Auditor Locality, Audit Quality and Audit Pricing

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Abstract

Using a large sample of U.S. audit client firms over the 2001-2004 period, this paper investigates whether and how the locality of auditor or the geographic proximity between auditors and clients affects audit quality and audit pricing. We use the magnitude of abnormal accruals as a proxy for audit quality. To capture the effect of auditor locality, we differentiate local auditors from non-local auditors based on: (1) whether or not the practicing office of an audit engagement is located in the same state where the client is headquartered; and (2) the actual geographic distance between two cities where the auditor's practicing office and the client's headquarter are located. Our empirical results reveal the following: First, clients of local auditors report significantly lower abnormal accruals, compared with clients of non-local auditors, suggesting that local auditors provide higher-quality audits. Second, the fees paid to local auditors are, overall, not significantly different from those paid to non-local auditors. Further analyses show that *local* Big 4 auditors charge lower audit fees than *non-local* Big 4 auditors. Overall, our results indicate that local audits enhance audit quality without imposing additional costs on clients in the same locale.

Keywords: *Auditor locality, Geographic proximity, Audit quality, and Audit pricing.*

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

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1. Introduction

Since the Enron debacle and the subsequent Andersen collapse, regulators, lawmakers, academic researchers, and the popular press have paid considerable attention to engagement-specific factors determining the auditor-client relationship and their impacts on audit quality. In particular, regulators have often expressed their concern that such engagement-specific characteristics as the joint provision of audit and non-audit services by the same auditor, the length of the auditor-client relationship (or auditor tenure), and executives' association with auditors could impair auditor independence and thus audit quality. Reflecting their concern, the Sarbanes-Oxley Act of 2002 (SOX) prohibits the auditors from providing certain non-audit services to the same audit clients, requires mandatory rotations of audit partners, and imposes a new restriction that audit firm employees are prohibited for at least a one-year period from taking an executive position for their former client firms. Since the SOX enactment, many studies have examined the effect of non-audit fees, auditor tenure, executives being audit firm alumni on audit quality.[1]

Unlike previous research, the focus of this paper is on a new engagement-specific factor that may play an important role in the development of the auditor-client relationship, that is, the locality of auditors or the geographic proximity between auditors and clients. Just as the auditor-client relationship is built up over time (auditor

[1] Refer to Frankel et al. (2002), Chung and Kallapur (2003), Larker and Richardson (2004), Reynolds et al. (2004) and Choi et al. (2006b) for research on the joint provision of audit and non-audit service; Myers et al. (2003), Choi and Doogar (2005), and Ghosh and Moon (2005) for the effect of auditor tenure on audit quality, and Lennox (2004) and Menon and Williams (2004) for the effect of executives' affiliation with audit firms on going concern opinions and abnormal accruals, respectively.

tenure), or is established by personal ties between executives and audit firms (e.g., executives' affiliations with auditor firms), or is further developed by the existence of economic rents (e.g., opportunities for lucrative non-audit services), the locality or the geographic proximity naturally facilitates the development of a close relationship between the two parties. Anecdotal evidence is consistent with the above view. For example, the Enron-Andersen relationship reveals that Enron was audited for 16 years (1985-2001) by Andersen's practicing office in Houston where Enron was headquartered, Andersen's Houston office earned more from non-audit services to Enron than from audit services, and Enron's key accountants were Andersen's former employees. This raises a natural question: Is the Enron-Andersen relationship facilitated by the fact that both were located in the same locale? Our study seeks to shed light on this question.

In this paper, our primary interest lies in the issue of whether and how auditor locality affects audit quality and audit pricing. Is the locality of auditors an additional factor that maps into the auditor-client relationship and thus influences audit quality, after taking into account other engagement-specific factors that are deemed to influence audit quality? Does auditor locality impair or enhance audit quality? If auditor locality does affect audit quality, how is it reflected in the pricing of audit services? Our study aims to provide systematic evidence on these hitherto unexplored questions.

To address these research questions, we need to obtain empirical measures of audit quality and auditor locality (or geographic proximity). As in many other studies (e.g., Frankel et al. 2002; Chung and Kallapur 2003; Choi et al. 2006b), we use the magnitude of abnormal accruals as a proxy for audit quality. To capture the effect of the auditor locality on audit quality and audit pricing, we differentiate local auditors from non-local auditors. In our main analysis, we define an auditor as a '*local* (*non-local*) *auditor*' if the practicing office of the audit engagement is located in the same (different) state boundary where its client is headquartered. Suppose that an auditor's engagement office in New York has two clients located in two different states, New York and California. Under our definition above, the office is a local auditor for the New York client, and a non-local auditor for the California client. We adopt this state-based differentiation, because different states have different regulatory regimes or jurisdictions, and each state has its own CPA institute for the registration, licensing, and continuing education and training of practicing auditors.[2] As such, the state-level analysis allows us to control for potential confounding effects of these cross-state differences on our results.

However the state-level analysis has limitations because the auditor-client distance is more likely to be far away in large states such as California and Texas than small states, and the audits by out-of-state auditors are not uncommon in large metropolitan areas covering multiple states. To overcome these limitations, we also consider an alternative approach as part of our sensitivity analyses: Here we define an auditor as a *local auditor* if the audit engagement office is located within 150 miles away from the client's headquarter, and as a *non-local auditor* if otherwise.[3] For this purpose, we compute the actual geographic distances between auditors and clients in our sample. The geographic proximity may facilitate information flows between auditors and clients even when the near-distance auditor is located in a different state, as

[2] Put differently, while auditors practicing in the same state are subject to the same legal and other regulatory requirements, auditors practicing in different states are subject to different legal, professional and/or training requirements.

[3] We also consider 100 or 200 miles as alternative thresholds, but the results are qualitatively similar.

it is likely to be the case in large metropolitan areas (e.g., the New York City area, the Chicago area, or the Washington-Baltimore area). Moreover, the use of this actual distance measure allows us to examine whether the geographic distance matters within the same state boundary or the distance does matter only when it is beyond a certain distance threshold (e.g., 150 miles). We therefore complement our main analysis using the actual distance measure as an alternative proxy for auditor locality.

To better understand the role of the auditor locality or the geographic proximity in the development of auditor-client relationships, we investigate the following two distinct, but interrelated, issues. First, our analysis focuses on the effect of auditor locality on audit quality proxied by the magnitude of abnormal accruals. Compared with non-local auditors, local auditors are expected to have superior knowledge about their clients because they are in a better position to get access to (both financial and non-financial) information about their clients. For example, local auditors are better able to obtain important client-specific information from local media. Local auditors can visit clients' business units more easily, and talk to suppliers and employees more frequently. Local auditors may also be able to establish closer personal ties, and thus more reliable communication channels, with their clients in the same locale, compared with non-local auditors. On one hand, these information advantages alleviate information asymmetry between auditors and clients, and lead to local auditors evaluating and monitoring their clients more effectively than non-local auditors. As a result, local auditors are likely to provide higher-quality audits than non-local auditors, other things being equal. On the other hand, auditor locality may impair auditor independence and thus audit quality. With relatively closer personal ties between local auditors and their clients, local auditors are more likely to acquiesce to client pressure for allowing substandard reporting, which in turn translates into lower-quality audits. Given the two opposing effects, it is an empirical question whether local auditors provide higher-quality audits than non-local auditors. To provide empirical evidence on this issue, we test whether clients of local auditors report a lower amount of abnormal accruals than clients of non-local auditors.

Second, we also examine the effect of auditor locality on audit pricing to obtain further insight into how the locality of auditors maps into the auditor-client relationship. Audit fees reflect audit quality as well as audit costs. On one hand, to the extent that local auditors provide higher-quality audits than non-local auditors, for example, through more effective monitoring, local auditors are able to charge higher audit fees than non-local auditors for the higher-quality services they offer. On the other hand, the geographic proximity and the information advantage that local auditors have over non-local auditors may enable the local auditors to make more efficient assessment of client-specific risk and other client characteristics, which may in turn lead them to save a nontrivial portion of audit engagement costs. In such a case, local auditors are likely to charge lower audit fees than non-local auditors. Given these two opposing effects, it is an empirical question whether local auditors enjoy a fee premium or not.

Briefly, our empirical results reveal the following: First, we find that clients of local auditors report significantly lower abnormal accruals, compared with clients of non-local auditors. This result suggests that local auditors provide higher-quality audits than non-local auditors in the sense that they are more effective in constraining aggressive earnings management. Second, we find that the fees paid to local auditors are, overall, not significantly different from those paid to non-local auditors. Further analyses with the control for endogenous auditor choice reveal that *local* Big 4 auditors charge lower audit fees (but not for non-audit or total fees) than *non-local* Big 4 auditors, but local non-Big 4 auditors charge as much audit, non-audit or total fees as non-local non-Big 4 auditors. This finding is consistent with the view that, for Big 4 auditors, the cost savings associated with local audits are sufficiently larger than the amount of potential audit fee premiums arising from higher-quality local audits. Overall, our results indicate that local audits enhance audit quality without imposing additional costs/fees on clients.

Our study contributes to the existing literature in the following ways. To our knowledge, this is the first study that identifies auditor locality as an additional engagement-specific characteristic which influences audit quality in the U.S. audit market. While previous research documents various engagement-specific factors that influence auditor independence and thus audit quality (e.g., the relative amount of non-audit services and auditor tenure), it has paid little attention to the role of auditor locality or geographic proximity in shaping the auditor-client relationship and thus influencing audit quality. Our study provides supportive evidence on the positive effect of auditor locality on audit quality.

Second, our study is also the first that considers auditor locality as a potential factor influencing audit pricing. Previous audit fee studies find that Big 4 brand name and industry expertise are priced in the competitive market for audit services (e.g., Craswell et al. 1995; Ferguson and Stokes 2002; Ferguson et al. 2003; Francis et al. 2005; Choi et al. 2006a). However, no previous research has examined whether audit fees are influenced by auditor locality after other engagement-specific factors are accounted for. Evidence provided in our study fills this gap, and helps us better understand the nature and development of the auditor-client relationships.

