

# THE EFFECT OF BIG FOUR OFFICE SIZE ON AUDIT QUALITY

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To my parents,

who always want me to be a well-educated man!

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# THE EFFECT OF BIG FOUR OFFICE SIZE ON AUDIT QUALITY

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## ABSTRACT

Larger offices of Big Four accounting firms are argued to provide higher quality audits than smaller offices due to greater in-house experience and more expertise in administering the audits of publicly listed clients. In addition, larger offices are less likely to have independence-related problems since an individual client is relatively less important due to larger client bases in bigger offices. My conjecture is tested for a sample of 6,568 firm-year observations for the period 2003 to 2005 that are audited by 285 unique offices of the Big Four accounting firms in the United States. The results are consistent with larger offices providing higher quality audits. Specifically, clients in larger offices evidence less earnings management (smaller abnormal accruals and less earnings benchmark beating behavior). Auditors in larger offices are also more likely to issue going concern audit reports, *ceteris paribus*. These results hold after controlling for industry leadership by individual accounting firms and specific offices, and the effects of both absolute client size and relative client size (i.e., client size relative to office size). Importantly, the results are robust to partitioning the sample into upper and lower halves of client size, which indicates the results are not driven by large clients (who may have inherently higher quality earnings). While accounting firms have incentives to provide uniform quality across all practice offices, particularly in the post-SOX era with PCAOB

inspections, my results indicate that there are frictions in the ability of firms to accomplish this through their existing knowledge sharing practices and quality control procedures.



## CHAPTER 1. INTRODUCTION

Prior audit research literature is dominated by a firm-wide or “national” level analysis which uses country-level data and treats the whole accounting firm as the focal point. In contrast, recent studies suggest that audit research could usefully focus on city-based practice offices where auditors contract with clients and conduct audit services. Office-level studies treat each individual practice office within a Big Four accounting firm as a unique and relevant unit of analysis (Francis, Stokes, and Anderson, 1999; Reynolds and Francis, 2001; Craswell, Stokes, Laughton, 2002; Francis, 2004).<sup>1</sup> My paper is motivated by this line of literature, and investigates a research question that has not been addressed by the prior literature: is Big 4 audit quality uniform across small and large practice offices?

Panel A and B of Table 1 draw on data from Audit Analytics for the period 2003 to 2005 and documents considerable variation in Big Four office size. Based on the population of Securities and Exchange Commission (SEC) registrants in the Audit Analytics database, the largest practice office in terms of the number of clients audited is the Deloitte Touche Chicago office, which audited 764 clients in fiscal year 2003; while, at the other extreme, 52 specific Big Four practice offices have just a single SEC registrant (in one or more fiscal years) during the period 2003 – 2005. The median office has 8 clients in a fiscal year. The largest practice office in terms of aggregate audit fees is the PricewaterhouseCoopers New York office, which has over \$622 million audit

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<sup>1</sup> The term “Big Four” dates from 2002 and refers to the remaining four large international accounting firms after the collapse of Arthur Andersen, i.e., PricewaterhouseCoopers, Deloitte, Ernst & Young, and KPMG.

revenue in both fiscal year 2004 and 2005. The second largest office is the Deloitte Touche New York office, which has about \$440 million audit revenue in fiscal year 2005. The median office has about \$5.2 million audit revenue.<sup>2</sup>

[Insert Table 1 Here]

Building on the prior literature, I make two arguments why there may be significant differences in audit quality across the size of Big Four practice offices, and why larger offices could be expected to have more “in-house” experience and better expertise in administering the audits of public companies (SEC registrants). First, a large office has more collective human capital. Auditors working in a large office have greater exposure to different clients, and therefore have more collective experience which enables them to provide higher quality audits. Second, economic dependence can compromise auditor objectivity and independence. Even though Big Four audit firms are organized as national partnerships, local practice offices are relatively autonomous, and an office’s economic welfare is tied to the local-office client base.<sup>3</sup> Extending DeAngelo’s (1981) analysis, I argue that a large practice office with a large client base has the incentive to provide higher quality audits in order to protect their quasi-rents. In contrast, a smaller office with fewer clients is more likely to be lenient and report favorably in order to retain clients.

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<sup>2</sup> For the small local firms, the largest office in terms of the number of clients audited is Tait Weller & Baker in Philadelphia, which audited over 95 clients each year in fiscal year 2003, 2004, and 2005. In terms of aggregate audit fees, the largest local firm office is Eisner in New York, which has over \$6 million audit revenue both in fiscal year 2004 and 2005.

<sup>3</sup> Burrows and Black (1998) observe that Big 6 accounting firms are true partnerships only at national or state levels. Internationally, these firms achieve the substance of the partnership form through contractual association agreements between separate national firms. These agreements specify issues such as business name usage, financing of international operations, insurance coverage, management structures, training, and profit sharing. In many respects, these international liaisons resemble franchise agreements.

My study is different from prior office-level studies. Both Reynolds and Francis (2001) and Craswell, Stokes, Laughton (2002) study how audit quality is affected by a client's size relative to the office size of its auditor. The testing variable in these studies is the ratio of fees (or client sales) contributed by a specific client relative to the aggregate revenue (or client sales) of a practice office. Since this measure does not capture the absolute size of practice offices, these prior studies do not directly analyze how office size per se affects audit quality.

This study contributes to the literature in at least three ways. First, it is the first paper that systematically analyzes how audit quality varies with practice office size of Big Four accounting firms. Second, this study is based on the largest dataset with audit fee data and auditor practice office information currently available. Information about the exact auditor office clienteles is only recently available through Audit Analytics. Prior studies have typically approximated an audit office's clientele based on the firm's clients' locations. Third, from the perspective of audit quality and auditor independence, it further emphasizes the importance of the office-level unit of analysis in audit research.

Audit quality cannot be directly observed. So in order to test my hypothesis, I link office size to earnings attributes, including accruals quality and earnings benchmark beating behaviors, and going concern audit reports. I find that clients audited by large offices tend to have lower abnormal accruals, and are more likely to meet the benchmark earnings targets of small profits and small earnings increases. I also find that large offices are more likely to issue going concern reports. Together, these results show that there is significant variation in audit quality across different sizes of auditor practice offices, with larger offices providing higher quality audits as conjectured.

My arguments and empirical results are subject to the following caveat. The analysis is based on public-company clienteles of offices, and hence the knowledge and expertise I analyze in this study is an office's expertise in dealing with SEC registrants. A practice office could also be large if it has large private company clients. However, the analysis of office size with respect to private company clienteles is beyond the scope of this study, and cannot be undertaken due to the lack of publicly available data.

The remainder of the paper proceeds as follows. The next section discusses why an office-level analysis is important, and develops the study's hypothesis. Section 3 discusses how I measure the hypothesized effects of office size on client earnings attributes and going concern audit reports, and addresses model specification and other research design issues. The sample selection process is also discussed in this section. Section 4 provides descriptive statistics and empirical results. Section 5 summarizes and concludes the paper.

## CHAPTER 2. BACKGROUND AND HYPOTHESIS DEVELOPMENT

### 2.1 Office-Level Analysis

Recent studies argue that audit research should investigate city-specific offices within the Big Four accounting firms. Francis, Stokes, and Anderson (1999) argue that city office is the relevant decision-making unit within Big Four auditing firms. The Big Four firms have decentralized organizations and operate through a network of semi-autonomous local practice offices. These local offices contract with clients, administer audit engagements, and issue audit reports signed on the letterhead of the local office of the accounting firm. Because of this decentralized organizational structure, audit pricing, auditor reporting, independence issues, and the audit industry market structure should be investigated at the city level where clienteles and market shares of individual Big Four firms vary considerably from city to city. They document a great variation in Big 6 market shares across city-specific audit markets and argue that audit firm reputation is likely to be city-specific rather than standard and uniform across cities. Other studies have made similar arguments (Reynolds and Francis, 2001; Craswell, Stokes, Laughton, 2002).<sup>4</sup>

Policy makers have also emphasized the importance of audit firm “offices” with respect to auditor independence and audit quality. Former SEC commissioner Steven Wallman (1996) suggests that in assessing issues of auditor independence the focus should be on the individual, office, or other unit of the firm making audit decisions with respect to a particular audit client. He points out that auditor independence is more likely

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<sup>4</sup> There are also a handful of other studies examining local and regional aspects of auditing, e.g. Wilson and Grimlund, 1990; Deis and Giroux, 1992; O’Keefe, King, and Gaver, 1994; Jeter and Shaw, 1995; and Penno and Walther, 1996.

to be questioned if a firm's individual partner, office, or other unit of an audit firm receives a substantial portion of its revenues from a single audit client, or is dependent on that client for status within the firm. He is also critical of the fact that the Commission's published independence requirements and the AICPA's standards do not address independence issues in term of a more localized perspective.<sup>5</sup>

Recent SEC rulings on auditor independence are starting to focus on more localized levels of accounting firms.<sup>6</sup> SEC 33-7919 (2000) points out that the reputational interests of the audit firm are not the same as the reputational interests of the audit engagement partner or the office of the partner that performs most of the work for an audit client. Specifically, the SEC argues that the audit engagement partner and the office have more to gain by acquiescing to the client's aggressive accounting treatment than they have to lose if it results in audit failure. Reputational damage will be spread across the entire firm, whereas income from the client will be concentrated in the partner and the office out of which he or she works.

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<sup>5</sup> In its 1997 white paper, the American Institute of Certified Public Accountants (AICPA) indicates that the appropriate measure of economic dependence is the magnitude of fees from clients in relation to particular regions or offices of the firm. Independence issues related to the magnitude or concentration of fees have not been addressed either, even though Commission staff raises questions regarding the independence of accountants that derive more than 15 percent of their revenues from one client or a group of related clients. Concerns in this area typically relate to the concentration of revenue at the firm level. However, at the office level or other unit level, this issue has not been addressed.

<sup>6</sup> Policy makers emphasize the importance of using "office" as a unit of analyzing auditor independence and audit quality. Definitions of "office" used by policy makers have broader meaning, which transcends the traditional physical location of a practice office. Rule 2-01(f)(15) defines "office" to mean a distinct sub-group within an accounting firm, whether distinguished along geographic or practice lines. The Securities and Exchange Commission (SEC) also points out that "office" includes reference to a physical location. The SEC's definition of "office" overlaps with the concept of "office or practice unit" in the Independence Standards Board (ISB)'s Exposure Draft on Financial interests and Family relationships. The Draft states that the traditional geographic practice office, one city location with one managing partner in charge of all operations should be considered to be an office. In addition, if there are smaller, nearby satellite offices managed under the primary city office, broadly sharing staff, etc., those locations should also be considered part of the primary office.

## 2.2 Big Four Office Size Effect

Prior office-level studies argue that accounting professionals are based in specific practice offices, and that they audit clients primarily in the same locale; hence their expertise and knowledge is both office specific and client specific (Francis, Stokes, and Anderson, 1999; Ferguson, Francis, and Stokes, 2003; Francis, 2004). Big Four accounting firms operate in a decentralized organizational structure, which enables their personnel to develop better knowledge of existing and potential clients in a particular location. Clients in turn have greater knowledge of and confidence in the expertise of the locally based personnel who actually perform the audits (Carcello, Hermanson, and McGrath, 1992). Hence, auditor expertise is uniquely held by individual professionals through their deep personal knowledge of local clients, and cannot be readily captured and uniformly distributed by the firm to other offices and clients.

Vera-Munoz, Ho, and Chow (2006) identify why it is difficult for accounting firms to capture and share expertise. First, a significant amount of knowledge in CPA firms can be difficult to document, and identifying a firm's best practices is not an easy task. Second, even if a firm manages to collect and codify an extensive array of knowledge, individual auditors still need to sort through the available databases and to exercise judgment about which pieces are applicable to the situation at hand. Third, anecdotal evidence and field-based research suggest that knowledge sharing using IT-based expert knowledge systems is not automatically embraced by everyone. Fourth, an additional problem can arise because employees who experience "evaluation apprehension" are less likely to freely share knowledge for fear it could hurt their own performance evaluations.

Building on these prior studies, I make the following arguments why there are likely to be systematic differences in audit quality across different sizes of practice offices within the Big Four audit firms, and why larger offices provide higher quality audits. First, a large office has more collective human capital, and hence has more “in-house” experience and expertise in dealing with public companies (SEC registrants). The economic literature argues that experience is an important dimension of human capital (Becker, 1975). A larger office has a bigger client base, which gives auditors more opportunities to interact with different clients, and enables auditors to acquire greater knowledge and expertise. Auditors working in a large office also have more peers to consult with and hence have a better local support network. Danos, Eichenseher, and Holt (1989) report survey evidence that auditors are most likely to consult peers within the same office. Local office personnel are perceived to be far more likely to provide consultation than are personnel from other offices or the national office, even though consultation with other offices or the national office is also regarded as important. Their results point to the limits of expertise-related economies of scale in the auditing industry given that auditors rely more on the expertise of local-office peers rather than broader consultation within the firm. If this is indeed the norm, it follows that larger offices have the potential to produce higher quality audits because of their greater collective human capital and greater networking/consultation potential.

