and firm-fixed effects, it is still possible that the increased switching activity resulting

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[15] One might even argue that it is probable. Reputation and litigation concerns are often argued to be the drivers of audit quality and the Big N's client observations in the propensity score matched sample are likely to pose less risk in terms of litigation and reputation.

from Andersen's demise and SOX regulations may be influencing the post-SOX results. To address this concern, in Table 6 I estimate the regression on a sample of firms that do not switch between the Big N and second tier at any time during the sample period. This regression shows only marginally significant coefficients on the *TIER 2* variables, but a significant decrease in discretionary accruals for all firms (*POST* = -0.011 t-statistic -7.35). Restricting the regression to the post-SOX period (untabulated), I find no significance on the *TIER 2* coefficient.

In Table 7 I use a different specification to isolate those firms switching from a Big N auditor to a second tier auditor. Given the Big 4's capacity constraints post-SOX, they shed some clients to second tier auditors that they would have kept under pre-SOX conditions. It is therefore possible that these firms were inherently less risky (had lower accruals) than the clients that the second tier audited throughout the sample period. The coefficient on *TIER 2 * POST* could then be influenced by the newest second tier clients. To address this concern, I decompose *TIER 2 * POST* into two subgroups: clients that were audited by the second tier pre-SOX and remained with the second tier post-SOX (*OLD TIER 2*) and clients that were audited by the Big 4 pre-SOX, but engaged a second tier auditor post-SOX (*BN to T2 POST*).

In Table 7 I replicate the results from Tables 4 and 5 substituting the two subgroups for *TIER 2 * POST*. In the firm-fixed effects regression, the *TIER 2 * POST* coefficient appears to be driven by the clients that were already second tier clients pre-SOX. The coefficient on *OLD TIER 2* is -0.012 (t-statistic -2.44) while the *BN to T2 POST* coefficient is insignificant. The propensity score matched sample results provide similar results.

Taken together, the results in Tables 6 and 7 provide evidence that it is auditor quality and not client quality driving the results. If second tier auditors were doing a better job post-SOX, we would expect to see an improvement in the accrual quality for clients that they audited both pre and post-SOX. We would also expect to see no change in the accrual quality for their newest clients since an increase in those firms' discretionary accruals would suggest that the second tier are still providing lower quality audits than the Big 4. A decrease in their discretionary accruals (over and above the average post-SOX decrease that all sample firms report) would suggest that the second tier auditors do a better job than the Big N auditors.

In Table 8 I explore going concern opinions as an alternative measure of auditor quality. The effect for second tier clients pre-SOX (*TIER 2* = -0.828 z-statistic -2.13) suggests that pre-SOX second tier auditors were significantly less likely to issue a going concern opinion to distressed clients than were Big N auditors. In the post-SOX period the estimate is insignificant (*TIER2* = -0.141 z-statistic -0.56). This provides evidence that the second tier firms have become more conservative in issuing going concern opinions post-SOX.[16]

Finally, in Table 9 I investigate restatements as a measure of audit quality. The first regression is estimated on all available observations for the pre-SOX period. The coefficient on *TIER 2* is insignificant suggesting that in the pre-SOX period second tier auditors may have been just as likely as Big N auditors to audit financial statements that

[16] In untabulated results I find that there is no change in Big 4 going concern reporting post-SOX and that the documented change in relative audit quality is therefore attributable to improved quality of Tier 2 auditors.

were later restated. In order to reduce the survivorship bias imposed by only including firms that are covered by Audit Analytics in the 2000-2008 period, I change the definition of pre-SOX to the years 1998-2002. The results are displayed in regression 2. The coefficient on *TIER 2* is insignificant in this regression suggesting that restatement rates for Big N and second tier auditors did not differ in the pre-SOX period.

In regression 3 I estimate the regression on the post-SOX period. The coefficient on *TIER2* in the post-SOX period is significantly negative suggesting that second tier auditors were *less likely* to be involved with restatements in the post-SOX period than were Big N auditors. While it is surprising that Tier 2 auditors are less frequently associated with misstatements in the post-SOX period than are Big 4 auditors, taken together the pre and post-SOX results show an improving trend in Tier 2 audits.