The remainder of the paper is structured as follows. In section 2, we develop our research hypotheses. In section 3, we discuss the variable measurements and empirical models. In section 4, we describe our sample and present descriptive statistics. In section 5, we present empirical results. In section 6, we discuss potential self-selection biases associated with clients' choice between local vs. non-local auditors, and offer further analyses. The final section concludes the paper.

2. Hypothesis Development

2.1 Auditor locality and audit quality

A CPA firm typically provides audit services to its clients through its practicing office located near their clients. In our sample, nearly 85% of clients are audited by auditors whose practicing offices are located in the same state where their clients are headquartered, and about 91% of clients are audited by auditors located within 150 miles from clients' headquarters. Most audit engagements in local audits are well characterized by the geographic proximity between auditors and clients. This geographic proximity or auditor locality may have both positive and negative effects on audit quality as explained below.

Several studies in the finance literature provide evidence that the geographic proximity among economic agents does matter in explaining their decision-making behavior and/or the contractual relationship among them. A growing body of research in the "home-bias" literature finds that equity investors overweight domestic stocks and underweight foreign stocks in their portfolio choices, primarily because they are more (less) familiar with domestic (foreign) stocks (e.g., Kang and Stulz 1997; Covrig et al. 2006; Kim and Yi 2006). Evidence also shows that in the U.S. equity market, fund managers and individual investors prefer to invest in locally headquartered firms, primarily because they are simply more familiar with local stocks, and have advantages in obtaining information about them (Coval and Moskowitz 1999; Ivkovic and Weisbenner 2005). Further, Malloy (2005) reports that geographically proximate analysts provide more accurate earnings forecasts than other analysts, suggesting that the former have an information advantage over the latter and this information advantage leads to better forecasting performance. Kedia and Rajgopal (2005) provide evidence suggesting that the geographic proximity between firms and regulators is associated with a firm's *ex ante* cost of misreporting which in turn affects the intensity of misreporting.

In a similar vein, we argue that geographically proximate, local auditors are naturally more familiar with clients in the same locale, and have information advantages in the engagement with their clients, compared with non-local auditors. Local auditors have easier access to private information about their clients through direct communications with executives and other employees of client firms than non-local auditors. They have natural opportunities to establish closer personal ties, and thus, to maintain more reliable communication channels, with their clients, compared with non-local auditors. In addition, they may be better able to obtain client-specific information from local media.

On one hand, this information advantage and the facilitated communication alleviate information asymmetry between local auditors and their clients, help local auditors assess client-specific risk and other client characteristics more accurately, and allow them to better evaluate clients' incentives and opportunities for substandard reporting. As such, local auditors are better able to monitor and evaluate clients' reporting behavior and to detect accounting errors or irregularities, compared with non-local auditors. This in turn translates into higher-quality audits by local auditors. In this paper, the above prediction on a *positive* association between audit quality and auditor locality is conveniently called '*the information perspective*.'

On the other hand, the geographic proximity or auditor locality may impair auditor independence and thus audit quality for the following reasons. With relatively closer ties between local auditors and their clients, local auditors are more likely to collude with their clients, and thus, to acquiesce to client pressure for allowing substandard reporting than non-local auditors, which translates into lower-quality audits. In this paper, this prediction on a *negative* association between audit quality and auditor locality is conveniently called '*the collusion perspective*.' Extant evidence from China's emerging market for audit services is consistent with the collusion perspective (Wang et al. 2005; Chan et al. 2006; Gul et al. 2006). For example, Gul et al. (2006) define local auditors as those auditors domiciled in the same administrative jurisdiction of the regional governments as their clients. They find that audit quality is, in general, lower for local auditors than for non-local auditors, because local auditors are more likely to be subject to political influences of the local government that is often the controlling shareholder of local firms. The role of political influences in shaping the auditor-client relationship is much more (less if not at all) salient in the Chinese (U.S.) audit environment. As evidenced in the well-publicized relationship between Enron and Andersen's practicing office in Houston, however, one cannot rule out the possibility of collusion between auditors and clients even in the market-based U.S. environment, in particular, where auditors are geographically proximate to their clients.[4]

In short, the information perspective predicts the *positive* effect of auditor locality on audit quality, while the collusion perspective predicts the *negative* effect. To provide empirical evidence on which perspective is supported or whether one effect is dominated by the other effect, we test the following hypothesis in null form:

> **$H_0$1**: *The level of earnings management, measured by the magnitude of abnormal accruals, is not significantly different between clients of local auditors and clients of non-local auditors, other things being equal.*

2.2 Auditor locality and audit pricing

Like the suppliers of other professional services such as medical doctors and lawyers, auditors take into account both the cost of delivering audit services and the quality of audit services they deliver, when pricing their services. Consistent with this view, the extant audit pricing models, developed first by Simunic (1980) and further extended by Choi et al. (2006a), predict that audit costs, which are equal to audit fees at a competitive equilibrium, are a function of: (1) client characteristics such as client size, client complexity, and client-specific risk; and (2) auditor characteristics such as brand name and industry expertise that influence the quality of audit services. In this section, our focus is on an additional auditor characteristic which is presumed to affect audit pricing, that is, the locality of auditors or the geographic proximity between auditors and clients.

Auditor locality may influence audit fees through its effect on the cost of delivering audit services and/or through its impact on audit quality. Anecdotal evidence

[4] Some anecdotal evidence supports this prediction. For example, Health Management Inc.'s management and the audit partner of its CPA firm, BDO Seidman, lived in the neighborhood and maintained a very close relationship. Such a close tie could have impacted the audit quality and subsequently led to the audit failure of Health Management Inc. (Knapp 2005).

indicates that a concern over high costs of audits by non-local auditors motivates a client to switch its auditor from a non-local auditor to a local auditor. In its 8-K report filed to the Security and Exchange Commission on June 26, 1998, for example, 800 Travel Systems, Inc. located in Tampa, Florida stated that the major reason for switching its non-local auditor domiciled in Dallas, Texas to a local auditor in Tampa is the higher audit costs associated with travel, lodging, long-distance communication, etc. As indicated in the above anecdotal evidence, geographically proximate, local auditors can save several types of audit contracting costs as described by Francis et al. (1999a):

> " ….. lower audit contracting costs. These contracting costs include: (a) search costs for the auditor to identify potential clients having acceptable risk and revenue potential; (b) costs of delivering the audit, including transportation of audit teams to client sites; (c) client search costs in establishing the quality of the audit to be delivered by a particular accounting firm; and (d) client costs in monitoring the delivery and quality of contracted services." (p.187)

These savings in audit contracting costs, other things being equal, would allow local auditors to charge lower audit fees, compared with the fees charged by non-local auditors, leading to a *negative* relation between audit fees and auditor locality.

On the other hand, as mentioned earlier, the information advantage and the facilitated communication channels that local auditors possess over non-local auditors may lead to more effective monitoring, and thus, higher-quality audits. As the quality is priced in the market for professional services (Tirole 1990), the providers of high-quality services should be able to charge higher fees than those of low-quality services, as evidenced by the existence of fee premiums associated with Big 4 auditors and industry specialists (Craswell et al. 1995; Carcello et al. 2002; Francis et al. 2005; Choi et al. 2006a). As a result, the higher-quality audits performed by local auditors should enable them to charge a fee premium on their services, other things being equal. In such a case, one would observe a *positive* relation between audit fees and auditor locality.

Given the two opposing effects of auditor locality on audit fees, it is an empirical question whether local auditors charge higher audit fees than non-local auditors. Thus, we test the following hypothesis in null form:

> **$H_0$2**: *Audit fees charged by local auditors are not significantly different from those charged by non-local auditors, other thing being equal.*

3. Measurement of Variables and Model Specification

3.1 Measurements of audit quality

As in many previous studies (e.g., Reynolds and Francis 2000; Frankel et al. 2002; Chung and Kallapur 2003; Butler et al. 2004; etc.), we use the magnitude of abnormal accruals to proxy for audit quality. The magnitude of abnormal or discretionary accruals (*DA*) is regarded as an outcome of opportunistic earnings management in the literature. It is now well known that the traditional *DA* measure using the Jones (1991) model is noisy (e.g., DeFond and Francis 2005). To alleviate this concern, we adopt two alternative measures of *DA*. One is obtained from the augmented Jones model of Ball and Shivakumar (2005) which controls for the asymmetric timeliness of accruals in recognizing economic gains and losses. The other measure comes from the estimation of a performance-matched, modified Jones model (Kothari et al. 2005). We denote these two measures by *DA1* and *DA2*, respectively.

The augmented Jones model of Ball and Shivakumar (2005) in Eq. (1) explains the computation of our first measure *DA1*:

$$\begin{aligned} ACCR_{jt} / A_{jt-1} &= \beta_1[1/A_{jt-1}] + \beta_2[(\Delta REV_{jt} - \Delta REC/A_{jt-1}] + \beta_3[PPE_{jt} / A_{jt-1}] \\ &+ \beta_4[CFO_{jt} / A_{jt-1}] + \beta_5 DCFO_{jt} + \beta_6[(CFO_{jt} / A_{jt-1}) * DCFO_{jt}] + \varepsilon_{jt} \end{aligned} \quad (1)$$

where, for firm *j* and in year *t* (or *t - 1*), *ACCR* denotes total accruals; *A, ΔREV,* and *PPE* represent total assets, changes in net sales, and gross property, plant and equipment, respectively; *CFO* represents cash flows from operation; *DCFO* is the dummy variable that equals 1 if *CFO* is negative and 0 otherwise; [5] and ε is the error term.