Larger offices also have deeper reserves of personnel (slack) to mitigate the effects of high employee turnover in the public accounting industry. According to a study by Satava (2003), the AICPA annual survey reveals that the large national accounting



firms had a turnover of 22% to 28% in each of the past four years.<sup>7</sup> Auditor turnover results in the loss of auditor expertise and knowledge, and especially the specific knowledge built between an auditor and a client. Because a large office has more collective human capital, it is more likely to replace audit team members with experienced employees. Moreover, large offices are more likely to have multiple clients in the same industry. If turnover affects one engagement team, the office could fill vacancies with experienced employees from other engagement teams working in the same industry. Hence, in a large office, an auditors' knowledge and expertise regarding a specific client is more likely to be carried on from one period to another, and from one team to another team.

Second, economic dependence could compromise auditor objectivity and independence, and create incentives for small local practice offices to be lenient and report favorably in order to retain clients. Big Four accounting firms operate in a semi-autonomous decentralized structure, and partners' compensation, rewards, and status are also to some extent linked to revenues generated by a specific local office.<sup>8</sup> Based on

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<sup>7</sup> In a recent article (Retensa: AICPA Invites Retensa to Speak at the Summit on Professional Development, September, 2005), Barbara Vigilante, manager of Work/Life and Women's Initiatives in AICPA, also mentions that turnover is "huge" in the accounting industry. A PricewaterhouseCoopers study quoted in a Wall Street Journal (May 04, 2005) article shows that the firm's turnover has been the highest among its senior associates. In the professional accounting industry, senior associates play a crucial role in the audit process. They often design audit programs and perform the day-to-day supervision of staff. Most importantly, they have the most interaction with clients. As a consequence of the turnover, too much responsibility is being placed on professionals lacking adequate experience. These individuals are often not ready to make the important decisions made by a typical senior. They may not be knowledgeable enough to design audit programs that adequately address risks. Turnover situations create tremendous stress for the remaining audit team members, making further turnover more likely.

<sup>8</sup> Even though Sarbanes-Oxley prohibits the use of non-audit fees in performance-based contracts, partners can still be rewarded for the audit revenues generated in the local office. Experimental evidence in Trompeter (1994) shows that compensation schemes can influence subject judgments. Trompeter finds that auditors whose rewards are based on local office revenues have a tendency to support management views more often than if their rewards are computed on the broader firm revenue base. In the latter case, loss of a local client does not necessarily lead to substantial individual reward losses. The incentives issue is one of the complex issues possibly leading to subtle biases in judgment. His results suggest that a self-serving bias affects judgment.

DeAngelo's (1981) argument, if a large office is lenient with a specific individual client, it has more to lose. Hence, large offices have incentives to provide higher quality audits in order to protect their quasi-rents. Reynolds and Francis (2001), Craswell, Stokes, Laughton (2002), and Francis (2004) have made similar arguments. In addition, in a two-phase study commissioned by the Independence Standards Board (ISB), Earnscliffe (2000) reports that accounting firms today are not indifferent about their reputation for quality audits, but care more about raising the profile and profitability of non-audit services. This evidence further supports the argument that a small office is more likely to compromise with clients and misreport. Studies also show that local offices associated with audits deemed deficient by the SEC are more adversely affected than other offices within the same audit firm in terms of their ability to retain existing clients and attract new clients (Wilson and Grimlund, 1990). Hence, a large office has incentive to provide higher quality audits in order to maintain its large client base and protect its quasi-rents.

Based on the above discussion, I argue that auditor quality is not standard and uniform across offices, even within a same Big Four accounting firm. Large practice offices are more likely to provide higher quality audits. My hypothesis stated in the alternative form is therefore:

Hypothesis (H<sub>a</sub>)

*Larger offices of Big Four accounting firms are more likely to provide higher quality audits, ceteris paribus.*

As my audit quality measure is constructed from the audited financial statements and audit reports, a potential confounding effect in the study is that large public companies may be more likely to be audited by large offices of Big Four accounting

firms. If true, then the higher earnings quality associated with larger practice offices may not be caused by higher quality audit per se, but simply by inherently higher quality earnings of larger corporations. In order to deal with this problem, I control for firm size, and also conduct sensitivity analyses and robustness checks to control for the potential confounding effect of client size by partitioning the sample into smaller and larger clients. I also control for auditors' national and office-specific industry expertise, as well as the relative client size metric used in Reynolds and Francis (2001). These factors could be other potential confounding effects driving the results.

The alternative firm-wide or "national" viewpoint argues that Big Four audit firms are organized as national partnerships with national administrative offices that set standardized firm-wide policies and provide technical support for their city-based practice offices. Audit expertise and knowledge is captured by the firm, and distributed uniformly across offices. This argument is supported by the fact that the Big Four firms have national training programs, standardized audit programs, and firm-wide knowledge sharing practices supported by information technology. Auditors also travel frequently between offices. Furthermore, Big Four firms do have systems in place to mitigate independence problems caused by the compensation and reward structure.<sup>9</sup> In addition, changes implemented by Sarbanes-Oxley such as the annual inspections undertaken by the PCAOB have created additional incentives for accounting firms to strengthen their internal procedures to ensure uniform audit quality across practice offices. However, as

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<sup>9</sup> Wallman (1996, p. 90) points out that auditor independence concerns would be raised if an office or a partner receives a material percentage of revenues from a single client or group of clients. He observes that big accounting firms do have systems in place to help address independence issues. For example, audit firms structure partner compensation to minimize reliance on any particular client, mandate concurring partner reviews, and require the concurrence of national technical offices on particular issues relating to the audit. These innovations appear on their face to have clear benefits, and to be responsive to certain of the concerns raised. However, no empirical studies test whether these innovations can completely mitigate the effect of economic dependence.

discussed earlier, firm-wide knowledge sharing has limitations for many reasons. So it is not clear to what extent these firm-wide mechanisms can mitigate the hypothesized office size effect on audit quality.

## CHAPTER 3. RESEARCH DESIGN

Audit quality should be reflected in the quality of earnings reported by clients. Following prior studies, earnings quality metrics are based on the audited financial statements including abnormal accruals and earnings benchmarks. The study's hypothesis tests if these client earnings metrics differ systematically across office sizes of auditors.

An auditors' likelihood of issuing going concern audit reports has also been used to test auditor independence and audit quality (Reynolds and Francis, 2001; Craswell, Stokes, Laughton, 2002; DeFond, Raghunandan, and Subramanyam, 2002). Following these prior studies, I test if an auditor's propensity to issue a going concern report is increasing in office size.

### 3.1 Accruals Quality

The dependent variable for the first test is abnormal accruals. Managers can distort earnings through their discretionary accounting choices (Healy, 1985; Jones, 1991). Accruals have two components: the non-discretionary component and the discretionary component also called abnormal accruals. As in prior research, a large discretionary component implies low quality of earnings. Kothari, Leone, and Wasley (2005) argue that the discretionary accruals model might be misspecified when applied to samples of firms with extreme performance. They suggest that controlling for current firm performance will increase the power of the Jones model. Following their suggestion, I use ordinary least squares (OLS) to estimate the following performance adjusted Jones model by fiscal year and two-digit industry SIC code:

$$TA = \alpha + \beta_1 \Delta REV + \beta_2 PPE + \beta_3 NI + \varepsilon \quad (1)$$

where TA is total accruals;  $\Delta\text{REV}$  is revenues in year  $t$  less revenues in year  $t - 1$ ; PPE is gross property, plant, and equipment; and NI, defined as operating income after depreciation, is the variable used in the model to control for firm performance.<sup>10</sup> All variables are deflated by lagged total assets. The absolute value of residuals from Equation (1) is used to measure discretionary accruals. A larger absolute value of discretionary accruals indicates lower earnings quality, since individual firms can have incentives to manage earnings either up or down depending on particular circumstances (Warfield, Wild, and Wild, 1995). However, it has been argued that auditors are more concerned with constraining income-increasing accruals (Becker et al. 1999). Therefore, as a sensitivity analysis, “signed” accruals are also examined by partitioning the observations into income-increasing and income-decreasing accruals.

I use the following model adapted from Reynolds and Francis (2001) to test the relation between accruals quality and office size:

$$\text{ACCRUALS} = \lambda_0 + \lambda_1 \text{OFFICE} + \mathbf{X}'\boldsymbol{\lambda} + \ddot{u} \quad (2)$$

where ACCRUALS are defined as above; OFFICE is the test variable of interest (office size) and is measured as the log of total audit fees for the test year of the specific office administering the audit engagement and issuing the audit report; and  $\mathbf{X}$  is a vector of control variables, including INFLUENCE, TENURE, SIZE, CFO, DEBT, LOSS, VOLATILITY, and MB. Following Reynolds and Francis (2001), INFLUENCE controls for the size of the client relative to the office size of the auditor administering the audit, and is the ratio of a specific client’s total fees relative to aggregate clients’ total fees audited by the office. SIZE is the natural log of a client’s total assets. CFO is a client’s

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<sup>10</sup> Kothari et al. (2005) use income before extraordinary items (Compustat data18). I use operating income after depreciation (Compustat data178). To better control for performance, I have excluded nonoperating income, special items, and other items that could be managed by management to affect performance.

operating cash flows scaled by lagged total assets. DEBT is a client's total debt deflated by lagged total assets. LOSS is a dummy variable that takes one if a client's income before extraordinary items is negative, zero otherwise. VOLATILITY is a client's stock return volatility. MB is a client's market to book ratio.

I use OLS to estimate Equation (2), and follow Newey and West (1987) to correct for heteroscedasticity and first-order autocorrelation. Industry and auditor dummies are also included in the model, but not tabulated for brevity. I also include variables to proxy for national industry leadership and city-specific industry leadership, because the overall office size effects could be confounded by city-specific and national-level industry leadership (Francis, Reichelt, and Wang, 2005 and 2006; Ferguson, Francis, and Stokes, 2006). The results are robust to alternative estimations using firm fixed-effect models and linear mixed models with multi-level random effects.

The experimental variable is OFFICE; however, there is no theory to guide the measurement of office size. Reynolds and Francis (2001) use aggregate clients' total revenues as a measure of office size. Craswell, Stokes, Laughton (2002) use the sum of total audit and non-audit fees as a measure of office size. As the audit fee data in Audit Analytic is more accurate than the total fee data (sum of audit fees and total non-audit fees) in my sample (discussed later in this section), I use aggregate audit fees generated by a practice office to measure auditor office size. However, note that the results are robust to using total fees (audit and nonaudit) to measure office size. Larger values of abnormal accruals imply lower earnings quality, and I expect the coefficient on office size will be negative if larger offices perform higher quality audits.

Reynolds and Francis (2001) report that the measure of a client's importance, INFLUENCE, is negatively correlated with abnormal accruals. They argue that auditors are more conservative toward relatively large clients in their practice offices because of litigation risk. Johnson, Khurana, and Reynolds (2002) find that short auditor tenure (TENURE) is associated with lower clients' earnings quality. Based on their finding, I code TENURE as 1 if it is 3 or less than 3 years, and 0 otherwise. Larger clients may also be more likely to be audited by larger offices. To the extent that large clients are also more likely to have higher earnings quality, I expect that absolute client size (SIZE) will be negatively correlated with the accruals quality measures. Dechow et al. (1995) show that operating cash flows (CFO) influence the magnitude of discretionary accruals, and higher operating cash flows are associated with lower discretionary accruals. Based on their argument, I expect cash flows will be negatively correlated with my dependent variables. DeFond and Jiambalvo (1994) argue that companies with more debt (DEBT) have greater incentives to use accruals to increase earnings due to debt covenant constraints, and predict that debt level should be positively correlated with discretionary accruals level. Studies also argue that financially distressed firms have incentives to manage earnings (Reynolds and Francis, 2001). I use negative earnings (LOSS) as an ex post measure, and predict that it will be negatively associated with accruals quality. The intuition is that firms which report losses will have lower incentives to manage discretionary accruals.<sup>11</sup> Following Hribar and Nichols (2006), I include two market-based control variables: stock return volatility (VOLATILITY) and market to book ratio (MB) which is a proxy for growth. I expect that both volatility and growth be positively

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<sup>11</sup> Studies also argue that firms tend to take "Big Bath" when they realize that they cannot manage earnings to meet targets (Healy, 1985). However, I assume that these firms are special cases. The majority of loss firms are non-Big-Bath firms, and have no incentives to manage discretionary accruals.



correlated with the accruals measures. These market-based variables are motivated by the fact that capital market pressure can affect earnings management behavior.