7. Conclusion

I investigate the accrual quality of the clients of second tier auditors post-SOX. I find a significant increase in their accruals quality post-SOX both in comparison to their pre-SOX discretionary accruals and also in their accrual quality relative the accrual quality of Big N clients. However, I still find some evidence that the Big N auditors continue to constrain their clients' discretionary accruals more than second tier auditors do. These results are based on samples that control extensively for the self-selection bias, client characteristics, and increased switching activity post-SOX. Using both propensity score matching and firm-fixed effects techniques to account for client quality, I continue to find a significant relationship between auditors and discretionary accruals which provides support for the use of discretionary accruals as a measure of audit quality.

I contribute to the literature by providing much needed research on second tier auditors, an increasingly important segment of the market for audit services. I provide evidence that second tier auditors may provide audit quality similar to Big N auditors. I also provide evidence on the debate over whether accruals quality is a valid measure of auditor quality and show that accruals do capture audit quality and not just client quality.

TABLE 1

Sample Construction

Panel A: Screens for All Samples	
Compustat observations 1988-2010 with positive assets	197,287
Less: Financial and utility firms	44,502
Less: No auditor identified	11,738
Less: Negative book to market firm-years	11,246
Less: Annual returns not available from CRSP	44,823
Less: Firm-years with assets exceeding assets of largest Tier 2 client	6,348
Less: Firm-years audited by small auditors	9,605
Sample before screens for dependent variables	69,025
Panel B: Accruals Sample	
Sample before screens for dependent variables (Panel A)	69,025
Less: Missing variables to estimate discretionary accruals	6,365
Less: Firm-years with missing control variables	23,633
Accruals sample	39,027
Panel C: Going Concern Opinions Sample	
Sample before screens for dependent variables (Panel A)	69,025
Less: Firms not covered by Audit Analytics	13,193
Less: Firm-years before 2000	26,218
Less: Firm-years with positive net income and cash flow from operations	17,977
Less: Firm-years with prior going concern opinions	508
Less: Firm-years with missing control variables	5,677
Going concern sample	6,743
Panel D: Restatement Sample	
Sample before screens for dependent variables (Panel A)	69,025
Less: Firms not covered by audit analytics	13,193
Less: Firm years after 2008	4,184
Less: Firm-years with missing control variables	7,049
Restatement sample	44,599

TABLE 2
Descriptive Statistics

Panel A: Pre-SOX

	Full Sample	Big N	Tier 2	Difference	T-statistic
DISC_ACCRUALS	0.110	0.110	0.130	0.020	5.28 ***
TENURE	3.04	3.08	2.11	-0.97	-30.49 ***
ASSETS	4.95	4.99	4.16	-0.83	-20.64 ***
BM	0.75	0.74	0.95	0.21	10.77 ***
ZFC	-2.57	-2.57	-2.53	0.04	0.91
CFO	0.06	0.06	0.05	-0.02	-4.17 ***
GROWTH	0.13	0.13	0.11	-0.02	-1.63
DEBT	0.46	0.46	0.46	0.00	0.08
IMPLICIT	0.62	0.61	0.63	0.01	2.09 **
LOSS	0.40	0.40	0.42	0.02	1.10
CFO_VOL	0.07	0.07	0.08	0.01	3.66 ***
REV_VOL	0.24	0.23	0.27	0.03	4.62 ***
RET_VOL	0.15	0.15	0.17	0.02	7.17 ***
FINANCING	0.19	0.19	0.18	0.00	-0.40
CUR_RATIO	2.83	2.83	2.75	-0.08	-1.17
ROA	0.05	0.05	0.05	0.00	-0.15
Observations	24,872	23,771	1,101		