Ball and Shivakumar (2005) show that accounting accruals recognize economic losses in a timelier manner than economic gains, and that accounting accruals are a piecewise linear function of current-period cash flows from operations. To incorporate this asymmetry between economic gains and losses into our accrual model, we include three additional variables, namely CFO_{jt}/A_{jt-1}, $DCFO_{jt}$, and $(CFO_{jt}/A_{jt-1}) * DCFO_{jt}$, into the modified Jones-model, as shown in Eq. (2) below.[6] Using total accruals (*ACCR*) deflated by beginning total assets as the dependent variable, we estimate Eq. (1) for each two-digit, SIC-code industry and year.[7] Our first measure *DA1* is the difference between actual total accruals and the fitted values of Eq. (1).

Our second measure of abnormal accruals, i.e., *DA2*, is computed as follows. For each two-digit SIC-code industry and year, we estimate the cross-sectional version

[5] Note here that *DCFO* serves as a proxy for economic loss; Similar to Ball and Shivarkumar (2005), we also consider alternative proxies for economic loss, i.e., the dummy variable which has the value of 1 for changes in cash flows (*ΔCFO*) < 0, industry median-adjusted *CFO* < 0, or excess annual return (annual return minus annual market return) < 0; and 0 otherwise. Though not reported, the use of these alternative proxies for economic loss leads to similar results as those shown when we use *DCFO* as a proxy.

[6] Ball and Shivakumar (2005) demonstrate that their nonlinear or piecewise linear models are “a substantial specification improvement, explaining up to three times the amount of variation in accruals as conventional linear specifications” such as Jones (1991) model. (p.3)

[7] As in other studies, total accruals (*ACCR*) are defined as income before extraordinary items minus operating cash flows taken directly from the statement of cash (i.e., cash flow approach). Alternatively, when we measure the total accruals by balance sheet approach (the changes in non-cash current accruals minus changes in current liabilities net of changes in long-term debt included in current liabilities minus depreciation and amortization expenses), the (unreported) results are almost identical.

of the modified Jones-model in Eq. (2). Residuals from Eq. (2) are *DA* before adjusting for firm performance.

$$ACCR_{jt} / A_{jt-1} = \alpha_1[1/A_{jt-1}] + \alpha_2[(\Delta REV_{jt} - \Delta REC_{jt})/A_{jt-1}] + \alpha_3[PPE_{jt}/A_{jt-1}] + \varepsilon_{jt} \qquad (2)$$

Kasznik (1999) and Kothari et al. (2005) point out that unadjusted *DA* is significantly correlated with firm performance. Following the procedures proposed by Kothari et al., we match each firm-year observation with another from the same two-digit SIC code with the closest return on assets (ROA) in each year. We then compute performance-adjusted abnormal accruals, namely *DA2*, by taking the difference between the *DA* (before performance-based adjustment) and the ROA-matched firm's *DA*.

3.2 Empirical model for testing the effect of auditor locality on audit quality

To test our first hypothesis $H_0 1$, we estimate the following regression that links the magnitude of abnormal accruals with our variable of interest, i.e., auditor locality, and other control variables that are known to affect the extent of earnings management:

$$\begin{aligned}|DA|_{jt} = {} & \alpha_0 + \alpha_1 DSTATE_{jt} + \alpha_2 LNTA_{jt} + \alpha_3 BIG4_{jt} + \alpha_5 TENURE_{jt} + \alpha_6 NAS_{jt} \\ & + \alpha_7 INDSPEC_{jt} + \alpha_8 CHGSALE_{jt} + \alpha_9 BTM_{jt} + \alpha_{10} LOSS_{jt} + \alpha_{11} LEV_{jt} \\ & + \alpha_{12} ISSUE_{jt} + \alpha_{13} CFO_{jt} + \alpha_{14} LAGACCR_{jt} + Industry \;\&\; YearDummies + \varepsilon_{jt}\end{aligned} \qquad (3)$$

where, for firm *j* in year *t*, all variables are as defined in Table 1.

The absolute value of abnormal accruals, denoted by |*DA*|, is our proxy for opportunistic earnings management. As explained in the preceding section, we consider two alternative proxies, that is: (1) absolute abnormal accruals measured by the Ball and Shivarkumar (2005) approach, denoted by |*DA1*|; and (2) absolute abnormal accruals measured by the Kothari et al. (2005) approach, denoted by |*DA2*|. *DSTATE* is our test variable which proxies for auditor locality in our main analysis. The *DSTATE* variable equals 1 if the auditor's engagement office is located in the same state where a client is headquartered, and 0 otherwise. As will be further discussed later on, we also consider alternative measures of auditor locality based on the actual geographic distance between auditors and clients as part of our sensitivity analyses.

We include in Eq. (3) many control variables that are known to affect the extent of abnormal accruals. Evidence shows that large firms tend to report lower abnormal accruals than small firms (e.g., Dechow and Dichev 2002). We include *LNTA* in Eg. (3) to control for this client size effect. Several studies show that Big 4 auditors and industry specialists are more effective than non-Big 4 auditors and non-specialist, respectively, in constraining opportunistic earnings management (Becker et al. 1998; Francis et al. 1999b; Balsam et al. 2003; Krishnan 2003). It is therefore important for our hypothesis testing to isolate the effect of auditor locality from the effect of auditor size or reputation and industry expertise. For this purpose, we include the *BIG4* and *INDSPEC* variables in Eq. (3). We include *TENURE* in Eq. (3) because previous research by Johnson et al. (2002) and Myers et al. (2003) provides evidence that clients of longer tenure auditors have lower abnormal accruals. Frankel et al. (2002) provide evidence that abnormal accruals are greater for firms paying higher non-audit fees to their auditors, while the subsequent studies by Chung and Kallapur (2003) and Ashbaugh et al. (2003) find no clear evidence on a positive relation between non-audit fees and abnormal accruals. We include *NAS* in Eq. (3) to isolate the audit locality effect on audit quality from the non-audit fee effect.

BTM and *CHGSALE* are included to control for firm growth, while *LOSS* is included to control for potential differences in earnings management between loss and profit firms. We also include *ISSUE* to control for cross-sectional variations in financing transactions and their effects on earnings management. *LEV* is included because highly leveraged firms may have higher incentives for earnings management due to their concerns over debt covenant defaults (DeFond and Jiambalvo 1994; Becker et al. 1998). Evidence shows that the estimates of abnormal accruals using the Jones model or its variants are correlated with cash flows (Kasznik 1999; Butler et al. 2004; Kothari et al. 2005). We include *CFO* in Eq. (3) to control for this potential correlation. As in Ashbaugh et al. (2003) and Kim et al. (2003), we include lagged total accruals (*LAGACCR*) to control for the reversal of accruals over time. Finally, we include industry and year dummies to control for possible variations in accounting standards and regulations across industries and over years.

3.3 Empirical model for testing the effect of auditor locality on audit pricing

To test our second hypothesis $H_0 2$ regarding the effect of auditor locality on audit pricing, we posit the following regression that links audit fees with auditor locality, and other control variables that are known to influence audit price:

$$\begin{aligned} FEE_{jt} &= \beta_0 + \beta_1 DSTATE_{jt} + \beta_2 LNTA_{jt} + \beta_3 EMPLOY_{jt} + \beta_4 BIG4_{jt} + \beta_5 INDSPEC_{jt} \\ &+ \beta_6 AC_{jt} + \beta_7 NBS_{jt} + \beta_8 NGS_{jt} + \beta_9 INVREC_{jt} + \beta_{10} FOREIGN_{jt} + \beta_{11} EXORD_{jt} \\ &+ \beta_{12} LOSS_{jt} + \beta_{13} LEV_{jt} + \beta_{14} ROA_{jt} + \beta_{15} ISSUE_{jt} + \beta_{16} BTM_{jt} + \beta_{17} |DA^*|_{jt} \\ &+ Industry \,\&\, YearDummies + \mu_{jt} \end{aligned} \quad (4)$$

where for client firm *j* and in year *t*, all variables are as defined in Table 1. Our test variable, *DSTATE*, is the same as explained in the preceding section. The dependent variable, *FEE*, is measured as the natural log of the fees paid to auditors in thousand dollars. For the *FEE* variable, we consider three alternative fee metrics, that is: (1) audit fees which are fees paid to auditor for financial statements audits, denoted by *AFEE*; (2), non-audit fees which are fees paid to auditors for their non-audit services, denoted by *NAFEE*; and (3) total fees which are the sum of audit and non-audit fees, denoted by *TFEE*.

All control variables are measured as of the end of fiscal year unless otherwise noted. We include *BIG4* and *INDSPEC* to capture the effects of auditor size or reputation and industry expertise, respectively, on audit pricing. Based upon evidence documented in previous research (e.g., Craswell et al. 1995; Francis et al. 2005; Choi et al. 2006a), we expect positive coefficients on both *BIG4* and *INDSPEC*. Based upon evidence documented in previous research (e.g., Simunic 1980; Choi et al. 2006a), we expect positive coefficients on all variables representing client size (*LNTA* and *EMPLOY*), the scope of business (*NBS* and *NGS*) and client complexity (*INVREC*, *FOREIGN*, and *EXORD*). Auditors typically charge less at the beginning of their tenure, which is called "low balling" in the literature (DeAngelo 1981). We include the dummy for auditor changes, *AC*, to control for the low-balling effect on audit pricing.

In addition, we include *LOSS*, *LEV* and *ROA*, to control for client-specific risk to be borne by auditors. Since auditors charge higher fees for risky clients (e.g., Simunic and Stein 1996), we expect the coefficients on *LOSS* and *LEV* (*ROA*) to be positive (negative). We include *ISSUE* and *BTM* in Eq. (4) to capture the effect of a client firm's growth potential on auditors' fees. Growing firms are more often involved in external financing activities such as equity and bond offerings. The demand for both audit and non-audit services is greater for high-growth firms than low-growth firms (Reynolds et al. 2004). We therefore expect a positive (negative) coefficient on *ISSUE* (*BTM*).