### 3.2 Benchmark Beating

The distribution method has been used in many studies to test earnings management. Studies argue that firms are managing earnings to beat benchmarks because there is an abnormally high proportion of firms just above the benchmarks, and an abnormally low proportion of firms just below the benchmarks (Burgstahler and Dichev, 1997; DeGeorge, Patel, Zeckhauser, 1999; and Yu, 2005). In order to further test the relation between office size and earnings quality, I relate office size measures to benchmark beating behavior. Following prior studies, I use a probit model to test two benchmarks: reporting small positive earnings, and reporting small positive earnings changes over the prior year. The following probit model is estimated:

$$\text{PROBIT [BENCHMARK=1]} = f(\beta_0 + \beta_1 \text{OFFICE} + \mathbf{X}' \boldsymbol{\beta} + \varepsilon) \quad (3)$$

where BENCHMARK is coded as 1 if a firm reports small positive earnings (small earnings increase), and 0 otherwise. To test the reporting of small profits, I classify a client as reporting small positive earnings if its net income deflated by lagged total assets is between 0 and 5%. To test small earnings increases, I classify a client as reporting small earnings increase if the change of its net income deflated by lagged total assets is between 0 and 1.3%. However, results are consistent, if I use alternative intervals to specify small positive earnings and small earnings increase. Results are also consistent when I use other scalars such as average total assets to deflate earnings and earnings change.<sup>12</sup>  $\mathbf{X}$  is a vector of control variables, including INFLUENCE, TENURE, SIZE,

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<sup>12</sup> More elaborations on this on Page 25.

DEBT, CFO, LOSS, VOLATILITY, and MB. All variables are defined as in Equation (2). The dataset is treated as both cross-sectional data and cross-sectional time-series data, and results are reported separately. I also control for national industry and city-specific industry leadership by accounting firms and specific offices.

Following prior research, I expect that a firm's earnings are of higher quality if its managers are less likely to manage earnings in order to beat benchmarks, *ceteris paribus*. If larger offices provide higher quality audits, I predict that office size should be negatively associated with benchmark beating behavior. The larger the auditor's office size, the less likely a firm will be able to distort earnings in order to beat the benchmarks, and hence reported earnings are of higher quality.

With respect to the control variables, I expect that the measure of a client's importance is negatively associated with the likelihood of benchmark beating, and auditor tenure is positively associated with the likelihood of benchmark beating. Based on the findings of Matsumoto (2002), Frankel, Johnson, and Nelson (2002), and Ashbaugh, LaFond, and Mayhew (2003), large firms and growth firms are more likely to beat benchmarks. Hence, I predict that coefficients on client size and market to book ratio are positive. Loss firms are less likely to beat benchmarks. Highly leveraged firms are also less likely to beat benchmarks due to increased monitoring of creditors. Hence, I predict coefficients on the loss dummy and the debt ratio are negative. In addition, I predict that the coefficient on cash flows is negative since there is less need to manage earnings if firms have strong cash flows, and the coefficient on stock return volatility is positive as high-volatility (risky) firms have greater capital market incentives to manage earnings.

### 3.3 Going Concern Audit Report

I use a probit model adapted from prior studies (e.g., Reynolds and Francis, 2001; Craswell, Stokes, Laughton, 2002; and DeFond, Raghunandan, and Subramanyam, 2002) to test if the propensity to issue going concern reports differs across office size. As the sample is cross-sectional time-series data, I fit the following random-effects probit model to the dataset:<sup>13</sup>

$$\text{PROBIT [GC =1]} = f (\beta_0 + \beta_1\text{OFFICE} + \mathbf{X}'\boldsymbol{\beta} + \varepsilon) \quad (4)$$

where GC is a dichotomous variable that takes the value of 1 if a client receives a going concern audit report, and 0 otherwise. OFFICE is the same as in previous sections, and  $\mathbf{X}$  is a vector of control variables, including national and city-specific industry leadership.

If larger offices provide higher quality audits as conjectured, they should be better able to identify going concern problems, and to issue timely going concern reports. Hence, I predict that the testing variable, office size, should be positively associated with the probability of issuing going concern reports.

I control for a vector of company characteristics that have been shown in prior research to explain going concern opinion reporting (Reynolds and Francis, 2001; DeFond, Raghunandan, and Subramanyam, 2002).<sup>14</sup> INFLUENCE is a measure of a client's importance relative to a specific office, and is expected to be positively correlated with the likelihood of issuing going concern reports (Reynolds and Francis, 2001).

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<sup>13</sup> A typical textbook example of dealing with cross-sectional time-series data is to fit a firm-level random effects probit model which corrects for serial correlation (Wooldridge, 2002).

<sup>14</sup> SAS 59 states that there are conditions and events that could indicate that there is substantial doubt that an entity will continue as a going concern. Examples of such items listed in SAS 59 include negative trends (e.g., working capital deficiencies; negative cash flows from operations); indicators of financial difficulties (e.g., default on loan agreements); internal matters (e.g., labor difficulties); and external matters (e.g., legislation that might affect an entity's ability to operate). Some of these items are unobservable. Here I follow the literature, and control for a vector of firm financial condition and market variables.

TENURE, as defined in Equation (2), is expected to be negatively associated with the likelihood of issuing going concern reports (Johnson, Khurana, and Reynolds; 2002). BANKRUPTCY is the Altman Z-score (Altman, 1983), which measures the probability of bankruptcy. Lower values indicate a higher probability of bankruptcy.<sup>15</sup> I expect that this measure is negatively associated with the likelihood of issuing going concern reports. SIZE is total assets of the client, which is expected to be negatively correlated with the dependent variable since larger clients have more resources to stave off bankruptcy and therefore are less likely to fail. REPORTLAG is a timeliness variable measuring the number of days between the fiscal year-end and the earnings announcement date. Prior research finds that going concern opinions are associated with longer reporting delays (Raghunandan and Rama, 1995; Carcello, Hermanson, and Huss, 1995; DeFond, Raghunandan, and Subramanyam, 2002). VOLATILITY is the stock return volatility, which is predicted to be positively associated with the probability of issuing going concern reports. MB is the market to book ratio and is predicted to be positive. DEBT is total liabilities deflated by total assets, and is expected to be positively correlated with the dependent variable. INVESTMENT is a liquidity measure that captures the ability to quickly raise cash. A firm with large cash and investment securities has more resources to deal with financial difficulties. Hence, this variable is expected to be negatively associated with the probability of issuing going concern opinions. I use the sum of the firm's cash and investment securities, scaled by total assets, as a measure of liquidity. LOSS is a dummy variable that takes the value of 1 if the company has a loss in the current or the previous year. Firms reporting losses are more likely to fail. Finally, I

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<sup>15</sup> I use the following equation to calculate this measure:  $0.717 * \text{working capital} / \text{total assets} + 0.847 * \text{retained earnings} / \text{total assets} + 3.107 * \text{earnings before interest and taxes} / \text{total assets} + 0.42 * \text{book value of equity} / \text{total liabilities} + 0.998 * \text{sales} / \text{total assets}$ .

include a dummy variable, PRIORGCC, which takes the value of 1 if a company received a going concern opinion in the previous period. Reynolds and Francis (2001) report that companies are more likely to receive a going concern report if they received a prior going concern report.

### **3.4 Sample Selection**

The auditor office-level data are from Audit Analytics, and clients' financial data are from Compustat. In order to efficiently merge Audit Analytics sample with Compustat sample, I first merge the Audit Analytics sample directly with Compustat without cleaning the pseudo ticker problems. I next delete these matched firms in the first merge from the original Audit Analytics sample, and form a sub-sample of unmatched firms. I then clean the Compustat ticker based on the suggestion of WRDS, and merge the unmatched sample with Compustat again. This process has significantly increased the number of observations in the final merged sample. I then delete observations where the fiscal year end from Audit Analytics does not agree with Compustat. There are also a significant number of observations with asset data missing from Compustat, and a significant number of observations with asset data missing from Audit Analytics. Whenever it is possible, I use Audit Analytics data to replace the missing asset data from Compustat, and vice versa. I then compare the asset data from Audit Analytics with those from Compustat (rounded to the first digit), and delete observations where this variable disagrees (rounded to the first digit). There are many observations from Compustat with auditor code missing. Similar to assets, I replace these missing values with Audit Analytics data before I compare these two sources, and then delete observations with auditor code inconsistent in these two datasets.

To validate this merged sample, I next randomly select 100 observations and verify the data from Audit Analytics (auditor, auditor city, and audit fee) with Edgar SEC filings. First, I find that these 100 firms are merged 100 percent correct and that all of the 100 observations have the correct auditor. Except for 4 small non-national auditors whose location I could not verify in Edgar filings, the remaining 96 have the correct auditor city and auditor state. There are 2 observations with audit fee data inconsistent (both audited by two Big Four auditors), but very close to amount reported in the Edgar filing. There are 5 observations with incorrect non-audit fee data. For example, one observation's other fees are omitted in calculating non-audit fees and total fees. Another observation has over \$2 million in audit-related fees that are omitted in calculating non-audit fees (though audit fees are reported correctly).

My final testing sample covers the three-year period 2003 – 2005. There are three reasons for restricting the sample to this period. First, not all SEC registrants are required to disclose their audit fee information before 2003. The initial SEC Rule 33-7919 (21 Nov 2000) required all "proxy filers" to disclose their auditor fees. A subsequent SEC Rule 33-8183 (28 Jan 2003) required that all filers of 10-K's, 10KSB's, 20-F's, 40-F's and N-CSR's filing for post Dec 15, 2003 year ends are required to disclose in their annual report (or by reference in their proxy) the corresponding auditor fees. Because our office size measure is based on clients' disclosed audit fees, there will be greater measurement error before fiscal year 2003. A second reason is that the demise of Arthur Andersen in early 2002 resulted in a "mandatory" rotation of auditors that will have significantly affected office sizes between 2001 and 2003. By using 2003 as the first test year, I allow for the absorption of Andersen clients into other firms' offices and thus have a more

stable test setting with respect to office size. The third reason to start with 2003 data is that Sarbanes-Oxley Act of 2002 affected the audit market, including an increase in audit fees due to additional audit requirements and creation of the PCAOB inspection process. While Sarbanes-Oxley was effective for part of the 2002 fiscal year, 2003 is the first full year under the new regulatory regime. As with the demise of Andersen, by focusing on the period 2003-2005, I have a more stable audit market and regulatory environment for the analysis.

In order to more precisely measure office size, I calculate aggregate audit fees for each practice office of Big Four auditors in the Audit Analytics database before I merge it with Compustat. National industry leadership and city specific industry leadership are also constructed based on the total population with audit fee data available in Audit Analytics. I code an auditor (office) as the national industry leader (city-specific industry leader) if it has the highest aggregated client audit fees for a specific industry (city-specific industry) in a specific fiscal year. Industry leadership is based on two-digit SIC classification. I then follow the procedure described above to merge the two databases. After estimating the dependent variable and constructing the control variables, I further restrict the sample to Big Four auditors only and exclude financial service industries (SIC codes 60 – 69) and regulated industries (SIC codes 44 – 49).

The final sample consists of 6,568 firm-year observations for fiscal years 2003 through 2005 having the required auditor office-level data and Compustat financial data for the tests, and representing 2,572 unique firms, where fiscal year is defined using the Compustat convention. Panel C and D of Table 1 compare distributions of office size in the merged sample with those in Audit Analytics. Generally speaking, distributions of

office size used in this study are comparable to those based on the total population. However, offices used in my study are relatively bigger ones. The mean and median of office size in Panel C and D are bigger than those in Panel A and B. Standard deviations are also bigger. There are 930 Big Four office-year observations based on the total population in Audit Analytics. An individual office can appear up to three times in the dataset. There are 329 unique offices of the Big Four accounting firms in Audit Analytics distributed as follows: Deloitte (77), Ernst & Young (87), KPMG (85), and PricewaterhouseCoopers (80). While in the final sample, there are 805 Big Four office-year observations representing 285 unique offices. These 285 unique offices distribute as follows: PricewaterhouseCoopers (65), Deloitte (65), Ernst & Young (78) and KPMG (77). 125 office-year observations and 44 unique offices are lost in the merging process. As discussed earlier, the largest OFFICE of PWC, which is also the largest in the sample, has an annual revenue of 623.53 million, while its smallest office has a revenue of only 0.06 million. Earnst & Young has the smallest range of office size in terms of audit fee revenues, but the difference is still big. Its largest office has an annual revenue of 270.28 million, while its smallest office has a revenue of 0.15 million. In order to reduce the skewed distribution and stabilize the variance, I use the natural log transformed measure of OFFICE in all tests.