Panel B: Post-SOX

	Full Sample	Big N	Tier 2	Difference	T-statistic
DISC_ACCRUALS	0.10	0.10	0.11	0.01	4.01 ***
TENURE	2.89	3.02	1.92	-1.10	-34.42 ***
ASSETS	5.79	5.94	4.64	-1.30	-33.38 ***
BM	0.61	0.59	0.73	0.13	9.56 ***
ZFC	-2.68	-2.67	-2.75	-0.09	-2.17 **
CFO	0.06	0.06	0.04	-0.02	-4.00 ***
GROWTH	0.14	0.14	0.10	-0.04	-3.50 ***
DEBT	0.43	0.44	0.41	-0.03	-5.25 ***
IMPLICIT	0.68	0.67	0.69	0.02	3.27 ***
LOSS	0.44	0.42	0.54	0.12	8.96 ***
CFO_VOL	0.07	0.07	0.07	0.01	3.24 ***
REV_VOL	0.19	0.19	0.22	0.03	6.01 ***
RET_VOL	0.14	0.14	0.15	0.01	5.39 ***
FINANCING	0.17	0.17	0.17	0.00	0.05
CUR_RATIO	3.02	3.02	3.01	-0.01	-0.17
ROA	0.03	0.03	0.02	-0.01	-2.03 **
Observations	14,155	12,533	1,622		

Panel A and Panel B display the mean values of control variables for sample observations. *DISC_ACCRUALS* = the absolute value of the firm-year measure of Kothari performance adjusted discretionary accruals. *TENURE* = the number of consecutive years that the firm has retained their current auditor. *ASSETS* = the natural log of total assets measured as of fiscal year-end. *BM* = ratio of book value of equity to market value of equity. *ZFC* = -4.803 – 3.6(net income/ total assets) + 5.4(total debt / total assets) – 0.1(current assets / current liabilities), Zmijewski 1984's financial condition score. *CFO* = operating cash flows scales by lagged total assets Compustat OANCF/AT). *GROWTH* = percentage change in sales over prior year. DEBT = ratio of total debt to total assets. *IMPLICIT* = the factor analysis of R&D, labor intensity, and presence in a durable goods industry. *LOSS* = 1 if net income is negative. *CFO_VOL* = the standard deviation of *CFO* over the current and prior four years. *REV_VOL* = the standard deviation of sales deflated by total assets over the current and prior four years. *RET_VOL* = the standard deviation of annual stock returns over the current and prior four years. *FINANCING* = amount of debt or stock issued scaled by total assets. *CURRENT_RATIO* is the ratio of current assets to current liabilities. *ROA* = net income scaled by assets. The columns *t-statistic* report the t-statistics for the test of mean differences. *** and ** denote significance at the 1% and 5% levels, respectively.

TABLE 3

Discretionary Accruals and Tier 2 Clients Pre and Post-SOX

Panel A: Full Sample 1988-2009

$$DISC\_ACCRUALS = \alpha + \beta_1\ TIER2 + \beta_2\ POST + \beta_3\ TIER2*POST + \beta_4\ TENURE + \beta_5\ ASSETS + \beta_6\ BM + \beta_7\ ZFC + \beta_8\ CFO + \beta_9\ GROWTH + \beta_{10}\ DEBT + \beta_{11}\ IMPLICIT + \beta_{12}\ LOSS + \beta_{13}\ CFO\_VOL + \beta_{14}\ REV\_VOL + \beta_{15}\ RET\_VOL + \beta_{16}\ FINANCING + \beta_{17} CUR\_RATIO + Industry\ fixed\ effects + \varepsilon$$

Variable	**Coefficient**	**T-statistic**
Experimental variables		
TIER 2	0.015	3.90 ***
POST	-0.012	-9.56 ***
*TIER 2 * POST*	-0.010	-2.08 **
Control variables		
TENURE	0.001	2.68 ***
ASSETS	-0.002	-4.78 ***
BM	-0.004	-4.25 ***
ZFC	0.055	23.27 ***
CFO	0.027	2.83 ***
GROWTH	0.016	7.47 ***
DEBT	-0.292	-22.19 ***
IMPLICIT	0.040	7.91 ***
LOSS	0.010	7.08 ***
CFO_VOL	0.226	17.17 ***
REV_VOL	0.001	0.46
RET_VOL	0.033	3.97 ***
FINANCING	0.013	6.47 ***
CUR_RATIO	0.005	10.95 ***
ROA	0.192	15.21 ***
Intercept	0.320	26.12 ***
Industry fixed effects	Included	
Observations	39,027	
Adjusted R^2	13.53%	