Opportunistic earnings management may impact audit pricing too. Auditors may have to devote more time and effort to detecting earnings management by clients with higher magnitude of abnormal accruals, which in turn cause auditors to charge higher fees to such clients. However, it is possible that the magnitude of abnormal accruals is influenced by the fees paid to auditors. In such a case, a two-way causation may arise between $|DA|$ and *FEE*. To address this potential endogeneity problem, we first predict $|DA|$ using Eq. (3). We then include the predicted value of $|DA|$, denoted by $|DA^*|$, in Eq. (4). Finally we include industry and year dummies to control for variations in *FEE* across industries and over years.

[INSERT TABLE 1 HERE!]

4. Sample and Descriptive Statistics

4.1. Sample

The initial list of our sample consists of all firms included in the *Audit Analytics* database for the four-year period from 2001 to 2004. We extract data on the city-level locations of auditors' practicing offices and client firms' headquarters from the *Audit Analytics* database. After identifying the auditor and client locations, we obtain the latitude and longitude data for cities where the practicing office of each auditor and the headquarter of each client firm are located from the U.S. Census Bureau's Gazetteer 2000 city-state (places.zip) file. Using these data, we first identify whether or not the practicing offices of auditors and the client headquarters are in the same state, and then compute the actual geographic distance between (the centers of) two cities where auditor offices and client headquarters are located.[8] We exclude all client firms that are headquartered outside the 50 U.S. states because computing the geographic distance is problematic for these firms. In other words, we exclude, from our sample, client firms

[8] When the practicing office of the auditor and the headquarter of the client are located in the same city, the distance is calculated as zero. It is possible that the effect of the auditor locality would be stronger when the two offices are located in a nearer-distance within the city, but data unavailability limits these analyses (i.e., no street-level address for the auditor's office is available in the *Audit Analytics* database, and no longitude or latitude data are available for the street-level address).

whose headquarters are located in any foreign countries or any other outlying U.S. territories (e.g., Puerto Rico, Virgin Island, Guam).[9]

We also obtain audit and non-audit fees data from the *Audit Analytics* database. We retrieve all other financial data from the *Compustat Industrial* annual file. We exclude financial institutions and utility firms with their SIC codes being 6000-6999 and 4900-4999, respectively, due to the difficulty in measuring their abnormal accruals. After applying the above selection procedures and data requirements, we obtain a total of 11,108 firm-years for the test of our first hypothesis, $H_0 1$ and a total of 10,027 firm-years for the test of our second hypothesis, $H_0 2$. Appendix provides information on the number of clients and auditors in our sample by each state.

4.2. Descriptive statistics and univariate tests

Panel A of Table 2 presents the descriptive statistics for our earnings management measures, |*DA1*| and |DA2|, and three fee metrics, *AFEE, NAFEE*, and *TFEE*, separately, for the local auditor sample (*DSTATE* = 1) and the non-local auditor sample (*DSTATE* = 0), along with the results of univariate tests for differences in the mean and median between the two samples. As shown in Panel A, both |*DA1*| and |*DA2*| are significantly lower for clients of local auditors than those of non-local auditors. For example, the mean (median) value of |*DA1*| is 0.0903 (0.0516) for client of local auditors, and is 0.1100 (0.0584) for clients of non-local auditors. Their differences are significant at less than the 1% level. Panel A also shows that clients of local auditors pay significantly higher audit fees, higher non-audit fees and thus higher total fees, compared with clients of non-local auditors. For example, the mean value (median)

[9] The District of Columbia is counted as a state and included in the sample. Client firms whose headquarters are located in Alaska or Hawaii are included in the sample, but the exclusion of those firms from our sample doesn't affect our results qualitatively.

values of *AFEE* and *NAFEE* for clients of local auditors are 5.8130 and 4.7414 (5.5677 and 4.8760), respectively, while those for clients of non-local auditors are 5.5843 and 4.3563 (5.3822 and 4.5466), respectively. These differences are significant at less than the 1% level.

[INSERT TABLE 2 HERE!]

Panel B of Table 2 reports the descriptive statistics for all other variables used in this study. With respect to the results reported in Panel B, the following are apparent. On average, about 85% of our sample observations are audited by local auditors located in the same state (*DSTATE*).[10] The average distance between auditor and client (*DIST*) is 2.4226 which translate into 10.28 miles. However, when we calculate the distance using raw miles without log transformation, the average distance is about 91 miles. In our sample, about 9% of clients (*LONG_DIST*) are audited by auditors located at least 150 miles away from the headquarter city of the client.[11] The average client size (*LNTA*) is 12.0947 which is equivalent to about 179 million dollars. In our sample, about 81% of clients are audited by one of Big 4 auditors (*BIG4*), and the average auditor tenure

[10] Though not tabulated, we find that the percentage of firm-years audited by the in-state local auditors varies substantially from state to state, and that the percentage is, overall, higher for large states than for small states. For example, the percentage is 95%, 93%, and 87% for California, Texas, and Florida, respectively. In contrast, the states in the Northeast area tend to have a lower percentage of in-state local auditors. For example, the proportion is 40% for Maryland, 72% for New York, 76% for New Jersey and Virginia, and 81% for Pennsylvania.

[11] To check if there is any special reason to hire long-distance, non-local auditors, we choose the state of California (where the state-by-state sample size is the largest) and identify clients that hire auditors located at least 300 miles away from client headquarters. We find that a total of 50 clients firms (101 observations) belong to this category. For these firms, we search for 10-Ks from the *EDGAR* database to see if these firms have special connections with the states where their auditors come from. We find that, out of 50 client firms, 16 have major offices or plants in the states where their auditors are located, 4 moved headquarters to California from different states, but continued to hire their previous auditors. However, we are unable to find any compelling evidence that the remaining 30 clients have any special connections to the states where their auditors come from. We control for this potential endogenous choice of local auditors as part of sensitivity checks. (See section 6.)

(*TENURE*) is 1.8892 which is equivalent to about 6 years. On average, non-audit service fees are about 66% of total fees (*NAS*), and about 42% of clients hire industry specialists (*INDSPEC*). We do not offer explanations for the descriptive statistics for other variables in Table 2, for brevity, as they are self-explanatory.

Panel A of Table 3 presents the Pearson correlation matrix among all research variables included in Eq. (3). The two abnormal accruals measures, |*DA1*| and |*DA2*|, are highly correlated with the correlation coefficient of 0.4294 (p<0.01). The auditor locality indicator, *DSTATE*, is significantly negatively correlated with |*DA1*| and |*DA2*| with the correlation coefficients of -0.0602 and -0.0456, respectively (p < 0.001 for both).[12] As shown in Table 3, both |*DA1*| and |*DA2*| are significantly negatively correlated with client size (*LNTA*), the Big 4 auditor dummy (*BIG4*), auditor tenure (*TENURE*), the industry specialty dummy (*INDSPEC*), and non-audit fees (*NAS*), suggesting that these variables positively affect audit quality.

In addition, we find that both |*DA1*| and |*DA2*| are positively (negatively) correlated with *CHGSALE* (*BTM*), suggesting that high-growth firms engage more aggressively in opportunistic earning management, compared with low-growth firms. Consistent with evidence in previous research, we find that both |*DA1*| and |*DA2*| are positively correlated with leverage (*LEV*), potential financial distress (*LOSS*), and external financing activities (*ISSUE*), while they are negatively correlated with lagged

[12] We do not separately report the correlations for the *DIST* and *LONG_DIST* variables in Panels A and B of Table 3 for brevity. As expected, *DIST* (*LONG_DIST*) is positively correlated with both |*DA1*| and |*DA2*| with Pearson correlation coefficients of 0.0680 and 0.0604 (0.0716 and 0.0612), respectively. The *DIST* (*LONG_DIST*) is negatively related with *DSTATE* with the Pearson correlation coefficient of -0.5524 (-0.6068) and the correlation between *DIST* and *LONG_DIST* is 0.6724. For the *DIST* and *LONG_DIST* variables, the correlations with other control variables are similar to those between *DSTATE* and the control variables, except the sign is opposite. Among them, the highest correlation is -0.1677 between *DIST* and *LNTA*. The above mentioned correlations are all significant at less than the 1% level.

abnormal accruals (*LAGACCR*). Finally, we note that the correlation among our explanatory variables is not very high in its magnitude with the correlation between *BTM* and *CFO* of -0.4982 being the highest. This suggests that multicollinearity is unlikely to be a serious problem when estimating Eq. (3).

[INSERT TABLE 3 HERE!]

Panel B of Table 3 presents part of the Pearson correlations among the variables included in Eq. (4). The structure of correlations reported in Panel B can be summarized as follows: First, as expected, all three fee metrics, i.e., *AFEE, NAFEE*, and *TFEE*, are highly correlated with each other. Second, all three fee metrics are significantly positively correlated with our measure of auditor locality, *DSTATE,* suggesting that local auditors are likely to charge higher fees than non-local auditors.[13] Third, consistent with previous research, all three fee metrics are positively correlated with *BIG4* and *INDSPEC*, which suggests that there exist fee premiums for Big 4 auditors and Big 4 industry specialists, respectively. Finally, consistent with our expectation, our fee metrics are positively correlated with client size (*LNTA*), the scope and complexity of client business (*NBS, NGS, FOREIGN*, and *EXORD*), and client-specific risk (*LEV*). Contrary to our expectations, we find that our three fee metrics are negatively correlated with *INVREC* and *LOSS*, and positively correlated with *ROA*. We find, however, that when we control for client size (*LNTA*), the negative correlations of our fee metrics with *INVREC* and *LOSS* become positive and the positive correlation between our fee

[13] Although not separately tabulated for brevity, all the three fee measures are significantly correlated with *DIST* and *LONG_DIST* at less than the 1% level. For example, the correlation between *DIST* (*LONG_DIST*) and *AFEE*, *NAFEE*, and *TFEE* is -0.1435, -0.1321, and -0.1478 (-0.0925, -0.1083, and -0.1031), respectively. Both *DIST* and *LONG_DIST* are also significantly correlated with several control variables. The highest correlation among them is -0.1764 between *DIST* and *LNTA*.

metrics and *ROA* becomes negative, which is consistent with our priors.[14] Finally, we find that our fee metrics are negatively correlated with the auditor change indicator (*AC*), suggesting that newly hired auditors charge lower fees.