## CHAPTER 4. EMPIRICAL EVIDENCE

### 4.1 Summary Statistics

Table 2 reports summary statistics of client-specific variables used in this study. The abnormal accruals measure, ACCRUALS, is winsorized at  $-0.999$  and  $0.9999$ . The distribution of signed abnormal accruals is symmetric, and both the mean and median are  $0.009$ , close to zero. The distribution of the absolute value of abnormal accruals, ABS\_ACCRUALS, is negatively skewed, with the mean ( $0.258$ ) larger than the median ( $0.124$ ).

[Insert Table 2 Here]

For the benchmark tests, I classify a client as reporting small positive earnings, SMALL\_PROFIT, if its net income deflated by lagged total assets is between  $0$  and  $5\%$ . To test small earnings increases, I classify a client as reporting a small earnings increase, SMALL\_INCREASE, if the change of its net income deflated by lagged total assets is between  $0$  and  $1.3\%$ . However, results are consistent, if I choose intervals between  $0$  and  $2\%$ ,  $3\%$ , or  $4\%$  for the small earnings test, and intervals between  $0$  and  $1\%$ ,  $1.3\%$ , or  $1.5\%$  for the small earnings increase test. Results are also consistent when I use other scalars such as average total assets to deflate earnings and earnings change. A total of  $23.3\%$  of observations report small profits during the sample period, and  $12.9\%$  of observations report small earnings increases.

The going concern audit report data, CONCERN, is from Audit Analytics. A total of  $173$  firm-year observations ( $2.6\%$ ) received going concern reports during the sample period. The office size measure, OFFICE, has a mean of  $65.415$  million and a median of  $40.839$  million. INFLUENCE measures relative client size and has a mean of  $0.074$ ,

indicating that on average a client's total fees represent 6.5% of aggregate client total fees audited by an office. I use 1989 as a cut-off point to calculate auditor tenure. The main reason is that 3 of the current Big 4 auditors have already merged before 1989 (Both Ernst & Young and Deloitte & Touche merged in 1989, and KPMG merged in 1987).<sup>16</sup> 20.4% of observations has auditor tenure equal to or less than 3 years. Absolute client size, SIZE, has a mean (median) of 6.037 (6.013). Operating cash flows has a mean equal to 0.064 and a median of 0.113, indicating that many firms have negative cash flows. The mean of debt ratio is 0.483, and 24.2% firms have negative operating income after depreciation. The mean measure of the Altman Z-score, BANKRUPTCY, is 2.341, which is comparable to that reported in prior studies. The average client releases its annual earnings information (REPORTLAG) about 48 days after fiscal year end. This measure is winsorized at 0 and 360 to control for extreme values. The investment measure, INVESTMENT, is negatively skewed. Its mean is 0.269 while its median is 0.178. About 2.6% of firms in our sample have received a prior going concern reports. The distribution of stock return volatility, VOLATILITY, is negatively skewed. Its mean is 0.136, and median is 0.111. This measure is winsorized at 0.99 to control for outliers.<sup>17</sup> The mean of the market to book ratio, MB, is 1.367, and the median is 0.943. A total of 29.7% of clients in the sample are audited by national industry leaders, and 64% of clients are audited by city-specific industry leaders.

Table 3 reports the correlation matrices for variables used in this study. The Pearson correlation matrix is on the top, and the Spearman correlation matrix is on the bottom. Consistent with Reynolds and Francis (2001), the measure of relative client

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<sup>16</sup> Price Waterhouse merged with Coopers & Lybrand on July 1, 1998. Coopers & Lybrand was known as Coopers & Lybrand Deloitte in the United Kingdom since April 29, 1990.

<sup>17</sup> Only 18 observations in the sample have VOLATILITY measure bigger than 1.

importance, INFLUENCE, is negatively correlated with unsigned abnormal accruals and significant at 1% level. As expected, the national leadership measure and the city leadership measure are negatively correlated with the unsigned abnormal accruals measure and significant at 1% level.

[Insert Table 3 Here]

Both Pearson and Spearman tests show that OFFICE is negatively correlated with SMALL\_PROFIT and significant at 1% level. The correlation between SMALL\_PROFIT and SMALL\_INCREASE is 0.14, and significant at 1% level. Unexpectedly, both SMALL\_PROFIT and SMALL\_INCREASE are positively correlated with INFLUENCE, indicating that relatively more important clients in offices are more likely to beat earnings benchmarks.

The correlation between CONCERN and INFLUENCE is negative in the Spearman correlation matrices, and significant at 1% level, indicating that relatively larger clients are less likely to receive going concern reports, which is consistent with Reynolds and Francis (2001).

The correlation between INFLUENCE and the testing variable OFFICE is  $-0.487$  in the Pearson test and  $-0.58$  in the Spearman test. INFLUENCE is also highly correlated with client size, SIZE: the correlation is 0.35 in the Pearson matrix and 0.559 in the Spearman matrix. TENURE is negatively correlated with OFFICE, and positively correlated with unsigned abnormal accruals. SIZE is negatively correlated with unsigned abnormal accruals, positively correlated with the benchmark variables, and negatively correlated with going concern reports. SIZE also has a positive correlation with CFO and DEBT, and negative correlation with LOSS, REPORTLAG, and VOLATILITY. LOSS is

highly correlated with VOLATILITY and INVESTMENT. In general, though, the correlations between the office size measure and other independent variables are relatively low, with the exception of relative client size (INFLUENCE).

## 4.2 Accruals Tests

Table 4 reports the abnormal accruals test using OLS with Newey-West robust standard errors. Results are robust to heteroscedasticity and first-order autoregressive correlation. The dependent variable of the first set of tests is the absolute value of abnormal accruals. Because INFLUENCE is highly correlated with other independent variables, I report two sets of results. In the first test, INFLUENCE is not included as a control variable. The coefficient of the testing variable, OFFICE, is -0.011 and significant at 1% level. This result indicates that clients audited by large offices have lower abnormal accruals and higher quality earnings, which is consistent with my argument. The coefficient of TENURE is 0.022 and significant at 5% level, indicating that clients audited by auditors with 3 or less than 3-year tenure have lower earnings quality. The coefficient of SIZE is -0.001 and insignificant. The coefficient of CFO is -0.043 and significant at 1% level. The coefficient of DEBT is -0.013 and insignificant. The coefficient of LOSS is -0.004 and insignificant. The coefficient of VOLATILITY is 0.254, and the coefficient of MB is 0.006. Both of them are significant at 1% level. The coefficient of NATIONAL\_LEADER is 0.002, and the coefficient of CITY\_LEADER is 0.005, and both coefficients are insignificant.

[Insert Table 4 Here]

In the second test, I include INFLUENCE as an additional control variable. The coefficient of the testing variable, OFFICE, is -0.016 and still significant at 1% level. The

coefficient of INFLUENCE is  $-0.079$  and significant at the 1% level. This result is consistent with the finding of Reynolds and Francis (2001). The sign of coefficients of SIZE changes direction, even though it is not significant in the previous test. The other control variables are comparable to those reported in the first test.

The next set of results in Table 4 use the subsample of observations having negative abnormal accruals. In order to be consistent with the prediction, I use the absolute value of negative abnormal accruals as the dependent variable. The coefficient of OFFICE is  $-0.01$  and significant at 1% level, indicating that clients audited by larger offices tend to have smaller (less negative) abnormal accruals and hence higher quality of earnings. After I include the additional control variable, INFLUENCE, the coefficient of OFFICE is  $-0.014$ , and still significant at 1% level.

The final set of results in Table 4 uses the subsample of observations with positive abnormal accruals. The coefficient of OFFICE is  $-0.008$  and is significant at 5% level, indicating that clients audited by larger offices tend to have smaller positive abnormal accruals and hence higher quality of earnings. After I include the additional control variable, INFLUENCE, the coefficient of OFFICE is  $-0.012$ , and significant at 1% level. The coefficient of INFLUENCE is  $-0.06$ , but insignificant.

Following Francis, Reichelt, and Wang (2006), I also estimate the economic significance of OFFICE. I find that when OFFICE increases from the 25<sup>th</sup> percentile to the 75<sup>th</sup> percentile, abnormal accruals will be decreased by 0.027 in the main test. I use this number divided by the median operating income after depreciation to estimate the magnitude of the office size effects on earnings. For the main accruals test, the effect of change in OFFICE is equal to 33.2% of the operating income after depreciation.

In sum, the results reported in this section show that clients audited by larger offices have lower abnormal accruals, which implies earnings are of higher quality. These results support my argument that there are significant variations in audit quality across individual Big Four practice offices and support that the conjecture that larger offices provide higher quality audits.

### **4.3 Benchmark Beating Tests**

Table 5 reports results of firms reporting small positive earnings. In Panel A of Table 5 I follow the distribution method assumption, and treat the sample as a simple cross-sectional dataset. In the first test, I exclude INFLUENCE. The coefficient of OFFICE is  $-0.039$  and significant at 1% level, indicating that clients audited by larger offices are less likely to manage earnings to report small earnings (and avoid losses). The coefficient of TENURE is  $0.024$  and insignificant. The coefficient of SIZE is  $0.033$  and significant at 1% level. The coefficient of DEBT is  $0.187$  and significant at 1% level. The coefficient of CFO is  $-0.459$ , and the coefficient of LOSS is  $-1.384$ , both significant at 1% level. The coefficient of MB is  $-0.134$  and significant at 1% level. The coefficient of VOLATILITY is  $0.176$ . The coefficient of NATIONAL\_LEADER is  $-0.018$ , and the coefficient of CITY\_LEADER is  $0.036$ , though neither variable is significant. After I include the additional variable, INFLUENCE, the coefficient of OFFICE is  $-0.015$ , and is insignificant. The coefficient of INFLUENCE is  $0.359$  and significant at 5%. The rest control variables are comparable to those reported in the first test.

[Insert Table 5 Here]

The distribution method assumes that the dataset is cross-sectional data. However, we know that the sample covers three-year period 2003 – 2005. If we estimate the model

based on the assumption of cross-sectional data, the errors terms might be correlated and bias the final results. In order to address this concern, I treat the sample as a cross-sectional time-series dataset and fit a firm-level random-effects probit model. Results are reported in Panel B of Table 5. In the first test, the coefficient of OFFICE is  $-0.067$  and significant at 1% level. In the second test, the coefficient of OFFICE is  $-0.038$ , and is insignificant after including the variable INFLUENCE. The coefficient of INFLUENCE is  $0.43$  and is significant at 5% level. The rest control variables are comparable to those reported in Panel A.

Table 6 reports results of firms reporting small earnings increases. In Panel A of Table 6 I treat the pooled sample as a simple cross-sectional dataset. The coefficient of OFFICE is  $-0.047$  and significant at 1% level. The coefficient of TENURE is  $0.047$  and insignificant. The coefficient of SIZE is  $0.109$  and the coefficient of DEBT is  $0.134$ , both significant at 1% level. The coefficient of CFO is  $-0.192$  and significant at 5% level. The coefficient of LOSS is  $-0.522$  and significant at 1% level. Both of them have the predicted sign. The coefficient of MB is  $-0.063$ , and the coefficient of VOLATILITY is  $-1.923$ , both significant at 1% level. The coefficient of NATIONAL\_LEADER is  $-0.016$  and insignificant. The coefficient of CITY\_LEADER is  $0.025$  and insignificant. In the second test, I add the additional control variable INFLUENCE. The coefficient of OFFICE is  $-0.062$  and still significant at 1% level. The coefficient of INFLUENCE is  $-0.213$  and insignificant. The rest control variables are similar to those reported in the first test.

[Insert Table 6 Here]

As discussed earlier, in Panel B of Table 6 I again treat the sample as a cross-sectional time-series dataset and fit a firm-level random-effects probit model to the sample. In the first test, the coefficient of OFFICE is  $-0.053$  and significant at 1% level. In the second test, the coefficient of OFFICE is  $-0.068$ , and still significant at 1% level. The coefficient of INFLUENCE is  $-0.229$  and insignificant. The rest control variables are similar to those reported in Panel A.

Following Denis and Mihov (2003), I estimate the implied changes in the probability of beating benchmarks for hypothetical changes in OFFICE size. The implied changes assume that OFFICE changes from its value at the 25<sup>th</sup> percentile to its value at the 75<sup>th</sup> percentile, while the other independent variables remain constant at their mean values. For the small positive earnings tests, the increase of OFFICE size decreases the probability by 0.68 percent (from 19.24 percent at the 75<sup>th</sup> percentile to 18.56 percent at the 25<sup>th</sup> percentile) when assuming cross-sectional data, and decreases the probability by 1.26 percent (from 12.25 percent to 10.99 percent) when assuming cross-sectional time series data. For the small earnings increase tests, it decreases the probability by 1.87 percent (from 11.41 percent to 9.54 percent) when assuming cross-sectional data, and decreases by 1.8 percent (from 9.58 to 7.78) when assuming cross-sectional time series data.