Panel B: Pre and Post SOX Samples

	Pre-SOX 1988-2002		Post-SOX 2002-2009	
Variable	**Coefficient**	**T-statistic**	**Coefficient**	**T-statistic**
Experimental variable				
TIER 2	0.014	3.69***	0.006	2.03**
Control variables				
TENURE	0.001	1.09	0.002	3.09***
ASSETS	-0.003	-4.74***	-0.002	-3.21***
BM	-0.004	-4.06***	-0.004	-2.23**
ZFC	0.052	18.80***	0.056	14.04***
CFO	0.012	1.07	0.032	1.75*
GROWTH	0.018	7.11***	0.010	2.66***
DEBT	-0.279	-18.06***	-0.304	-13.46***
IMPLICIT	0.046	7.66***	0.026	3.12***
LOSS	0.010	5.60***	0.012	4.68***
CFO_VOL	0.252	16.49***	0.179	7.67***
REV_VOL	-0.002	-0.70	0.005	0.91
RET_VOL	0.014	1.47	0.060	3.98***
FINANCING	0.014	5.84***	0.010	3.18***
CUR_RATIO	0.004	8.13***	0.005	7.31***
ROA	0.194	12.89***	0.195	8.85***
Intercept	0.312	21.85***	0.325	15.53***
Year fixed effects	Included		Included	
Industry fixed effects	Included		Included	
Observations	24,872		14,155	
Adjusted R^2	14.22%		13.18%	

The dependent variable is the absolute value of performance matched discretionary accruals (Kothari et al. 2005) and the model is estimated as an OLS regression. *TIER2* is an indicator variable set to 1 if the auditor is BDO, Crowe Horwath, Grant Thornton, or McGladrey and Pullen and 0 if the auditor is a Big N auditor. POST is an indicator variable set to 1 if the fiscal year end of the observation is after July 31, 2002, and 0 otherwise. Panel B displays the separate regressions for the pre and post-SOX periods. All other variables are as defined in prior tables. ***, ** and * denote significance at the 1%, 5%, and 10% levels, respectively.

TABLE 4

Sample Matched on Propensity to Choose a Big N Auditor

$$DISC\_ACCRUALS = \alpha + \beta_1\ TIER2 + \beta_2\ POST + \beta_3\ TIER2*POST + \beta_4\ TENURE + \beta_5\ ASSETS + \beta_6\ BM + \beta_7\ ZFC + \beta_8\ CFO + \beta_9\ GROWTH + \beta_{10}\ DEBT + \beta_{11}\ IMPLICIT + \beta_{12}\ LOSS + \beta_{13}\ CFO\_VOL + \beta_{14}\ REV\_VOL + \beta_{15}\ RET\_VOL + \beta_{16}\ FINANCING + \beta_{17} CUR\_RATIO + Industry\ fixed\ effects + \varepsilon$$

Panel A: Full Sample 1988-2009

	Regression 1		Regression 2	
Variable	**Coefficient**	**T-statistic**	**Coefficient**	**T-statistic**
Experimental variables				
TIER 2	0.004	1.09	0.014	2.41 **
POST			-0.007	-1.47
*TIER 2 * POST*			-0.014	-2.12 **
Control Variables				
TENURE	0.000	-0.19	0.001	0.35
ASSETS	-0.004	-2.32 **	-0.003	-2.11 **
BM	-0.004	-1.38	-0.004	-1.17
ZFC	0.047	7.82 ***	0.048	8.02 ***
CFO	-0.015	-0.56	-0.013	-0.50
GROWTH	0.013	1.93 *	0.013	2.00 **
DEBT	-0.222	-6.34 ***	-0.230	-6.61 ***
IMPLICIT	0.014	0.85	0.016	1.00
LOSS	0.005	1.29	0.006	1.42
CFO_VOL	0.221	6.30 ***	0.224	6.40 ***
REV_VOL	0.010	1.13	0.009	0.98
RET_VOL	0.090	3.72 ***	0.089	3.75 ***
FINANCING	0.019	3.12 ***	0.020	3.26 ***
CUR_RATIO	0.007	5.15 ***	0.007	5.14 ***
ROA	0.175	6.09 ***	0.179	6.27 ***
Intercept	0.276	7.40 ***	0.289	8.65 ***
Year fixed effects	Included			
Industry fixed effects	Included		Included	
Observations	4,870		4,870	
Adjusted R^2	14.41%		14.34%	