5. Empirical Results

5.1. Main results for testing hypothesis $H_0 1$

Table 4 reports the results of regression in Eq. (3). In section A (B), |*DA1*| (|*DA2*|) is used as the dependent variable. All reported *t*-statistics are corrected for heteroskedasticity by using the White (1980) method and serial correlations by using clustering procedures. We begin with the results reported in section A. We first estimate Eq. (3) after excluding our test variable, namely *DSTATE*, and then estimate Eq. (3) after including it. The results are reported in columns (1a) and (2a), respectively.

As shown in column (2a), the coefficient on *DSTATE* is significantly negative at less than the 1% level (-0.0114 with t = -2.98). This leads to a failure to reject our null hypothesis, $H_0 1$, and indicates that local auditors are more effective than non-local auditors in deterring opportunistic earnings management after controlling for all other factors. A comparison between columns (1a) and (2a) reveals that the inclusion of *DSTATE* improves the explanatory power of the model (measured by adjusted R^2) without changing the magnitude and significance of coefficients on all other control variables. The significant coefficient on *DSTATE*, along with the increase in the adjusted R^2, suggests that auditor locality is an important factor determining audit quality even after controlling for other engagement-specific factors such as client size

[14] For example, the partial correlation (after controlling for *LNTA*) is 0.1211 between *AFEE* and *INVREC* ($p < 0.001$); 0.0803 between *AFEE* and *LOSS* ($p < 0.001$); and -0.1607 between *AFEE* and *ROA* ($p < 0.001$).

(*LNTA*), auditor reputation and industry expertise (*BIG 4* and *INDSPEC*), and the relative important of non-audit fees (*NAS*), and other control variables.

To further examine whether the ability of local auditors to constrain opportunistic earnings management differs systematically between clients with income-increasing abnormal accruals and those with income-decreasing abnormal accruals, we split the full sample into two sub-samples with positive and negative abnormal accruals (i.e., *DA1* > and *DA1* < 0), and then estimate Eq. (3) separately for the two sub-samples. Columns (3a) and (4a) report the regression results for the sub-samples of clients with *DA1* > 0 and *DA1* < 0, respectively. We find that the coefficient on *DSTATE* is highly significant with a negative sign for both sub-samples, suggesting that local auditors are more effective in constraining *both* income-increasing and income-decreasing abnormal accruals, compared with non-local auditors. The significantly negative coefficient on *DSTATE* across all cases in Table 4 are consistent with the notion that the audit quality-improving effect of auditor locality through reducing information asymmetry (*the information perspective*) dominates the audit quality-impairing effect of auditor locality through facilitating the collusion between auditors and clients (*the collusion perspective*).

[INSERT TABLE 4 HERE!]

The coefficients on the control variables are, overall, in line with evidence reported in prior earnings management research. The coefficient on *LNTA* is highly significant with a negative sign across all four columns, suggesting that large client firms are involved in aggressive earnings management to a lesser extent, compared with small clients (e.g., Dechow and Dichev 2002). As shown in column (2a), the coefficient on *BIG4* is insignificantly negative (t = -1.02) when Eq. (3) is estimated using the full sample of clients. When we split the full sample into the two sub-samples with *DA1* > 0 and *DA1* < 0, however, the coefficient on *BIG4* becomes significantly negative for the sub-sample with *DA1* > 0 (t = -1.94), but it is insignificant for the sub-sample with *DA1* < 0 (t = 0.82). This asymmetry in the effect of *BIG4* on abnormal accruals is consistent with the finding of Kim et al. (2003) that Big 4 auditors are more effective than non-Big 4 auditors in constraining *income-increasing* earnings management, but they are no more effective than non-Big 4 auditors in constraining *income-decreasing* earnings management.[15] Our results provide mixed evidence on the effect of auditor tenure on audit quality: The coefficient on *TENURE* is insignificantly negative for the full sample and the sub-sample with *DA1* > 0, while it is significantly negative for the sub-sample with *DA1* < 0. This suggests that long-tenure auditors are better able to constrain earnings management than short-tenure auditors *only when* clients are actively involved in income-decreasing earnings management. We find that across all four columns in section A, the coefficient on *NAS* is insignificant. This is consistent with the majority of previous non-audit fee studies that document no significant relation between non-audit fees and audit quality (e.g., Chung and Kallapur 2003; Ashbaugh et al. 2004; Reynolds et al. 2004). The coefficient on *INDSPEC* is highly significant with a negative sign across all four columns. This is consistent with prior evidence that industry specialists provide higher-quality audits than non-specialist (Balsam et al. 2003; Krishnan 2004).

[15] Kim et al. (2003) argue that Big 4 auditors prefer income understatement to income overstatement, because their failures to detect income overstatement likely result in litigation while failures to detect income understatement do not. They further argue that when clients have income-increasing (income-decreasing) incentives, the conflict of interest (the convergence of interest) arises between auditors and clients. They provide evidence that Big 4 auditors are more effective than non-Big 4 auditors in constraining opportunistic earnings management through income-increasing accrual choices *only when* clients have incentives to choose income-increasing accruals.

With respect to the estimated coefficients on other control variables, the following are noteworthy. The coefficient on *BTM* (*CHGSALE*) is significantly negative (positive), which supports the view that high-growth firms manage earnings more aggressively than low-growth firms. The coefficients on *LOSS*，*LEV,* and *ISSUE* are all significantly positive, suggesting that client firms are more likely to engage in earnings management when they have potential financial distress and high debts and when they are involved actively in financing transactions such as equity and bond offerings. Consistent with evidence reported in previous research (e.g., Becker et al. 1998; Ashbaugh et al. 2003; Kim et al. 2003), the coefficients on *CFO* and *LAGACCR* are highly significant with negative signs.

Section B of Table 4 reports the regression results using |*DA2*| as the dependent variable. Overall, the results indicate that the effect of audit locality on audit quality in terms of deterring opportunistic earnings management is robust to the use of alternative proxies for earnings management. The coefficient on *DSTATE* is significantly negative for the full sample (t = -2.14), the sub-sample with |*DA2*| > 0 (t = -1.84), and the sub-sample with |*DA2*| < 0 (t = -1.71), though the level of significance is a bit lower when |*DA2*| is used than when |*DA1*| is used.

With respect to the coefficients on control variables in section B, the following is noteworthy. First, while the coefficient on *BIG4* is insignificantly negative when |*DA1*| is used as shown in column (2a), it becomes significantly negative when |*DA2*| is used with t = -3.17. We find, however, that the coefficient on *BIG4* is significantly negative for the sub-sample with |*DA2*| > 0, but it is insignificant for the sub-sample with |*DA2*| < 0, which is consistent with the results reported in section A and Kim et al.'s (2003) findings. Second, while the coefficient on *INDSPEC* is highly significant with a negative sign when |*DA1*| is used (as reported in section A), it becomes insignificantly negative at the conventional level when |*DA2*| is used. Finally, we observe that the significance levels of the coefficients on *LEV, ISSUE,* and *LAGACCR* vary from section A (when |*DA1*| is used) to section B (when |*DA2*| is used), though the signs of the coefficients on these variables remain unchanged regardless of whether |*DA1*| or |*DA2*| is used as the dependent variable.

5.2. Sensitivity checks using alternative measures of auditor locality

To check the robustness of the results reported in Table 4, we perform sensitivity tests using alternative proxies for auditor locality. For this purpose, we compute actual geographical distances in miles between two cities where the practicing office of an audit engagement and a client's headquarter are located. Table 5 reports the results (with *t*-statistics corrected for serial correlations and heteroskedasticity) when the *DSTATE* variable is replaced by (the natural log of) the exact distance in miles between the two city centers (*DIST*) or by the distance indicator variable (*LONG_DIST*) which equals 1 if *DIST* is greater than 150 miles and 0 otherwise.[16] Section A (B) presents the results using |*DA1*| (|*DA2*|) as the dependent variable.

As shown in columns (1a) and (2a) of section A, we find the coefficient on *DIST* is insignificant, but the coefficient on *LONG_DIST* is significant with a positive sign at less than the 5% level. This suggests that the geographical proximity between auditors and clients is a significant factor influencing audit quality (in terms of deterring earnings management) only when the distance between an auditor's practicing office

[16] We choose the 150 miles as a cut-off because 150 miles is about 2 hours' driving distance and it is about the maximum boundary that a person can commute. Our results, however, are not sensitive to the choice of alternative thresholds. For example, when we choose 100 (200) miles as a threshold, the coefficient on *LONG_DIST* is 0.0080 (0.0113) with t = 1.98 (2.19) for the regression in column (2a).

and a client' headquarter is beyond the 150-mile geographic boundary. To further examine the above issue, we include both *DIST* and the interaction between *DIST* and *LONG_DIST* in Eq. (3) in replacement of *DSTATE*. The result is reported in column (3a). Here, the coefficient on *DIST* (say δ_1) captures the effect of the distance on audit quality for clients whose headquarters are located within 150 miles away from their auditors (hereafter, short-distance clients), while the coefficient on *DIST*LONG_DIST* (say δ_2) captures the *incremental* effect of the distance on audit quality for clients whose headquarters are located at least 150 miles away from their auditors (hereafter, long-distance clients). As shown in column (3a), when both variables are included, δ_1 is insignificant, while δ_2 becomes significant with a positive sign. Note here that the (total) effect of the distance on audit quality for long-distance clients is captured by the sum of the two coefficients, i.e., ($\delta_1 + \delta_2$). The partial F-test reveals that the sum of these coefficients is significantly different from zero (F = 4.99 with $p = 0.0289$). The above results, as a whole, can be interpreted as follows: the geographic distance does not matter when the auditor and the client are located within a relatively short-distance, geographic boundary ($\delta_1 = 0$), while it does matter when the auditor-client distance are beyond a certain boundary ($\delta_2 > 0$). For long-distance clients, the longer is the auditor-client distance, the higher is the magnitude of abnormal accruals, and thus, the lower is the audit quality ($\delta_1 + \delta_2 > 0$).