In summary, results in this section show that clients audited by larger offices are less likely to manage earnings in order to report small earnings and small earnings increases, consistent with financial statements audited by larger offices being of higher quality. These results are robust to alternative assumptions regarding the structure of the data in the tests.



#### 4.4 Going Concern Tests

The going concern audit report analysis is reported in Panel A of Table 7. As the sample is pooled three-year data, I fit a random-effects probit model to this cross-sectional time-series data. There are 2,572 unique firms used in the estimation. In the first test, the coefficient of the testing variable, OFFICE, is 0.091 and significant at 5% level, indicating that larger offices are more likely to issue going concern reports and hence provide higher quality audits. The coefficient of TENURE is 0.014 and insignificant. The coefficient of BANKRUPTCY is  $-0.046$  and significant at 5% level. The coefficient of SIZE is  $-0.107$  and significant at 1% level. The coefficient of REPORTLAG is 0.006 and significant at 1% level. The coefficient of VOLATILITY is 1.157, and the coefficient of MB is 0.066. Both of them are significant at 1% level. The coefficient of DEBT is  $-0.124$  and significant at 5% level. The coefficient of INVESTMENT is  $-1.208$ , and the coefficient of LOSS is 0.679. Both of them are significant at 1% level. The coefficient of PRIORGC is 1.756 and significant at 1% level. The coefficient of NATIONAL\_LEADER is  $-0.053$  and insignificant. The coefficient of CITY\_LEADER is 0.222 and significant at 5% level. In general, coefficients of control variables are consistent with prior studies as expected. In the second test, the coefficient of OFFICE is 0.117 and still significant at 1% level after including INFLUENCE. The coefficient of INFLUENCE is 0.648 and insignificant. Other control variables are similar to results reported in the first test.<sup>18</sup>

[Insert Table 7 Here]

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<sup>18</sup> Alternatively, I also estimate a pooled cross-section probit model with robust standard errors. Results are consistent. OFFICE is still significant at 1% level.

In evaluating auditors' propensity of issuing going concern opinions, some prior studies have limited the analysis to subsamples of financially distressed clients (Hopwood, McKeown, and Mutchler, 1994; Mutchler, Hopwood, and McKeown, 1997, Reynolds and Francis, 2001; DeFond, Raghunandan, and Subramanyam, 2002). These studies argue that the going concern opinion decision is most salient among financial distressed clients. As an additional test, I restrict the sample to those 2,030 financially distressed clients, and results are reported in Panel B.<sup>19</sup>

The data structure of the financially distressed sample is different from that of the total sample, and the likelihood function is not concave if we fit a random-effects probit model to the data. Consequently, I treat this reduced sample as a cross-sectional dataset. The probit model is estimated with robust standard errors. The coefficient of OFFICE is 0.087 and significant at 5% level. In the second test, the coefficient of OFFICE is 0.106 and significant at 5% level, while the coefficient of INFLUENCE is 0.544 and insignificant.

I use a similar method as discussed in the previous section to measure the implied changes in the probability of issuing going-concern reports for hypothetical changes in OFFICE size. When I use the full sample, the increase of OFFICE size increases the probability of issuing going concern report by 0.3 percent (from 0.41 percent at the 25<sup>th</sup> percentile to 0.71 percent at the 75<sup>th</sup> percentile). It increases the probability by 1.41 percent (from 2.98 to 4.39) when using the distressed sample.

In summary, results in this section show that large offices are more likely to issue going concern reports, and hence are providing higher quality audits. Results are

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<sup>19</sup> Following prior studies, I define a client as financially distressed if its net income is negative or equal to zero (Compustat data item 172).

consistent with those documented in the abnormal accruals test and earnings benchmark tests. Together these results support the argument that there are significant variations of audit quality across different sizes of Big Four practice offices, and that larger offices are provide higher quality audits in terms of the likelihood of issuing going concern audit reports.

#### **4.5 Sensitivity Analysis**

In order to test whether results are driven by extreme measures of office size, I drop the bottom and top 10% of firm-year observations having the extreme office size measure. OFFICE in the multilevel model is significant at 1% level, and INFLUENCE is significant at 5% level. Same results found for OLS regressions with Newey-West robust standard errors and the fixed effect model. In some tests, INFLUENCE is also significant at 1% level. For the benchmark-beating tests, both OFFICE and INFLUENCE are significant at 1% in the avoiding earnings decrease tests. OFFICE is significant at 5% level in the avoiding loss tests, and INFLUENCE is significant at 1% level. For the going concern tests, results are significant at 5% for both OFFICE and INFLUENCE across all tests.

I use a client's sales revenue deflated by the aggregate client sales revenue audited by the office administering the audit as an alternative measure of INFLUENCE (Reynolds and Francis, 2001), results are even stronger than those reported in this paper, and OFFICE measure is significant in the avoiding-loss tests after controlling for INFLUENCE. I also use a client's audit fees scaled by the aggregate audit fee revenue generated by the office administering the audit as another alternative measure of INFLUENCE, and again results are consistent.

Studies argue that using OLS to estimate hierarchical data is incorrect. These studies offer at least two reasons why researchers should use alternative methods to estimate hierarchical data (Goldstein, 1995). First, OLS regressions assume error terms are independent and have equal error variances. However, when we have hierarchical data, individual-level observations (clients) from the same super-level group (industries) are not independent but rather are correlated. Hence, we might have invalid inferences if we use traditional statistical techniques. Second, the traditional approach to multi-level problems is to aggregate data to a super-level (ex., firm-level variables are averaged to the industry level and industries are used as the unit of analysis) or to disaggregate data to the base level (ex., each firm is assigned various industry-level variables, and all firms in a given industry have the same value on these industry-level variables, and firms are used as the unit of analysis). Ordinary OLS regression is then performed on the unit of analysis chosen. However, there are three problems with this traditional approach: (1) under aggregation, fewer units of analysis at the super-level replace many units at the base level, resulting in loss of statistical power; (2) under disaggregation, information from fewer units at the super-level is wrongly treated as if it were independent data for the many units at the base level, and this error in treating sample size leads to over-optimistic estimates of significance; and (3) under either aggregation or disaggregation, there is a danger of the ecological fallacy: that is, there is no necessary correspondence between individual-level and group-level variable relationships.

In order to address this concern, I use the restricted maximum likelihood method to estimate a linear mixed model with multi-level random effects. Industry and auditor effects are treated as the second-level random effects. Both first-order autoregressive

covariance structure and banded Toeplitz are used to calculate the standard errors. Panel A of Table 8 reports the results.<sup>20</sup> In this estimation, the coefficient of the test variable, OFFICE, is  $-0.016$  and still significant at 1% level. Results are almost identical to those reported earlier.

Another concern is that there might be variables that are correlated with the error term but not included in my model. If this is the case, then the inference might be invalid. In order to address this omitted variable problems, I estimate a firm-level fixed effects model with auditor and industry dummies. Results are reported in Panel A of Table 8. The coefficient of OFFICE is  $-0.096$  and again is significant at the 1% level.

[Insert Table 8 Here]

Panel B of Table 8 reports results based on separate sub-samples of large clients and small clients. Construction of the large/small subsamples is achieved by partitioning each year's observations into upper/lower halves based on yearly median values of client assets. For the accruals test, I report three sets of results. In the first test, I use the restricted maximum likelihood method to estimate a linear mixed model. The coefficient of OFFICE is  $-0.019$  and significant at 1% level for the sample of large clients. For the sample of small clients, the coefficient of OFFICE is  $-0.014$  and significant at 1% level. In the second test, I use the restricted maximum likelihood method with multi-level random effects to re-estimate the model, and results are almost identical to the first test. The coefficient of OFFICE is  $-0.018$  and significant at 1% level for the sample of large clients. For the sample of small clients, the coefficient of OFFICE is  $-0.014$  and significant at 1% level. Finally, I estimate a firm-level fixed effects model with auditor

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<sup>20</sup> Note that the variable for relative client importance (INFLUENCE) is included in all estimations reported in Table 8.

and industry dummies.<sup>21</sup> The coefficient of OFFICE is  $-0.115$  and significant at 1% level for the sample of large clients, and it is  $-0.094$  and still significant at 1% level for the sample of small clients. I conclude that the accruals tests are consistent and robust across the upper and lower halves of the sample, indicating that client size does not drive the results.

For the benchmark test of reporting small positive earnings, when I treat the sample as cross-sectional dataset, the coefficient of OFFICE is  $-0.061$  and significant at 5% level for large clients, but it is  $-0.015$  and insignificant for small clients. When I treat the sample as cross-sectional time-series dataset, the coefficient of OFFICE is  $-0.7$  and significant at 10% level for large clients, but it is  $-0.029$  and insignificant for small clients. These tests suggest that the results in Table 5 on reporting small earnings are not generalizable to the full sample but instead are limited to the larger half of sample observations, so it is possible that client size per se affects the results. For the second benchmark test, reporting small earnings increases, when I treat the sample as cross-sectional dataset, the coefficient of OFFICE is  $-0.079$  and significant at 1% level for large clients, and it is  $-0.068$  and significant at 5% for small clients. When I treat the sample as cross-sectional time-series dataset, the coefficient of OFFICE is  $-0.087$  and significant at 5% level for large clients, and it is  $-0.068$  and significant at 5% for small clients. So the results are robust across the spectrum of client size for the second benchmark test (small earnings increases).

For the going concern test, the coefficient of OFFICE is  $-0.05$  and is insignificant for large clients, and is  $0.135$  and significant at 5% level for small clients. When I restrict the sample to financially distressed clients, the coefficient of OFFICE is  $-0.131$  and is

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<sup>21</sup> The Hausman test shows that fixed effect model is more appropriate.

insignificant for large clients, and is 0.128 and significant at 5% level for small clients. Thus it appears that the results for going concern reports hold for smaller clients in the sample but not larger clients. This is not surprising given that smaller firms have a larger ex ante likelihood of failure than do larger firms.

#### **4.6 Alternative Measures of Office**

As a sensitivity analysis, I use the total fees (sum of audit and nonaudit fees) audited by an office for a fiscal year as an alternative measure of office size (OFFICE). These results are consistent with those reported in Tables 4 through 7.

I also use the natural log of ranks of OFFICE as alternative measures of office size (results are weaker when using raw ranks). When constructing this measure based on the pooled sample, both OFFICE and INFLUENCE are significant at 1% level in all tests. For the benchmark tests, both OFFICE and INFLUENCE are significant at 1% level across all tests. For the going concern tests, OFFICE is significant at 1% level, and INFLUENCE is positive and significant at 10% level when using the whole sample. In the restricted sample, OFFICE is significant at 5% level, and INFLUENCE is not significant.

When I rank the office size measure by year and then take natural log, OFFICE in the multi-level random effects model is still significant at 1% level, and INFLUENCE is not significant. Both OFFICE and INFLUENCE are not significant in the OLS and fixed effect model. For the benchmark-beating tests, OFFICE is significant at 5% level in both tests, and INFLUENCE is not significant. For the going concern tests, OFFICE is significant at 10% level when using the total sample, and it is not significant when

restricting to financially distressed firms. INFLUENCE is not significant in the going concern tests.

The rank measure in the above tests is constructed based on the total number of firm-year observations in the sample (6,568). Alternatively, I also rank the number of offices by office (rank 805 offices), and results are consistent and significant across all tests.

I also create an OFFICE dummy variable by splitting the sample by the median of OFFICE. For the accruals tests, both OFFICE and INFLUENCE are significant at 1% level across all tests. For the benchmark-beating tests, results are not significant for the avoiding-loss tests, but both OFFICE and INFLUENCE are significant at 1% level for the avoid earnings decrease tests. For the going concern tests, OFFICE is significant at 5% level, and INFLUENCE is not significant across all tests.

Finally, I construct OFFICE measure based on the number of clients. When I use the number of clients directly, OFFICE is not significant in the OLS tests and the multi-level model estimation. In the fixed effect model, it is significant but positive. INFLUENCE is not significant in all tests. For the benchmark tests, OFFICE and INFLUENCE are positive and significant in the avoiding loss tests, but not significant in the avoiding earnings decrease tests. For the going concern tests, OFFICE and INFLUENCE are not significant in any tests.

When I use the log of number of clients, OFFICE is not significant in the OLS tests and the multi-level model estimation. In the fixed effect model, it is significant but positive. INFLUENCE is not significant in all tests. For the benchmark tests, OFFICE and INFLUENCE are positive and significant at 5% and 1% level in the avoiding loss



tests, not significant in the avoiding earnings decrease tests. For the going concern tests, OFFICE and INFLUENCE are not significant in any tests.