Panel B: Sample Matched on Propensity Score Post-SOX

$$DISC\_ACCRUALS = \alpha + \beta_1 TIER2 + \beta_2 TENURE + \beta_3 ASSETS + \beta_4 BM + \beta_5 ZFC + \beta_6 CFO + \beta_7 GROWTH + \beta_8 DEBT + \beta_9 IMPLICIT + \beta_{10} LOSS + \beta_{11} CFO\_VOL + \beta_{12} REV\_VOL + \beta_{13} RET\_VOL + \beta_{14} FINANCING + \beta_{15} CURRENT\_RATIO + \text{Firm fixed effects} + \text{Industry fixed effects} + \varepsilon$$

Variable	Coefficient	T-statistic
Experimental variable		
TIER 2	-0.002	-0.38
Control variables		
TENURE	0.000	0.18
ASSETS	-0.005	-2.60 ***
BM	-0.007	-1.63
ZFC	0.046	6.49 ***
CFO	0.020	0.62
GROWTH	0.005	0.77
DEBT	-0.216	-5.02 ***
IMPLICIT	0.006	0.31
LOSS	0.009	1.70 *
CFO_VOL	0.009	0.72
REV_VOL	0.164	3.65 ***
RET_VOL	0.097	3.03 ***
FINANCING	0.017	2.50 **
CUR_RATIO	0.007	4.01 ***
ROA	0.145	4.22 ***
Intercept	0.393	7.17 ***
Year fixed effects	Included	
Industry fixed effects	Included	
Observations	2,919	
Adjusted R^2	15.29%	

The dependent variable is the absolute value of performance matched discretionary accruals (Kothari et al. 2005) and the model is estimated as an OLS regression. The sample in Regression 2 and Regression 3 is the result of matching a non-Big N auditor with a Big N auditor on the propensity of being audited by a Big N auditor. *LMVE* is the natural logarithm of the market value of equity. *LROA* is the value of *ROA* in the prior year. *LLEVERAGE* is the value of *LEVERAGE* in the prior year. *LCURRENT_RATIO* is the value of *CURRENT_RATIO* in the prior year. All other variables and tests are as explained in prior tables. Industry and year fixed effects are included in all regressions. ***, *** and ** denote significance at the 1% and 5% levels, respectively.

TABLE 5

Full Sample Controlling for Firm Fixed Effects

Panel A: Full Sample Period 1988-2009

$$DISC\_ACCRUALS = \alpha + \beta_1\ TIER2 + \beta_2\ POST + \beta_3\ TIER2*POST + \beta_4\ TENURE + \beta 5\ ASSETS + \beta_6\ BM + \beta_7\ ZFC + \beta_8\ CFO + \beta_9\ GROWTH + \beta 10\ DEBT + \beta 11\ IMPLICIT + \beta_{12}\ LOSS + \beta_{13}\ CFO\_VOL + \beta 14\ REV\_VOL + \beta 15\ RET\_VOL + \beta_{16}\ FINANCING + \beta 17 CURRENT\_RATIO + Firm\ fixed\ effects + \varepsilon$$

Variable	Coefficient	T-statistic
Experimental variables		
TIER 2	0.024	5.23***
POST	-0.014	-8.36***
*TIER 2 * POST*	-0.012	-2.76***
Control variables		
TENURE	0.003	3.36***
ASSETS	-0.003	-2.46**
BM	-0.002	-1.49
ZFC	0.052	34.90***
CFO	0.033	4.87***
GROWTH	0.017	10.49***
DEBT	-0.269	-26.42***
IMPLICIT	0.079	8.09***
LOSS	0.009	5.61***
CFO_VOL	0.181	15.06***
REV_VOL	-0.003	-0.81
RET_VOL	0.035	4.22***
FINANCING	0.018	9.66***
CUR_RATIO	0.005	10.93***
ROA	0.196	21.87***
Intercept	0.276	23.48***
Firm fixed effects	Included	
Observations	39,027	
Adjusted R^2	29.63%	