As shown in section B, the use of |*DA2*| does not alter our statistical inferences on the test variables. The coefficients on *DIST, LONG_DIST,* and *DIST*LONG_DIST* reported in section B are qualitatively similar to those reported in section A.[17] With

[17] The partial F-value for testing the significance of the sum of the two coefficients *DIST* and *DIST*LONG_DIST* (i.e., $\delta_1 + \delta_2$) is 3.40 (p = 0.0653) for the regression reported in column (3b).

respect to the estimated coefficients on our control variables, the results are qualitatively identical with those reported in Table 4. We therefore do not repeat the discussions on the control variables. In sum, the results in Tables 4 and 5, taken together, indicate that the locality of auditor is a significant engagement-specific factor that maps into the auditor-client relationship even after all the control variables are accounted for, and the results are robust to the use of alternative measures of abnormal accruals and auditor locality.

[INSERT TABLE 5 HERE!]

As further sensitivity checks, we also estimate Eq. (3), using the performance unadjusted abnormal accruals as the dependent variable (i.e., using the modified Jones model in Eq. (2) as specified in Dechow et al. (1995)). We also run the median-quantile regression, the Fama-MacBeth regression, and year-by-year regressions after excluding year dummies. We repeat our tests, separately, for the sub-sample of Big 4 clients and for the sub-sample of non-Big 4 clients. Though untabulated, the results from these robustness checks are, overall, qualitatively similar to those reported in Table 4.[18]

5.3. Main results for testing hypothesis $H_0$2

Table 6 reports the results of regression in Eq. (4). In section A, audit fee (*AFEE*) is used as the dependent variable, while in sections B and C, non-audit fee (*NAFEE*) and total fee (*TFEE* = natural log of audit fees plus non-audit fees) are used, respectively. As in Tables 5 and 6, all reported *t*-statistics are corrected for heteroskedasticity and serial correlations.

[18] For example, the coefficient on *DSTATE* for the regression in column (2a) of Table 4 is -0.0154 with *t* = -3.33, -0.0056 with *t* = -1.96, and -.0111 with *t* = -2.99, respectively, for the regression using the performance unadjusted abnormal accruals as the dependent variable, for the meadian quantile regression, and for the Fama-MacBeth regression.

As shown in Table 6, the coefficient on *DSTATE* is insignificant across all three columns, which leads to a failure to reject our null hypothesis, $H_0 2$. The failure to reject $H_0 2$, along with the rejection of $H_0 1$, indicates that while local auditors provide higher-quality audits than non-local auditors, local auditors do not charge higher fees to their clients than non-local auditors. We interpret this result as follows: Given that audit fees reflect audit quality, local auditors (of high quality) should be able to charge higher fees than non-local auditors (of low quality), other things being equal. However, one may not observe a fee premium associated with local audits if local auditors are able to deliver the same-quality audits at a lower cost, compared with non-local auditors. As mentioned in section 2, local auditors have cost advantages relative to non-local auditors because of the geographic proximity between local auditors and clients, which allows local auditors to charge lower fees to their clients. Our results in Table 6 are consistent with the view that cost savings associated with local audits are sufficiently large to offset the associated fee premiums resulting from high-quality, local audits. In short, our results in Tables 4 and 6, taken as whole, suggest that local audits improve audit quality without incurring additional costs to local clients. To this extent, local audits can be considered 'socially beneficial.'

[INSERT TABLE 6 HERE!]

With respect to the estimated coefficients on control variables, the following are apparent. We note that all control variables except for |*DA1**| are, overall, highly significant with expected signs across all three columns (i.e., regardless of three alternative fee metrics used), and are consistent with the findings in previous audit fee research. The coefficients on *LNTA* and *EMPLOY* are significantly positive, confirming that fees paid to auditors increase with client size. The coefficients on *BIG4* and

INDSPEC are highly significant with expected positive signs. This indicates that Big 4 auditors and industry specialists enjoy fee premiums relative to non-Big 4 auditors and non-specialists, respectively. The coefficients on *NBS, NGS, INVREC, FOREIGN*, and *EXORD* are significantly positive, which is consistent with the finding of previous research that auditors charge higher fees to clients whose business are diversified, geographically dispersed, or complex (e.g., Choi et al. 2006a). The coefficients on *LOSS* and *LEV* (*ROA*) are significantly positive (negative), indicating that auditors charge higher fees for high-risk clients. The positive (negative) coefficient we observe on *ISSUE* (*BTM*) suggests that auditors charge higher fees for such clients that are involved in capital transactions (clients with high growth potentials). We observe that the coefficient on the predicted value of abnormal accruals ($|DA\ 1^*|$) is insignificant with a positive sign.

5.4. Sensitivity checks using alternative measures of auditor locality

To check whether the results reported in Table 6 are robust to alternative proxies for auditor locality, we estimate Eq. (4) using *DIST* and *LONG_DIST* instead of *DSTATE*. Sections A, B, and C of Table 7 report the results for the full sample of both Big 4 and non-Big 4 clients, the sub-sample of Big 4 clients, and the sub-sample of non-Big 4 clients, respectively, using *AFEE* as the dependent variable. A comparison of the full sample results reported in section A of both Tables 6 and 7 reveals that the use of alternative proxies does not alter our statistical inferences on the effect of auditor locality on audit quality. As shown in section A of Table 7, the *DIST*, *LONG_DIST* and *DIST * LONG_DIST* are all insignificant, which is consistent with the results reported in section A of Table 6.

[INSERT TABLE 7 HERE!]

When we split the full sample into the sub-sample of Big 4 clients and the sub-sample of non-Big 4 clients, the coefficient on *DIST* is insignificant across all cases. However, the coefficient on *LONG_DIST* is significantly positive (0.0568 with t = 2.41) for the Big 4 sub-sample as shown in column (4), but not for the non-Big 4 sub-sample as shown in column (6). As shown in columns (3), (5), and (7), the coefficients on *DIST* and *LONG_DIST* are both individually insignificant across all three columns. Note here that in the regressions reported in columns (3), (5), and (7) of Table 7, the coefficient on *DIST* (say γ_1) captures the effect of the auditor-client distance on audit fees for short-distance clients, while the coefficient on *DIST*LONG_DIST* (say γ_2) captures the *incremental* effect of the distance on audit fees for long-distance clients.

As such, the total effect of the distance on audit fees for long-distance clients is captured by the sum of the two coefficients, i.e., ($\gamma_1 + \gamma_2$). When we compute the partial F-statistics for testing for the significance of ($\gamma_1 + \gamma_2$) for the regressions in columns (3), (5) and (7), the sum of the two coefficients, i.e., ($\gamma_1 + \gamma_2$), is significant only for the regression for the Big 4 sub-sample in column (5) (F = 4.99 with p = 0.0256), but not for the regressions for the full sample and the non_Big 4 sub-sample in columns (3) and (7), respectively. The significance of ($\gamma_1 + \gamma_2$), along with the significantly positive coefficient on *LONG_DIST*, only for the Big 4 sub-sample, indicate that *local* Big 4 auditors which are located within 150 miles away from the clients' headquarters charge lower fees than other Big 4 auditors located at least 150 miles away. It appears that the cost savings by local Big 4 auditors are sufficiently larger than the amount of fee premium arising from high-quality local audits. Note, however, that as shown in section C, there is no significant fee difference between *local* non-Big 4 auditors and *non-local* non-Big 4 auditors.[19] This suggests that, among local auditors, Big 4 auditors are more cost-efficient in producing audit services to their clients than non-Big 4 auditors.

Though not reported, the coefficients on *DIST, DIST*LONG,* and *DIST*LONG_DIST* are all insignificant when *NAFEE* or *TFEE* are used as the dependent variable. With respect to the coefficients on control variables, the results in Table 7 are qualitatively similar to those reported in Table 6 except that the coefficient on *INDSPEC* is insignificant for the sub-sample of non-Big 5 auditors. This insignificance is as expected because in our sample, only a small portion of non-Big 4 auditors are classified as industry specialists.[20]

6. Further analysis on endogenous auditor choice

To the extent that clients self-select local vs. non-local auditors and this selection decision is possibly influenced by their incentive for earnings management and their ability to pay audit fees, the coefficient on *DSTATE* in Eq. (3) and (4) are likely to suffer from a self-selection bias. To address this potential problem, we estimate both Eqs. (3) and (4) by applying the two-stage treatment effect model. In the first stage, we estimate a probit auditor-choice model, and compute inverse Mills ratios. In the second stage, we then re-estimate our main regressions in Eqs. (3) and (4). Given that we do not have a well-defined theory which helps us guide the selection of explanatory variables for the probit auditor-choice model, we posit that the choice of local vs. non-

[19] With respect to the results reported in column (7) of Table 7, the partial F-test reveals that the sum of the coefficients on *DIST* and *DIST*LONG_DIST* for non-Big 4 auditors is not significantly different from zero (F = 0.18 with p = 0.6732).