When I use the rank of number of clients, OFFICE is not significant in the OLS tests. Same results found for the multi-level model. In the fixed effect model, it is significant but positive. INFLUENCE is not significant in all tests. For the benchmark tests, OFFICE and INFLUENCE are significant at 5% in the avoiding earnings decrease tests, and not significant in the avoiding loss tests. For the going concern tests, OFFICE and INFLUENCE are not significant in any tests.

#### **4.7 Other Tests**

An alternative argument could be that the results reported in this study are driven by some omitted corporate governance variables. In order to address this concern, I merge the sample with the IRRC database. The merged sample has 3,079 observations. I rerun all the main tests after including the composite corporate governance measure, governance index, as an additional control. The governance index consists of 24 governance provisions as calculated in Gompers, Ishii, and Metrick (2003). It has a possible range from 1 to 24 and covers five categories: Delay, Protection, Voting, Other, and State. A low value of governance index indicates strong shareholder rights. Results are as follows. In the accruals tests, governance index is not significant. Office is still significant at 1% level. In the benchmark tests, governance index is not significant. Office is significant and consistent with our prediction. In the going concern tests, governance index is significant and consistent with the literature, but OFFICE is not significant.

As a further analysis, I also re-run the tests for each of the Big Four auditors separately. For brevity, results are not tabulated, but summarized as follows. In the accruals tests, the coefficient and P-value of OFFICE for the individual auditors are: PWC, -0.027 (0.000); KPMG, -0.011(0.141); Deloitte & Touche, -0.014(0.068); Ernst & Young, -0.019(0.007). In the benchmark beating tests, when assuming cross-sectional data, OFFICE is not significant in most of the tests. It is only significant in the earnings decrease test for KPMG, -0.08 (0.081); and in the small positive earnings test for PWC, -0.079 (0.023). When assuming cross-sectional time series data, the coefficient of OFFICE is only significant for PWC in the small positive earnings test, -0.106 (0.041). OFFICE is not significant in the rest tests. In the going concern tests, the coefficient of OFFICE is only significant for KPMG, 0.303 (0.066), when I use the total sample. None of them is significant in the tests using the restricted sample. One possible explanation to the insignificance of OFFICE in these firm specific tests could be due to the low power from the reduced sample size.

## CHAPTER 5. DISCUSSION AND CONCLUSION

Recent corporate scandals, the Sarbanes-Oxley Act of 2002, and the demise of Arthur Andersen have caused the Big Four accounting firms to re-evaluate their procedures to ensure that the quality of their audit work is of a high and consistent standard. Audit quality of Big Four auditors could be expected to have improved after the Sarbanes-Oxley Act for at least two reasons. First, the PCAOB inspections have been helping Big Four auditors to identify and address various accounting and auditing problems. As William McDonough (McDonough, 2005), the chairman of PCAOB, mentioned in his report to the Congress, the PCAOB is confident they are, “as the Congress intended, helping to move the profession steadily in the right direction - toward reducing the risks of material misstatements or unreliable auditing.” Second, anecdotal evidence indicates that the Big Four are taking their own proactive steps to improve audit quality. The firms have placed a premium on managing risk at the highest levels by creating new internal checks and balances. Ernst & Young, for example, has created the position of vice chairman of quality and risk management. PricewaterhouseCoopers (PWC) is pondering a grading system similar to the one used by credit-rating companies such as Moody's and Standard and Poor's. Samuel DiPiazza, CEO of PWC, proposed that auditors grade their clients on what he calls the "six C's" of financial reporting: completeness, compliance, consistency, commentary, clarity and communication (Chief Executive, April 1, 2004).

Despite incentives in the post-SOX era to have internal quality control practices that achieve uniformity and consistency across offices, the evidence in the dissertation indicates there is significant cross-sectional variation in audit quality across Big Four

practices offices, with audit quality increasing in office size. If local offices now have better-aligned incentives in partner compensation structures, stricter audit standards, and more consultation with the national office, then it is reasonable to expect that the variation in audit quality across practice offices would have been eliminated in the post-SOX environment. Given that this does not appear to be the case, future research could usefully investigate what additional factors are needed to mitigate the cross-sectional variation we observe in audit quality across practice offices of different sizes.

The following conclusions can be drawn from the empirical tests. There are strong office size effects on audit quality across Big Four practice offices, and the results indicate that large offices provide systematically higher quality audits. This finding suggests that cross-sectional variation in audit quality has not been mitigated by the Sarbanes-Oxley Act of 2002, even though some studies argue that legal institutions are fundamental determinants of audit quality, and accounting firms have strong incentives to achieve uniform quality across offices in the post-SOX era.

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## **Appendix A – Sample Selection Process**

As of August 31 2006, there are 87,458 observations available from Audit Analytic. As my study is about US audit market, I delete 7,609 observations where auditors are not located in US. As I use ticker to merge Audit Analytic with Compustat, I delete 39,930 observations with ticker missing. I then delete another 4,908 observations where audit fee data are not available. This process has generated an initial sample of 35,011 observations from Audit Analytic between fiscal year 2000 and 2005.

Fiscal year classification used in Audit Analytical is different from Compustat. If a company's fiscal year ends after January 15, Audit Analytic uses the current calendar year as its fiscal year. On the other hand, if a company's fiscal year ends between Jan 1 to 15, Audit Analytic uses the previous year as its fiscal year. For example, if a company's fiscal year ends on January 2 in 2005, its fiscal year is 2004. If its fiscal year ends on January 28 in 2005, its fiscal year is 2005. Audit Analytic use a similar scheme to define fiscal year month. When a company's fiscal year ends between 1 and 15 of any months, Audit Analytical uses the previous month as its fiscal year month. For example, if a company's fiscal year ends on January 2 in 2005, Audit Analytic uses December as its fiscal year month. If its fiscal year ends on January 2005, Audit Analytic uses January as its fiscal year month. Following the fiscal year convention from Compustat, I convert Audit Analytic fiscal year to Compustat fiscal year. That is when a company's fiscal year ends between January 1 and May 31 I use the previous year as its fiscal year. However, I use the fiscal year month from the Audit Analytic without change.

63 out of the 35,011 observations have duplicate records for the same fiscal year. A firm might have duplicate records for the same fiscal year for different reasons. I find that 53 of them have duplicate records due to the change of fiscal year end. I treat these duplicate records as independent observations and include all of them in the initial sample. 8 of them are due to duplicate audit opinion keys assigned by Audit Analytic. I verify these firms with Edgar filing, and find that the duplicate auditor opinion record is due to company incorporation or the registration of securities to be sold to the public by a company. As all the rest variables are identical, especially fee variables, I delete one of the duplicate records. 2 observations have duplicate records for other unclear reasons, and I also delete one of the duplicate records. After this process, I have a sample of 35,001 observations.

Standard & Poor's Compustat has devised pseudo tickers for certain classes of companies on the Compustat files. For example, a company trading in Canada might have the same ticker as a company trading in the US. Therefore, before I merge Audit Analytic with Compustat, I restrict Compustat firms to those incorporated in the US only. However, this control procedure is not perfect. If a firm is incorporated in US but traded in Canada, I might end up with mismatches, even though the probability of the presence of this scenario is very unlikely. It is also possible for duplicate ticker symbols to exist for companies on the active Compustat files (Primary, Supplementary, Tertiary, Full-Coverage) and the Industrial Research file. If this does occur, Compustat assign a period extension to the company in the research file. The company on the active file will carry the ticker symbol obtained from the S&P Stock Guide or the NASDAQ system directly. Sometimes, a company could have different classes of stocks trading on the New York or

American Stock Exchanges. Besides assigning the ticker listed in the S&P Stock Guide to identify the company, Compustat assigns a period and an alpha character after the ticker to represent the class of stock. Compustat also creates pseudo tickers under other different scenarios.

In order to efficiently merge Audit Analytic sample with Compustat sample, I first merge the Audit Analytic sample directly with Compustat without cleaning the pseudo ticker problems. There are 67,215 observations in Compustat after I restrict observations to firms incorporated in US only, between fiscal year 2000 and 2005, and with company name and fiscal year end data available. This merge generates a sample of 25,592 observations. In order to verify that firms in this merged sample are real matched companies, I compare the similarity of company names obtained from the two different samples. There are 9,887 observations with firm names that do not perfectly match. A firm's name could be recorded differently in these two databases. For example, Compustat uses 'GRACE (WR) & CO' for company A; while Audit Analytic uses 'WR GRACE & CO' for the same company. Based on the suggestion of WRDS, I use the SPEDIS function to compare the similarity of firm names. Specifically, I use 40 as the cut-off point, and sort out all firms with score over 40<sup>22</sup>. This screen process has sorted out 521 observations. As an additional screening process, I compare a company's assets and sales revenue obtained from Audit Analytic and Compustat. I treat a firm as a matched firm if its financial data, assets and sales revenue, from Audit Analytic are identical to its counterpart from Compustat (rounded to the first digit, i.e. to the nearest

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<sup>22</sup> SPEDIS function determines the likelihood of two words matching, expressed as the asymmetric spelling distance between the two words. If two words match perfectly, SPEDIS returns a value of zero. Otherwise, SPEDIS returns a nonnegative value that is usually less than 100 but never greater than 200. As SPEDIS (name A, name B) is not the same as SPEDIS (name B, name A), I use both of them and take the smaller value.

million). When a firm's assets or sales revenue from Compustat or Audit Analytic is missing, I treat this firm as a non-matched firm. This additional screening process has reduced the 521 non-matches to 325 firms. I then manually checked all of the 325 observations, and identified 24 observations that might be mismatches. I verified these 24 observations with Edgar filing. I find that 18 observations are possible mismatches or mismatches and are deleted, and 6 observations are actually matched firms.

There are two reasons why so many firms are sorted out based on financial data disagreement. The first reason is that Compustat generally does not collect assets and sales revenue for certain financial entities, especially mutual funds; while Audit Analytic has collected these two variables. The second reason is that sales revenue for banks and financial institutions cannot be extracted directly from a firm's financial statements, and has to be calculated. Compustat defines a bank's sales revenue as total current operating revenue plus net pretax profit or loss on securities sold or redeemed minus non-recurring income; while Audit Analytic defines sales revenue for banks and financial institutions as interest and non-interest income, and do not include write downs and losses of any kind. Calculating sales revenue for banks and financial institutions has created discrepancies between these two data sources. The reason that so many firms are sorted out based on firm name is that one data source sometimes uses abbreviation to record a firm's name, while the other do not. For example, one database might use INTL for international or use CA for California. Another reason is that some firms change names over time. In this case, one database might use a firm's new name, while the other use its old name.

As I discussed above, two companies could have the same ticker but different extension in Compustat. In order to control for this potential problem, I first delete these

matched firms in the first merge from the original 35,001 Audit Analytic sample before I clean the Compustat ticker based on the suggestion of WRDS. This process generates a sub-sample of 9,409 observations. I then merge this sub-sample with Compustat again. This time I have a merged sample of 3,940 observations. I follow the same procedure in the first merge to verify the accuracy of the second sample. 103 suspicious observations are sorted out based on firm name comparison. I manually checked these firms, and identified 58 observations that might be mismatches. After verifying with Edgar filings, I find that 28 of them are non-mismatches, and the rest are mismatches or possible mismatches.

The two separate merging processes described above have created a merged sample of 29,532 observations. After I delete the 73 mismatches (Because mismatched ticker could have more than one year data, I excluded more observations than I identified), I have a merged sample of 29,459 observations. I then delete 154 observations that have fiscal year end from Audit Analytic does not agree with Compustat. There are 1,600 observations with assets data missing from Compustat, and 1,214 observations with assets data missing from Audit Analytic. Whenever it is possible, I use Audit Analytic data to replace the missing data from Compustat, and vice versa. I then compare the assets data from Audit Analytic with those from Compustat (rounded to the first digit), and delete 695 observations where this variable disagrees (rounded to the first digit). There are 4,395 observations from Compustat with auditor code missing. Similar to assets, I replace these missing values with Audit Analytic data before I compare these two sources, and I delete 306 observations with auditor code inconsistent in these two datasets. My final sample consists of 28,304 observations.

Finally, I randomly select 100 observations from the final sample, and verify the data from Audit Analytic (auditor, auditor city, and audit fee) with Edgar filing. First, I find that these 100 firms are merged 100 percent correct. I find that all of the 100 observations have the correct auditor. Except for 4 small non-national auditors whose location I could not verify in the Edgar filing, all of the rest have the correct auditor city and auditor state. There are 2 observations with audit fee data inconsistent (both audited by two Big Four auditors), but very close to the Edgar filing. One company reports \$4,513,000 in its Edgar filing, but Audit Analytic records \$4,344,000. The other company reports \$190,300 audit fees, but Audit Analytic records \$187,000. The random sample shows that my sample is 98 percent correct in terms of audit fee data. Two percent is not correct but very close.