Panel B: Full Sample Including Firm Fixed Effects Post-SOX

$$DISC\_ACCRUALS = \alpha + \beta_1\ TIER2 + \beta_2\ TENURE + \beta_3\ ASSETS + \beta_4\ BM + \beta_5\ ZFC + \beta_6\ CFO + \beta_7\ GROWTH + \beta_8\ DEBT + \beta_9\ IMPLICIT + \beta_{10}\ LOSS + \beta_{11}\ CFO\_VOL + \beta_{12}\ REV\_VOL + \beta_{13}\ RET\_VOL + \beta_{14}\ FINANCING + \beta_{15}\ CUR\_RATIO + \text{Firm fixed effects} + \varepsilon$$

Variable	Coefficient	T-statistic
Experimental variable		
TIER 2	0.017	3.34***
Control variables		
TENURE	0.005	3.03***
ASSETS	0.000	-0.09
BM	0.004	1.73*
ZFC	0.049	20.33***
CFO	0.031	2.40**
GROWTH	0.010	3.64***
DEBT	-0.231	-12.96***
IMPLICIT	0.155	7.49***
LOSS	0.010	3.43***
CFO_VOL	0.111	5.18***
REV_VOL	-0.005	-0.76
RET_VOL	0.065	4.17***
FINANCING	0.012	3.60***
CUR_RATIO	0.004	5.15***
ROA	0.225	14.83***
Intercept	0.165	6.54***
Observations	14,155	
Adjusted R^2	37.76%	

The dependent variable is the absolute value of performance matched discretionary accruals (Kothari et al. 2005) and the model is estimated as an OLS. All variables and tests are as described in prior tables. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

TABLE 6

Sample of Firms That Did Not Switch between Big N and Tier 2 Auditors

$$DISC\_ACCRUALS = \alpha + \beta_1 TIER2 + \beta_2 POST + \beta_3 TIER2*POST + \beta_4 TENURE + \beta_5 ASSETS + \beta_6 BM + \beta_7 ZFC + \beta_8 CFO + \beta_9 GROWTH + \beta_{10} DEBT + \beta_{11} IMPLICIT + \beta_{12} LOSS + \beta_{13} CFO\_VOL + \beta_{14} REV\_VOL + \beta_{15} RET\_VOL + \beta_{16} FINANCING + \beta_{17} CUR\_RATIO + Industry\ fixed\ effects + \varepsilon$$

Variable	Coefficient	T-statistic
Experimental variables		
TIER 2	0.011	1.87 *
POST	-0.011	-7.35 ***
*TIER 2 * POST*	-0.015	-1.86 *
Control variables		
TENURE	0.001	1.96 **
ASSETS	-0.002	-3.32 ***
BM	-0.004	-2.72 ***
ZFC	0.056	16.72 ***
CFO	0.040	2.96 ***
GROWTH	0.015	5.66 ***
DEBT	-0.305	-16.33 ***
IMPLICIT	0.040	6.20 ***
LOSS	0.011	5.70 ***
CFO_VOL	0.220	12.48 ***
REV_VOL	0.002	0.46
RET_VOL	0.032	2.66 ***
FINANCING	0.012	4.93 ***
CUR_RATIO	0.005	8.02 ***
ROA	0.193	10.89 ***
Intercept	0.328	18.75 ***
Industry fixed effects	Included	
Observations	22,400	
Adjusted R^2	12.60%	

The dependent variable is the absolute value of performance matched discretionary accruals (Kothari et al. 2005) and the model is estimated as an OLS. The sample is restricted to firms that remained with a Big N auditor or Tier 2 auditor throughout the sample period. The firms may have switched among Big N or Tier 2 auditors, but never to an auditor outside of the Big N or Tier 2 group. All variables are as described in prior tables. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