[20] Among 1,938 observations used for Section C, only 14% (281 observations) are classified as clients audited by industry specialist non-Big 4 auditors. This proportion is substantially lower than that of 50% for Big 4 auditors.

local auditors is determined by four client-specific factors, that is client size (*LNTA*), the degree of diversification (*NBS*), the leverage ratio (*LEV*) and the loss dummy (*LOSS*), two state-wide variables, that is the degree of audit market development in a state where a client is located (*DAU*) and auditors' hourly wage (*WAGE*), and the indicator variable for the clients of Big 4 auditors (*BIG4*) as well as industry dummies,[21] and then obtain the following coefficient estimates:

$$DSTATE_{jt}^{*} = \underset{(10.53^{***})}{2.3430} + \underset{(1.92^{*})}{0.0181}*LNTA_{jt} - \underset{(-2.47^{**})}{0.0889}*NBS_{jt} - \underset{(-4.42^{***})}{0.1453}*LEV_{jt} + \underset{(0.04)}{0.0015}*LOSS_{jt}$$
$$+ \underset{(10.00^{***})}{0.4460}*BIG4_{jt} + \underset{(18.36^{***})}{5.9029}*DAU_{st} - \underset{(-9.85^{***})}{0.0779}*WAGE_{st} + \textit{Industry Dummies} \qquad (5)$$

where the subscripts, *j* and *s*, denote an individual firm and state, respectively, and the number in parenthesis denotes *z*-statistics.

In Eq. (5), *DSTATE* * is the *ex ante* unobservable probability that a client chooses a local auditor, which is *ex post* coded as 1 for clients with local auditors, and 0 for clients with non-local auditors. We include *LNTA* in Eq. (5) for the following reason: Other things being equal, large firms could easily hire local auditors, for example, because auditors are less likely to turn away large clients in the same locale. The *NBS* is used as a proxy for the degree of business diversification. Diversified firms are more likely to hire auditors from another state where one of their plants, offices or branches is located as explained before for the case of California clients. We thus expect a negative sign on *NBS*. We add *LEV* and *LOSS* because it would be more difficult for

[21] We choose the variables included in the Eq. (5) after comparing the client-specific variables (the variables reported in Table 2) between the clients of local vs. non-local auditors. Adding additional variables to Eq. (5) do not increase the explanatory power (pseudo R^2) of the model and subsequent regression results are almost identical. For example, when the predicted value of abnormal accruals (i.e., $|DA1^*|$) into the Eq. (5) to examine if clients with high DA prefer non-local auditors, the coefficient estimate for the variable is insignificant and there is almost no change in the results.

financially unhealthy or risky clients to hire local auditors if the local auditors are reluctant to serve such clients. Thus, we expect a negative coefficient both on *LEV* and *LOSS*. Because Big 4 auditors have offices in many different states, it is possible that the clients of Big 4 auditors would hire a Big 4 office in their own state rather than hire a Big 4 auditor office located in a different state which belongs to the same audit firm. Thus, we expect a positive sign on *BIG4*. *DAU* is used as a proxy for the level of audit market development in each client state, and is measured by total audit fees of all the clients located in a state in a given year divided by total audit fees of all the clients in the U.S. in the same year. We include *DAU* because clients are more likely to hire auditors from their own states if their states have a well-developed audit market. We therefore expect a positive sign on *DAU*. In Eq. (5), *WAGE* is measured by the median hourly auditor wage in a state where clients are headquartered. We include *WAGE* because clients in a state where the wage level is relatively high are more likely to hire auditors from a different state where the wage level is lower to save audit fees. We expect a negative sign on *WAGE*. We collect the data on the auditor wage from *Occupational Employment Statistics* (May 2005), published by the Bureau of Labour Statistics, U.S. Department of Labor. Finally, we include industry dummies to control for cross-industry differences in the demand for local audit services.[22] As shown in Eq. (5), the coefficients on all independent variables are all significant with expected signs at less than the 10% level except for *LOSS*, though the pseudo R^2 for Eq. (5) is relatively low (7.32%).

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[22] Industry dummies are determined by two-digit SIC code. The results without the industry dummies remain qualitatively identical to the results with them.

In the second stage, we add the inverse Mills ratios obtained from Eq. (5) as an additional control variable and re-estimate Eqs. (3) and (4). We find that the regression results for Eq. (3) after adding the inverse Mills ratios are qualitatively identical to those reported in Tables 4 and 5. For example, the coefficient on *DSTATE* for the full sample after including the inverse Mills ratios is -0.0127 with t = -3.18 (-0.0079 with t = -2.30) which is similar to the corresponding coefficient estimate (without the ratios) reported in column (2a) [column (2b)] of Table 4. We find, however, that the regressions results for Eq. (4) after including the inverse Mills ratios are slightly different from those (without the inverse Mills ratios) reported in Tables 6 and 7. Table 8 presents the result for Eq. (4) with the inverse Mills ratios included, using *AFEE* as the dependent variable.[23]

[INSERT TABLE 8 HERE!]

Sections A, B, and C of Table 8 report the results for the full sample, the Big 4 sub-sample, and the non-Big 4 sub-sample, respectively. Unlike the results reported in section A of Table 6, the coefficient on *DSTATE* is significantly negative for the full sample (-0.0578 with t = -2.47) and the Big 4 sub-sample (-0.0650 with t = -2.45), while it is insignificant for the non-Big 4 sub-sample (-0.0298 with t = -0.66).[24] In addition, though not tabulated, the coefficient on *DSTATE* is insignificant across all cases when *NAFEE* is used as the dependent variable. When *TFEE* is used the dependent variable, the coefficient on *DSTATE* is weakly significant for the full sample, significant for the

[23] Note that the sample size slightly decreases to 9,983 in Table 8 from 10,072 due to data unavailability for some variables used to calculate the inverse Mills ratio.

[24] These different results are not due to the differences in sample size. When we perform the same analyses as those reported in Tables 6 and 7, using 9,983 firm-years used for regressions reported in Table 8, the results do not change. For example, the coefficient on *DSTATE* is -0.0335 (t = -1.44) in this case, which is qualitatively identical with the reported coefficients in Tables 6 and 7 using 10,027 firm-years.

Big 4 sub-sample, and insignificant for the non-Big 4 sub-sample. The above results can be viewed as an indication that cost savings from local Big 4 audits are sufficiently large to offset the amount of potential fee premium associated with high–quality, local audit. Consistent across all cases is that, for non-Big 4 auditors, no audit-fee difference exists between local and non-local auditors.

7. Conclusion

While many studies have already examined the effect of locality or geographic proximity in the contexts of domestic and international portfolio decisions, analysts' forecast accuracy, corporate governance, and other areas of economics, few previous studies have examined the issue in the context of auditor-client relationships. To our knowledge, our study is the first to consider the auditor locality or the geographic proximity between auditors and clients as an engagement-specific factor that maps into the auditor-client relationship in the U.S. audit market. On one hand, we posit that the locality or the geographic proximity has a positive effect on audit quality because it facilitates information flows between auditors and clients and thus alleviates information asymmetries between the two parties. On the other hand, we posit that the locality or the proximity has a negative effect on audit quality because it increases the possibility of collusion between auditors and clients. Our results show a positive effect on audit quality in the context of constraining opportunistic earnings management. This result supports the view that the audit quality-improving effect of auditor locality through reducing information asymmetry dominates the audit quality-impairing effect associated with the possibility that the locality or the proximity facilitates the collusion between auditors and clients.

Our study is also the first to connect the geographic distance to audit pricing. It is well known that the quality is priced in the market for professional services. On one hand, we posit that fees paid to auditors increase with the auditor-client proximity to the extent that the proximity increases audit quality. On the other hand, we posit that the fees decrease with the proximity to the extent that audit engagement costs decrease with the proximity. Our results show that the fees paid to local auditors are, overall, not significantly different from those paid to non-local auditors. Further analyses which control for endogenous auditor choices reveal that *local* Big 4 auditors charge lower audit fees (but not for non-audit or total fees) than *non-local* Big 4 auditors, but local non-Big 4 auditors charge as much audit, non-audit or total fees as non-local non-Big 4 auditors. This finding is consistent with the view that, for Big 4 auditors, the cost savings associated with local audits are sufficiently larger than the amount of potential audit fee premiums arising from higher-quality local audits, thereby leading to a fee discount by local Big 4 auditors. Overall, our results indicate that local audits enhance audit quality without imposing additional costs/fees on clients in the same locale. To this extent, our results suggest that local audits are socially beneficial.

In conclusion, our results help us better understand why local audits are so prevalent and Big 4 audit firms have continuously expanded their practicing offices to cities where their clients are headquartered in the U.S. as well as in the international arena. Evidence reported in this paper may be viewed as an indication that a close, auditor-client relationship does not necessarily impair auditor independence and thus audit quality, which is inconsistent with the argument advanced by proponents of the SOX. In this sense, our results provide a useful policy implication to regulators and lawmakers.

A fruitful extension of this paper would be to analyze the effect of auditors opening new offices near clients' headquarters and clients switching auditor locations on audit quality and audit pricing. Interesting and intriguing is the question of what factors drive opening new offices and switching locations. Given the lack of evidence, it would also be useful to examine whether the mandated rotations of audit partners, as required under the SOX, lead to switching incumbent audit partners to new partners at the same office or at different offices in different cities within the same state (or in different states). We leave the above questions to future research.

[INSERT APPENDIX HERE!]

References

Ashbaugh, H., R. LaFond, and B. Mayhew, 2003. Do non-audit services compromise auditor independence? Further evidence. *The Accounting Review* 78 (3): 611-639.

Ball, R. and L. Shivakumar. 2005. The role of accruals in asymmetrically timely gain and loss recognition. *Working paper*. University of Chicago.

Balsam, S., J. Krishnan, and J. Yang. 2003. Auditor industry specialization and earnings quality. *Auditing: A Journal of Practice and Theory* 22 (2): 71-97.

Becker, C., M. DeFond, J. Jiambalvo, and K. Subramanyam, 1998. The effect of audit quality on earnings management, *Contemporary Accounting Research* 15 (1): 1-24.

Butler, M., A. J. Leone, and M. Willenborg. 2004. An empirical analysis of auditor reporting and its association with abnormal accruals. *Journal of Accounting and Economics* 32 (2): 139-165.

Carcello, J.V., D.R. Hermanson, T.L. Neal, and R.A. Riley, Jr, 2002. Board characteristics and audit fees. *Contemporary Accounting Research* 19 (3): 367-384.