Audit Analytic defines total non-audit fees as the sum of audit related fees, benefit plan related fees, financial information system design and implementation related fees, tax related fees, and other fees. There are 4 observations with non-audit fee data inconsistent or calculated wrong. For example, one observation's other fees are omitted in calculating non-audit fees and total fees. Another observation's over \$2 million audit related fees are omitted in calculating non-audit fees. The total non-audit fees reported by Audit Analytic (Edgar filing) for the 4 firms are: \$41,225 (\$43,738), \$3,027,000 (\$6,235,000), \$434 (\$3,134), and \$171,420 (\$168,120, audit fee are understated and non-audit fees are overstated, but total fees are consistent). On average, audit analytic understates non-audit fees by 35.35 percent<sup>23</sup>. In summary, the random sample shows that

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<sup>23</sup> Besides these 10 observations, I find that one observation whose \$1,061,511 audit fees of internal control over financial reporting are excluded from audit fees and any of the non-audit fee categories listed above.

my sample is 96 percent correct in terms of non-audit fee data. Two percent is incorrect but very close, and the other two percent is incorrect and not close.

**Table 1 –Accounting Firm Office Size Based on 2003-2005 Data**

Panel A: Auditor Office Size Based on Audit Fee Revenues (in millions) - Audit Analytics Total Population

<b>Auditor</b>	<b># of Offices</b>	<b>Mean</b>	<b>Median</b>	<b>Std</b>	<b>Min</b>	<b>Q1</b>	<b>Q3</b>	<b>Max</b>	<b>Aggregate Fees</b>
Deloitte & Touche LLP	224	23.38	7.93	46.41	0	1.67	28.18	439.93	5,236.92
Ernst & Young LLP	239	23.83	11.71	35.89	0	4.99	26.38	270.28	5,694.33
KPMG LLP	247	18.84	5.98	35.22	0.11	2.22	18.16	293.24	4,653.29
PricewaterhouseCoopers LLP	220	34.96	10.68	73.91	0	3.54	31.63	623.53	7,691.85

Panel B: Auditor Office Size Based on Number of Clients - Audit Analytics Total Population

<b>Auditor</b>	<b># of Offices</b>	<b>Mean</b>	<b>Median</b>	<b>Std</b>	<b>Min</b>	<b>Q1</b>	<b>Q3</b>	<b>Max</b>	<b>Aggregate Clients</b>
Deloitte & Touche LLP	224	32.72	10	77.21	1	3	36.5	764	7,330
Ernst & Young LLP	239	31.70	14	56.67	1	7	28	352	7,576
KPMG LLP	247	21.75	8	37.30	1	4	24	321	5,372
PricewaterhouseCoopers LLP	220	35.25	12	72.38	1	4	27	503	7,754

Panel C: Auditor Office Size Based on Audit Fee Revenues (in millions) - Sample Used in This Study

<b>Auditor</b>	<b># of Offices</b>	<b>Mean</b>	<b>Median</b>	<b>Std</b>	<b>Min</b>	<b>Q1</b>	<b>Q3</b>	<b>Max</b>	<b>Aggregate Fees</b>
Deloitte & Touche LLP	186	27.69	12.325	49.85	0.17	2.89	35.14	439.93	5,149.45
Ernst & Young LLP	219	25.76	13.45	36.88	0.15	5.76	29.41	270.28	5,641.41
KPMG LLP	220	20.97	7.335	36.76	0.2	3.55	21.65	293.24	4,614.34
PricewaterhouseCoopers LLP	180	42.19	14.945	79.96	0.06	5.63	45.185	623.53	7,594.41

Panel D: Auditor Office Size Based on Number of Clients - Sample Used in This Study

<b>Auditor</b>	<b># of Offices</b>	<b>Mean</b>	<b>Median</b>	<b>Std</b>	<b>Min</b>	<b>Q1</b>	<b>Q3</b>	<b>Max</b>	<b>Aggregate Clients</b>
Deloitte & Touche LLP	186	36.79	15	82.76	1	5	42	764	6,843
Ernst & Young LLP	219	33.6	15	58.48	1	8	30	352	7,359
KPMG LLP	220	24	11	38.93	1	5	27	321	5,280
PricewaterhouseCoopers LLP	180	42.47	16	78.22	1	7	31.5	503	7,645

This table provides pooled descriptive statistics on the size of accounting firm offices in the United States in Audit Analytics database for fiscal years 2003, 2004 and 2005. There are 28,255 firm-year (client) observations between fiscal year 2003 and 2005 after I restrict the sample to Big 4 auditors located in the United States. Panel A reports the summary statistics based on aggregate audit fee revenues (in millions), and Panel B reports the summary statistics based on the number of clients audited by each office. Aggregate Fees (Aggregate Clients) is the aggregate audit fee revenues (total number of clients audited) for each Big Four accounting firm over the three-year period. Some of the clients in Audit Analytics do not have to disclose their audit fees. If a company does not report its audit fee for a specific fiscal year, Audit Analytics codes audit fees for that firm in that fiscal year as zero. This is why the minimum aggregate audit fee is zero for some offices during the sample period. Panel C and D replicate Panel A and B based on the merged sample used in this study. An individual office can appear up to three times in the dataset. There are 329 unique offices of the Big Four accounting firms in Audit Analytics distributed as follows: Deloitte (77), Ernst & Young (87), KPMG (85), and PricewaterhouseCoopers (80). There are 285 unique offices in the merged sample distributed as follows: Deloitte (65), Ernst & Young (78), KPMG (77), and PricewaterhouseCoopers (65).



**Table 2 – Firm-Year Descriptive Statistics (2003-2005)**

Variables	N	Mean	Median	Std	Min	Max
ABS_ACCRUALS	6,568	0.258	0.124	0.308	0.000	0.999
ACCRUALS	6,568	0.009	0.009	0.401	-0.999	0.999
SMALL_PROFIT	6,568	0.233	0.000	0.423	0.000	1.000
SMALL_INCREASE	6,568	0.129	0.000	0.336	0.000	1.000
CONCERN	6,568	0.026	0.000	0.160	0.000	1.000
OFFICE	6,568	65.415	40.839	84.690	0.056	623.535
Ln (OFFICE)	6,568	17.346	17.525	1.260	10.933	20.251
INFLUENCE	6,568	0.065	0.019	0.134	0.000	1.000
TENURE	6,568	0.204	0.000	0.403	0.000	1.000
SIZE	6,568	6.037	6.013	1.899	-2.172	13.420
CFO	6,568	0.064	0.113	0.345	-11.612	1.349
DEBT	6,568	0.483	0.456	0.487	0.002	19.963
LOSS	6,568	0.242	0.000	0.428	0.000	1.000
BANKRUPTCY	6,568	2.341	2.151	3.570	-59.402	230.036
DURATION	6,568	48.141	43.000	25.253	0.000	360.000
INVESTMENT	6,568	0.269	0.178	0.257	0.000	1.000
PRIORGC	6,568	0.026	0.000	0.158	0.000	1.000
VOLATILITY	6,568	0.136	0.111	0.099	0.011	0.990
MB	6,568	1.367	0.943	2.180	-4.928	16.871
NATIONAL_LEADER	6,568	0.297	0.000	0.457	0.000	1.000
CITY_LEADER	6,568	0.640	1.000	0.480	0.000	1.000

This table reports the descriptive statistics for variables constructed for this study. ABS\_ACCRUALS is the absolute value of abnormal accruals derived from the performance adjusted accruals model, Equation (1). ACCRUALS is signed abnormal accruals derived from Equation (1). SMALL\_PROFIT is a dummy variable, and coded as 1 if a client's net income deflated by lagged total assets is between 0 and 5%, and 0 otherwise. SMALL\_INCREASE is a dummy variable, and coded as 1 if a client's net income deflated by lagged total assets is between 0 and 1.3%, and 0 otherwise. CONCERN is a dummy variable that takes the value of 1 if a firm receives a going concern report in a specific fiscal year, and 0 otherwise. OFFICE (in millions) is the measure of practice office size. It is the aggregated client audit fees of a practice office in a specific fiscal year. Ln(OFFICE) is the natural log of OFFICE. INFLUENCE is the ratio of a specific client's total fees (audit fees plus non-audit fees) relative to the aggregate clients' total fees generated by a specific practice office where the client is audited. TENURE is a dummy variable that takes the value of 1 if auditor tenure is 3 or less than 3 years, and 0 otherwise. SIZE is the natural log of a client's total assets. CFO is operating cash flows deflated by lagged total assets. DEBT is a client's total liabilities deflated by total assets. LOSS is a dummy variable that takes the value of 1 if operating income after depreciation is negative, and 0 otherwise. BANKRUPTCY is the Altman Z-score, which is a measure of the probability of bankruptcy. Lower value indicates greater financial distress. REPORTLAG is the number of days between a client's fiscal year end and its earnings announcement date. INVESTMENT is the sum of a client's total cash and investment securities deflated by total assets. PRIORGC is dummy variable that takes the value of 1 if a client received a going concern report in the previous year, and 0 otherwise. VOLATILITY is a client's stock return volatility. It is the standard deviation of a client's monthly stock returns. MB is the natural log of the ratio a client's market value of equity to its book value of equity. NATIONAL\_LEADER is a dummy variable that takes the value of 1 if an auditor is the number one auditor in an industry in terms of client aggregated audit fees in a specific fiscal year, and 0 otherwise. CITY\_LEADER is a dummy variable that takes the value of 1 if an office is the number one auditor in terms of aggregated client audit fees in an industry within that city in a specific fiscal year, and 0 otherwise.

**Table 3 – The Correlation Matrices (Pearson on the top, and Spearman on the bottom)**

Variables	ABS_ACCRUALS	ACCUALS	SMALL_PROFIT	SMALL_INCREASE	CONCERN	OFFICE	INFLUENCE	TENURE	SIZE	CFO	DEBT	LOSS	BANKRUPTCY	DURATION	INVESTMENT	PRIORGC	VOLATILITY	MB	NATIONAL_LEADER	CITY_LEADER
ABS_ACCRUALS																				
ACCUALS	-0.067*																			
SMALL_PROFIT	0.046*	0.054*																		
SMALL_INCREASE	0.140*	-0.059*	0.140*																	
CONCERN	0.045*	0.031	-0.059*	-0.035*																
OFFICE	0.020	0.013	-0.033*	-0.022	0.004															
INFLUENCE	-0.129*	0.020	0.116*	0.114*	-0.068*	-0.580*														
TENURE	0.013	-0.004	0.011	0.001	0.009	-0.043*	-0.063*													
SIZE	-0.176*	0.014	0.138*	0.196*	-0.131*	0.111*	0.559*	-0.066*												
CFO	-0.169*	-0.010*	-0.083*	0.078*	-0.151*	-0.051*	0.238*	0.020	0.382*											
DEBT	-0.134*	0.026	0.149*	0.104*	0.122*	-0.008	0.282*	0.039*	0.372*	0.075*										
LOSS	0.218*	-0.049*	-0.264*	-0.163*	0.176*	0.028	-0.299*	-0.018	-0.461*	-0.655*	-0.155*									
BANKRUPTCY	-0.074*	0.003	-0.050*	-0.031	-0.167*	-0.046*	-0.114*	-0.003	-0.154*	0.282*	-0.540*	-0.276*								
DURATION	0.032*	-0.037*	0.003	-0.077*	0.173*	-0.071*	-0.213*	0.070*	-0.457*	-0.235*	0.028	0.209*	-0.048*							
INVESTMENT	0.266*	-0.038*	-0.223*	-0.174*	0.004	0.119*	-0.278*	-0.031	-0.342*	-0.259*	-0.470*	0.431*	0.088*	-0.071*						
PRIORGC	0.064*	0.041*	-0.034*	-0.039*	0.545*	-0.022	-0.066*	0.006	-0.129*	-0.145*	0.099*	0.149*	-0.140*	0.152*	0.023*					
VOLATILITY	0.216*	-0.020	-0.115*	-0.231*	0.188*	-0.039*	-0.319*	0.050*	-0.532*	-0.383*	-0.132*	0.451*	-0.055*	0.255*	0.320*	0.203*				
MB	0.135*	-0.024	-0.306*	-0.098*	0.103*	0.071*	-0.029	-0.005	-0.031	0.158*	0.125*	0.071*	-0.111*	-0.106*	0.298*	0.112*	0.087*			
NATIONAL_LEADER	-0.040*	-0.001	0.020	0.021	-0.009	0.141*	-0.006	-0.041*	0.120*	0.038*	0.069*	-0.071*	-0.007	-0.049*	-0.055*	-0.012	-0.081*	-0.018		
CITY_LEADER	-0.078*	-0.012	0.039*	0.049*	-0.002	-0.090*	0.227*	-0.047*	0.183*	0.062*	0.123*	-0.089*	-0.032*	-0.075*	-0.082*	-0.011	-0.099*	-0.006	0.117*	

\* Indicates significant at 1% level

This table reports the Pearson and Spearman correlation matrices for variables constructed for this study. All variables are defined as in Table 2.