TABLE 7

Discretionary Accruals Regression with Tier 2 Subsamples Post-SOX

$$DISC\_ACCRUALS = \alpha + \beta_1 TIER2 + \beta_2 POST + \beta_3 OLD\ TIER2 + \beta_4 NEW\ TIER2 + \beta_5 TENURE + \beta_6 ASSETS + \beta_7 BM + \beta_8 ZFC + \beta_9 CFO + \beta_{10} GROWTH + \beta_{11} DEBT + \beta_{12} IMPLICIT + \beta_{13} LOSS + \beta_{14} CFO\_VOL + \beta_{15} REV\_VOL + \beta_{16} RET\_VOL + \beta_{17} FINANCING + \beta_{18} CUR\_RATIO + \text{Firm fixed effects or industry fixed effects} + \varepsilon$$

	Firm Fixed Effects		Propensity Score	
Variable	**Coefficient**	**T-statistic**	**Coefficient**	**T-statistic**
Experimental variables				
TIER2	0.023	3.57 ***	0.015	2.65 **
POST	-0.014	-8.20 ***	-0.006	-1.25
OLD TIER2	-0.012	-2.02 **	-0.016	-2.29 **
NEW TIER2	-0.010	-1.06	-0.013	-1.62
Control variables				
TENURE	0.001	2.72 ***	0.001	0.45
ASSETS	-0.002	-4.77 ***	-0.003	-1.86 *
BM	-0.004	-4.22 ***	-0.005	-1.70 *
ZFC	0.055	23.27 ***	0.052	8.11 ***
CFO	0.027	2.83 ***	-0.013	-0.49
GROWTH	0.016	7.46 ***	0.015	1.86 *
DEBT	-0.292	-22.19 ***	-0.251	-6.88 ***
IMPLICIT	0.040	7.91 ***	0.014	0.86
LOSS	0.010	7.07 ***	0.005	1.18
CFO_VOL	0.226	17.17 ***	0.212	5.55 ***
REV_VOL	0.001	0.47	0.009	1.00
RET_VOL	0.034	3.99 ***	0.076	3.15 ***
FINANCING	0.013	6.46 ***	0.011	2.14 **
CUR_RATIO	0.005	10.95 ***	0.006	4.88 ***
ROA	0.192	15.19 ***	0.200	5.77 ***
Intercept	0.320	26.10 ***	0.310	8.83 ***
Firm fixed effects	Included			
Industry fixed effects			Included	
Observations	39,027		4,870	
Adjusted R^2	29.63%		12.98%	

The dependent variable is the absolute value of performance matched discretionary accruals (Kothari et al. 2005) and the model is estimated as an OLS. The regressions here are similar to those in prior tables except that the *TIER 2 *POST* variable is divided into two subgroups. *OLD TIER 2* denotes firms that remained with a Tier 2 auditor post-SOX (after being audited by a Tier 2 auditor pre-SOX). *NEW TIER2* denotes firms that switched down to a Tier 2 auditor post-SOX after being audited by a Big N auditor pre-SOX. All other variables are as described in prior tables. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

TABLE 8

Going Concern Opinions Regressions

$$GOING\_CONCERN = \alpha + \beta_1 TIER2 + \beta_2 TENURE + \beta_3 REV\_VOL + \beta_4 LASSETS + \beta_5 DEBT + \beta_6 RET\_VOL + \beta_7 LLOSS + \beta_8 ZFC + \beta_9 BM + \beta_{10} LagRET + \beta_{11} RET + \beta_{12} CLEV + \beta_{13} INVEST + \beta_{14} FUTURE\_FINANCE + \beta_{15} AGE + \varepsilon$$

	Pre-SOX		Post-SOX	
Variable	Estimate	Z-statistic	Estimate	Z-statistic
TIER2	-0.828	-2.13 **	-0.141	-0.56
TENURE	-0.008	-0.36	0.005	0.31
REV_VOL	-0.570	-1.44	0.589	1.64
ASSETS	-0.375	-3.99 ***	-0.358	-4.83 ***
DEBT	2.008	2.26 **	-1.359	-1.96 *
RET_VOL	3.326	3.47 ***	4.759	4.93 ***
LLOSS	0.170	0.72	0.560	2.80 ***
ZFC	0.602	4.99 ***	0.700	8.92 ***
BM	0.215	1.94 *	0.127	1.27
Lag RET	-0.450	-2.46 **	0.208	2.03 **
RET	-0.823	-3.26 ***	-0.800	-4.59 ***
CLEV	-1.304	-1.14	-2.202	-2.91 ***
INVEST	-3.981	-3.01 ***	-2.643	-3.86 ***
FUTURE_FINANCE	-0.909	-3.68 ***	-0.773	-4.24 ***
AGE	-0.004	-0.23	0.010	1.03
Intercept	-0.907	-0.93	-0.161	-0.23
Observations	1,999		4,744	
Pseudo-R^2	33.46%		26.50%	

The dependent variable is *GOING_CONCERN*, an indicator variable set to 1 if the firm-year audit opinion is a going concern audit opinion and 0 otherwise. The regression is a logistic regression. All variables are as defined in prior tables. Panel B displays the coefficients and sum of coefficients for the experimental variables. Chi-squared statistics are reported in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

TABLE 9

Restatement Regressions

$$RESTATE = \alpha + \beta_1 TIER2 + \beta_2 ACQD + \beta_3 ASSETS + \beta_4 NYSENASDAQ + \beta_5 N\_BUS\_SEG + \beta_6 N\_GEO\_SEG + \beta_7 COMP + \beta_8 SERV + \beta_9 RETAIL + \beta_{10} TENURE + \beta_{11} AGE + \beta_{12} ROA + \beta_{13} BM + \beta_{14} EP + \beta_{15} MKTADJRET + \beta_{16} LEVERAGE + \beta_{17} ISSUE + \beta_{18} EXANTE + \beta_{19} SIGN\_JDA + \varepsilon$$

	Regression 1		**Regression 2**		**Regression 3**	
	Pre-SOX 1988-2002		**Pre-SOX 1998-2002**		**Post-SOX 2002-2008**	
Variable	Estimate	Z-statistic	Estimate	Z-statistic	Estimate	Z-statistic
TIER2	0.195	0.84	-0.007	-0.03	-0.311	-2.53 **
ACQD	-0.013	-0.16	-0.100	-1.20	-0.067	-1.02
LASSETS	0.373	9.01 ***	0.258	6.65 ***	0.090	3.25 ***
NYSENASDAQ	0.281	2.21 **	0.229	1.90 **	-0.400	-3.52 ***
N_BUS_SEG	0.131	4.78 ***	0.012	0.43	0.043	1.80 *
N_GEO_SEG	0.081	3.28 ***	0.050	2.40 **	0.027	1.80 *
COMP	0.558	4.06 ***	0.407	3.19 ***	0.374	3.76 ***
SERV	0.342	2.18 **	0.257	1.66 ***	0.158	1.22
RETAIL	0.771	5.57 ***	0.698	5.27 ***	0.797	7.55 ***
TENURE	-0.248	-2.38 **	-0.015	-1.63	-0.087	-1.12
AGE	-0.019	-3.71 ***	-0.003	-0.60	-0.014	-3.83 ***
LEVERAGE	-0.114	-0.82	0.010	0.08	0.083	0.66
ISSUE	0.467	2.83 ***	0.237	1.38	0.236	1.61
MB	0.013	2.15 **	0.009	1.45	-0.007	-1.03
EXANTE	0.437	4.72 ***	0.204	2.12 **	0.037	0.48
EP	-0.311	-3.32 ***	-0.052	-0.55	0.225	2.40 **
MKTADJRET	0.351	8.22 ***	0.208	5.12 ***	0.139	2.78 ***
GROWTH	0.021	0.23	0.090	1.00 ***	-0.061	-0.66
SIGN_JDA	0.957	3.07 ***	0.414	1.39 ***	-0.526	-2.00 **
Intercept	-6.028	-22.37 ***	-4.300	-16.13 ***	-2.402	-11.05 ***
Observations	27,909		11,744		16,690	
Pseudo R^2	8.02%		4.17%		2.27%	

The dependent variable is *RESTATE*, an indicator variable set to 1 if the year's financial statements are later restated and 0 otherwise. The regression is a logistic regression. All variables are as defined in prior tables. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

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