**Table 4 – Performance Adjusted Discretionary Accruals Tests**

Independent Variables	Predicted Sign	Unsigned Abnormal Accruals			Absolute Value of Negative Abnormal Accruals			Positive Abnormal Accruals					
		Coefficient estimate	p-value	Coefficient estimate	Coefficient estimate	p-value	Coefficient estimate	Coefficient estimate	p-value				
Experimental Variable:													
OFFICE	-	-0.011	0.000	-0.016	0.000	-0.010	0.007	-0.014	0.003	-0.008	0.024	-0.012	0.008
Control Variables:													
INFLUENCE	-			-0.079	0.010	0.031	0.012	-0.062	0.119	0.013	0.249	-0.060	0.173
TENURE	+	0.022	0.011	0.021	0.013	0.031	0.012	0.030	0.013	0.013	0.249	0.013	0.268
SIZE	-	-0.001	0.598	0.001	0.620	-0.001	0.863	0.001	0.743	0.001	0.864	0.003	0.455
CFO	-	-0.043	0.002	-0.045	0.001	0.015	0.576	0.014	0.610	-0.072	0.000	-0.073	0.000
DEBT	+	-0.013	0.259	-0.012	0.294	-0.039	0.007	-0.039	0.008	0.007	0.229	0.008	0.177
LOSS	-	-0.004	0.673	-0.004	0.733	0.057	0.000	0.058	0.000	-0.076	0.000	-0.075	0.000
VOLATILITY	+	0.254	0.000	0.252	0.000	0.233	0.001	0.232	0.001	0.251	0.000	0.251	0.000
MB	+	0.006	0.004	0.006	0.004	0.011	0.001	0.011	0.001	0.001	0.826	0.001	0.820
NATIONAL_LEADER	-	0.002	0.841	0.002	0.802	0.002	0.826	0.003	0.788	-0.001	0.888	-0.001	0.886
CITY_LEADER	-	0.005	0.483	0.006	0.415	0.003	0.771	0.004	0.709	0.005	0.625	0.005	0.589
Constant		0.196	<.0001	0.269	<.0001	-0.496	0.090	-0.551	0.062	0.120	0.040	0.187	0.013
N			6.568		6.568		3.111		3.111		3.457		3.457
Adjusted R-Square			0.405		0.395		0.484		0.482		0.530		0.530

This table reports the results of OLS estimation with Newey-West robust standard errors and auditor and industry dummies. Coefficients of auditor and industry dummies are omitted for brevity. Column 3 – 6 report results for the total sample. The dependent variables are the absolute value of performance adjusted abnormal accruals derived from Equation (1). Column 7 – 10 report results for the sub-sample of negative abnormal accruals. The dependent variable is the absolute value of negative abnormal accruals derived from Equation (1). Column 11 – 14 report results for the sub-sample of positive abnormal accruals. The dependent variable is positive abnormal accruals derived from Equation (1). All independent variables are defined as in Table 2.

**Table 5 – Benchmark-Beating Tests – Reporting Small Positive Earnings**

Independent Variables	Predicted Sign	Panel A: Assume Cross-Sectional Data			Panel B: Random Effects Probit Model				
		Coefficient estimate	p-value	Coefficient estimate	Coefficient estimate	p-value	Coefficient estimate		
Experimental Variable:									
OFFICE	-	-0.039	0.008	-0.015	0.413	-0.067	0.004	-0.038	0.175
Control Variables:									
INFLUENCE	-			0.359	0.029			0.430	0.091
TENURE	+	0.024	0.592	0.028	0.529	0.052	0.413	0.058	0.368
SIZE	+	0.033	0.005	0.020	0.120	0.039	0.035	0.024	0.237
DEBT	-	0.187	<.0001	0.184	<.0001	0.206	0.000	0.203	0.000
CFO	-	-0.459	<.0001	-0.454	<.0001	-0.564	0.000	-0.558	0.000
LOSS	-	-1.384	<.0001	-1.391	<.0001	-1.873	0.000	-1.878	0.000
MB	+	-0.134	<.0001	-0.135	<.0001	-0.153	0.000	-0.154	0.000
VOLATILITY	+	0.176	0.446	0.185	0.422	-0.034	0.916	-0.017	0.957
NATIONAL_LEADER	-	-0.018	0.660	-0.021	0.594	-0.031	0.621	-0.034	0.577
CITY_LEADER	-	0.036	0.360	0.034	0.388	0.042	0.474	0.040	0.496
Constant		0.006	0.982	-0.351	0.253	0.304	0.453	-0.123	0.796
N			6,568		6,568		6,568		6,568
Number of Unique Firms							2,572		2,572
Pseudo R-Square			0.116		0.117		0.103		0.104
Percent Concordant			0.727		0.738		0.747		0.766
Percent Discordant			0.273		0.262		0.253		0.235

This table reports the results of probit model estimates of Equation (3). Panel A reports results based on the assumption of cross-sectional data. Panel B reports results of random effects probit model estimation. I code an observation as 1 if it reports small positive earnings, and 0 otherwise. I classify an observation as reporting small positive earnings if its net income deflated by lagged total assets is between 0 and 5%. All independent variables are defined as in Table 2.

**Table 6 – Benchmark-Beating Tests – Reporting Small Increases in Earnings**

Independent Variables	Predicted Sign	Panel A: Assume Cross-Sectional Data			Panel B: Random Effects Probit Model				
		Coefficient estimate	p-value	Coefficient estimate	Coefficient estimate	p-value	Coefficient estimate		
Experimental Variable:									
OFFICE	-	-0.047	0.005	-0.062	0.003	-0.053	0.006	-0.068	0.004
Control Variables:									
INFLUENCE	-			-0.213	0.245			-0.229	0.276
TENURE	+	0.047	0.361	0.044	0.389	0.051	0.369	0.049	0.396
SIZE	+	0.109	<.0001	0.117	<.0001	0.120	0.000	0.129	0.000
DEBT	-	0.134	0.003	0.136	0.002	0.140	0.005	0.141	0.005
CFO	-	-0.192	0.012	-0.196	0.010	-0.175	0.037	-0.179	0.032
LOSS	-	-0.522	<.0001	-0.518	<.0001	-0.555	0.000	-0.550	0.000
MB	+	-0.063	<.0001	-0.062	<.0001	-0.066	0.000	-0.066	0.000
VOLATILITY	+	-1.923	<.0001	-1.926	<.0001	-1.868	0.000	-1.872	0.000
NATIONAL_LEADER	-	-0.016	0.718	-0.014	0.759	-0.014	0.789	-0.011	0.827
CITY_LEADER	-	0.025	0.581	0.027	0.556	0.028	0.583	0.030	0.560
Constant		-0.698	0.019	-0.480	0.170	-0.770	0.022	-0.540	0.174
N			6,568		6,568		6,568		6,568
Number of Unique Firms							2,572		2,572
Pseudo R-Square			0.084		0.084		0.072		0.072
Percent Concordant			0.718		0.715		0.751		0.746
Percent Discordant			0.282		0.285		0.249		0.254

This table reports the results of probit model estimates of Equation (3). Panel A reports results based on the assumption of cross-sectional data. Panel B reports results of random effects probit model estimation. I code an observation as 1 if it reports small earnings increase, and 0 otherwise. I classify an observation as reporting small earnings increase if its change in net income deflated by lagged total assets is between 0 and 1.3%. All independent variables are defined as in Table 2.

**Table 7 – Going Concern Audit Report Tests**

Independent Variables	Predicted Sign	Panel A: Total Sample			Panel B: Financially Distressed Clients				
		Coefficient estimate	p-value	Coefficient estimate	Coefficient estimate	p-value	Coefficient estimate		
Experimental Variable:									
OFFICE	+	0.091	0.019	0.117	0.009	0.087	0.047	0.106	0.034
Control Variables:									
INFLUENCE	+			0.648	0.214			0.544	0.419
TENURE	+	0.014	0.903	0.016	0.887	-0.016	0.898	-0.014	0.909
BANKRUPTCY	+	-0.046	0.025	-0.044	0.033	-0.035	0.103	-0.033	0.118
SIZE	-	-0.107	0.000	-0.121	0.000	-0.141	0.000	-0.152	0.000
DURATION	+	0.006	0.000	0.006	0.000	0.005	0.000	0.005	0.000
VOLATILITY	+	1.157	0.000	1.171	0.000	1.535	0.000	1.543	0.000
MB	+	0.066	0.000	0.064	0.000	0.043	0.005	0.042	0.006
DEBT	+	-0.124	0.049	-0.122	0.053	-0.111	0.085	-0.109	0.089
INVESTMENT	-	-1.208	0.000	-1.220	0.000	-1.222	0.000	-1.229	0.000
LOSS	+	0.679	0.000	0.678	0.000	-0.147	0.308	-0.145	0.314
PRIORGC	+	1.756	0.000	1.758	0.000	1.764	0.000	1.764	0.000
NATIONAL_LEADER	+	-0.053	0.625	-0.059	0.583	-0.018	0.884	-0.021	0.859
CITY_LEADER	+	0.222	0.029	0.222	0.029	0.293	0.009	0.292	0.010
Constant		-3.874	0.000	-4.259	0.000	-2.833	0.000	-3.120	0.000
N			6,568		6,568		2,030		2,030
Number of Unique Firms			2,572		2,572		1,150		1,150
Pseudo R-Square			0.356		0.357		0.291		0.292
Percent Concordant			0.895		0.893		0.887		0.885
Percent Discordant			0.105		0.127		0.113		0.115

This table reports results of estimation of Equation (4). Panel A fits a random-effects probit model to the cross-sectional time-series dataset. Results are based on the total sample. Panel B fits a probit model to a sample of financially distressed clients. The data structure of the financially distressed sample is different from that of the total sample, and the likelihood function is not concave for a random-effects probit model. Consequently, this reduced sample is treated as a pooled cross-sectional dataset. The probit model is estimated with robust standard errors. The dependent variable used in all tests is CONCERN, which is a dummy variable that takes the value of 1 if a firm receives a going concern report in a specific fiscal year, and 0 otherwise. All independent variables are defined as in Table 2.

**Table 8 – Sensitivity Analyses**

<u>Panel A: Alternative Estimation Methods</u>				
<u>Accruals Test</u>	Coefficient			
	estimate	p-value		
RML Estimates with Multilevel Random Effects	-0.016	0.000		
Firm Level fixed Effect Model with Auditor and Industry Dummies	-0.096	0.000		
 <u>Panel B: Subsample Tests</u>				
<u>Accruals Test</u>	Large Clients		Small Clients	
	Coefficient estimate	p-value	Coefficient estimate	p-value
OLS Estimates with Newey - West Robust Std Errors and Auditor and Industry Dummies	-0.019	0.000	-0.014	0.005
RML Estimates with Multilevel Random Effects	-0.018	0.000	-0.014	0.004
Firm Level fixed Effect Model with Auditor and Industry Dummies	-0.115	0.000	-0.094	0.000
 <u>Benchmark Beating Test</u>				
avoiding loss - Cross-Sectional Data	-0.061	0.032	-0.015	0.577
- Cross-Sectional Time-Series Data	-0.070	0.081	-0.029	0.441
avoiding earnings decrease - Cross-Sectional Data	-0.079	0.007	-0.068	0.036
- Cross-Sectional Time-Series Data	-0.087	0.010	-0.068	0.036
 <u>Going Concern Test</u>				
Total Sample	-0.050	0.636	0.135	0.012
Financially Distressed Firms	-0.131	0.443	0.128	0.018

This table reports results of sensitivity tests. Panel A reports results of alternative estimation methods for the accruals test. Panel B reports separate results for large clients and small clients. I split the total sample based on the median of client size by year. INFLUENCE is included in all estimations. All variables are defined as in Table 2.

## VITA

Michael Dong Yu was born April 7, 1968, in Shandong, People's Republic of China. After graduating from the Yantai 17<sup>th</sup> Middle School, Shandong, he received the following degrees: B.A in Public Administration from the University of International Relations, Beijing, China (1991); M.B.A. from the College of William and Mary, Virginia (2002); Ph.D. in Accounting from the University of Missouri – Columbia (2007). He is presently a faculty member of the accounting department at Washington State University, Pullman, Washington.