Chan, K. H., K. Z. Lin, and P. L. Mo. 2006. A political-economic analysis of auditor reporting and auditor switches. *Review of Accounting Studies* 11 (1): 21-48.

Choi, J. –H., and R. Doogar. 2005. Auditor tenure and audit quality: Evidence from going-concern qualification issued during 1996-2001. *Working Paper*. Seoul National University.

Choi, J. –H., J. -B. Kim, X. Liu, and D. A. Simunic. 2006a. Audit pricing, legal liability regimes, and Big 4 premiums: Theory and cross-country evidence. *Working Paper*, University of British Columbia.

Choi, J. –H., J. –B. Kim, and Y. Zang. 2006b. The association between audit quality and abnormal audit fees. *Working Paper*, Singapore Management University.

Chung, H. and S. Kallapur. 2003. Clint importance, non-audit services, and abnormal accruals. *The Accounting Review* 78 (4): 931-955.

Coval, J., and T. Moskovitz, 1999. Home bias at home: local equity preference in domestic portfolios. *Journal of Finance* 54 (6): 2045-2073.

Covrig, V. M., M. DeFond, and M. Hung. 2006. Home bias, foreign mutual fund holdings, and the voluntary adoption of international accounting standards. *Working Paper.*University of Southern California.

Craswell, A., J. R. Francis, and S. Taylor. 1995. Auditor brand name reputations and industry specialization. *Journal of Accounting and Economics* 20 (3): 297-322.

DeAngelo, L. E. 1981. Auditor independence, "low balling," and disclosure regulation. *Journal of Accounting and Economics* 3 (2): 113-127.

DeChow, P. M. and I. D. Dichev. 2002. The quality accruals and earnings: The role of accrual estimation errors. *The Accounting Review* 77 (Supplement): 35-59.

Dechow, P. M., R. G. Sloan, and A. P. Sweeney. 1995. Detecting earnings management. *The Accounting Review* 70 (2): 193-225.

DeFond, M., and J. Jiambalvo, 1994. Debt covenant violations and manipulations of accruals. *Journal of Accounting and Economics* 17 (1-2): 145-176.

DeFond, M. and J. R. Francis. 2005. Audit research after Sarbanes-Oxley. *Auditing: A Journal of Practice and Theory* 24 (Supplement): 5-30.

Ferguson, A., J. R. Francis and D. J. Stokes 2003. The effects of firm-wide and office-level industry expertise on audit pricing. *The Accounting Review*78 (2): 429-449.

Ferguson, A., J. R. Francis and D. J. Stokes 2006. What matters in audit pricing: industry specialization or overall market leadership? *Accounting and Finance 46* (1): 97-106.

Ferguson, A., and D. J. Stokes. 2002. Brand name audit pricing, industry specialization and leadership premiums post-Big 8 and Big 6 Mergers. *Contemporary Accounting Research* 19 (1): 77-110.

Francis, J., D. J. Stokes, and D. Anderson. 1999a. City markets as a unit of analysis in audit research and the re-examination of Big 6 market shares. *Abacus* 35 (2): 185-206.

Francis, J., E, Maydew, and H. C. Sparks. 1999b. The role of Big six auditors in the credible reporting of accruals. *Auditing: A Journal of Practice and Theory* 18 (2): 17-34.

Francis, J., K. Reichelt, and D. Wang. 2005. The pricing of national and city-specific reputation for industry expertise in the U.S. audit market. *The Accounting Review* 80 (1):113-136.

Frankel, R., M. Johnson, and K. Nelson, 2002. The relation between auditors' fees for non-audit services and earnings quality. *The Accounting Review* 77 (Supplement): 71-105.

Ghosh, A. and D. Moon. 2005. Auditor tenure and perceptions of audit quality. *The Accounting Review* 80 (2): 585-612.

Gul, F. A., J. -B. Kim and A. Qiu. 2006. Does the political economy affect auditor incentives? Some Chinese evidence on non-Big 4 audit quality. *Working Paper*. The Hong Kong Polytechnic University.

Ivkovic Z. and S. Weisbenner, 2005. Local does as local is: information content of the geography of individual investors' common stock investments. *Journal of Finance* 60 (1): 267-306.

Jones, J., 1991. Earnings management during import relief investigations. *Journal of Accounting Research* 29 (1): 193-228.

Kang, J., and R. Stulz. 1997. Why is there a home bias? An analysis of foreign portfolio equity ownership in Japan. *Journal of Financial Economics* 46 (1): 3-28..

Kasznik, R. 1999. On the association between voluntary disclosure and earnings management. *Journal of Accounting Research* 37 (1): 57-81.

Kedia, S., and S. Rajgopal. 2005. Geography and the Incidence of Financial Reporting. *Working Paper.* University of Washington.

Kim, J. -B., and C. H. Yi. 2006. Ownership structure, business group affiliation, listing status, and earnings management: evidence from Korea. *Working Paper.* Hong Kong Polytechnic University.

Kim, J.-B., R. Chung, and M. Firth. 2003. Auditor conservatism, asymmetric monitoring and earnings management. *Contemporary Accounting Research* 20 (2): 323-359.

Knapp, M. C. 2005. *Auditing Cases*, 6th edition. Thomson South-Western. CT.

Kothari, S. P., A. J. Leone, and C. E. Wasley. 2005. Performance matched abnormal accrual measures. *Journal of Accounting and Economics* 39 (1): 163-197.

Krishnan, G. 2003. Does Big 6 auditor industry expertise constrain earnings management? *Accounting Horizons* 17 (Supplement): 1-16.

Larcker, D. F., and S. A. Richardson. 2004. Fees paid to audit firms, accrual choices, and corporate governance. *Journal of Accounting Research* 42 (3): 625-658.

Lennox, C. 2004. Audit quality and executive officers' affiliations with CPA firms. *Journal of Accounting and Economics* 39 (2): 201-231.

Malloy, C. 2005. The geography of equity analysts. *Journal of Finance* 60 (2): 719-755.

Menon, K. and J. D. Williams. 2004. Former audit partners and abnormal accruals. *The Accounting Review* 79 (4): 1095-1118.

Myers, J., L. Myers and T. Omer. 2003. Exploring the term of the auditor-client relationship and the quality of earnings: A case for mandatory auditor rotation? *The Accounting Review* 78 (3): 779-799.

Reynolds, J. K., D. Deis, and J. R. Francis. 2004. Professional service fees and auditor objectivity. *Auditing: A Journal of Practice and Theory* 23 (1): 29-52.

Reynolds, J. K., and J. R. Francis. 2000. Does size matter? The influence of large clients on office-level auditor reporting decisions. *Journal of Accounting and Economics* 30 (3): 375-400.

Simunic, D. 1980. The pricing of audit services: theory and evidence. *Journal of Accounting Research* 18 (1): 161-190.

Simunic, D., and M. Stein. 1996. The impact of litigation risk on audit pricing: A review of the economics and the evidence. *Auditing: A Journal of Practice and Theory* (15):119-134.

Tirole, J. 1990. *The theory of industrial organization*. The MIT Press. Cambridge, MA.

Wang, Q., T. J. Wong, and L. Xia. 2005. Sate ownership, institutional environment and auditor choice: evidence from China. *Working Paper*. Chinese University of Hong Kong.

White, H. 1980. A heteroskedasticity-consistent covariance matrix estimator and a direct test for heteroskedasticity. *Econometrica* 48 (4): 817-838.

Appendix

Panel A of Appendix reports the number of firm-year observations by the state of the client location and by the state of the auditor location. For example, the largest number of observations comes from the state of California (CA). There are 2,325 clients located in CA, whereas 2,321 clients from all over the U.S. are audited by auditors located in CA. Panel B of Appendix provides a more detailed breakdown of the CA observations, which shows the number of clients located in CA that hire auditors from different states as well as the number of clients in different states that hire auditors located in CA. As shown in Panel B, about 95% (2,219/2,325) of the clients in CA hire auditors from CA. This percentage is substantially greater than the 85% calculated for our full sample.

Panel A: The number of observations by client and auditor locations and by state

State	Number by client location	Number by auditor location	State	Number by client location	Number by auditor location
AK	7	4	MT	12	7
AL	51	45	NC	167	188
AR	45	27	ND	4	0
AZ	141	136	NE	52	56
CA	2,325	2,321	NH	46	4
CO	308	320	NJ	508	387
CT	270	256	NM	13	7
DC	23	16	NV	74	63
DE	39	0	NY	876	1,047
FL	500	468	OH	309	320
GA	288	325	OK	73	83
HI	11	11	OR	135	146
IA	58	24	PA	471	513
ID	20	3	RI	29	28
IL	427	476	SC	55	42
IN	101	94	SD	7	1
KS	50	0	TN	138	114
KY	60	49	TX	932	933
LA	69	86	UT	99	131
MA	686	747	VA	240	291
MD	172	118	VT	18	2
MI	228	201	WA	202	202
MN	394	426	WI	158	142
MO	175	234	WV	16	3
MS	19	7	WY	7	4

Appendix (Continued)

Panel B: The auditor location of California clients and the client location of California auditors

State	The auditor location of CA clients	The client location of CA auditors	State	The auditor location of CA clients	The client location of CA auditors
AZ	8	5	NJ	4	0
CA	2,219	2,219	NM	0	3
CO	5	4	NV	2	6
DC	0	4	NY	15	7
DE	0	3	OH	0	3
FL	10	5	OR	4	2
GA	5	1	PA	10	6
ID	0	3	TN	2	5
IL	4	5	TX	7	12
MA	10	6	UT	12	4
MD	0	4	VA	1	6
MI	0	1	WA	7	3
MN	0	4	Total	2,325	2,321

Table 1: Variable Definition and Measurement

|DA|	=	absolute value of abnormal accruals. In the current study, there are two proxies: *DA1* and *DA2*. *DA1* is the abnormal accruals measured by Ball and Shivakumar's (2005) method; *DA2* is the abnormal accruals measured by modified Jones model and adjusted for firm-performance (Kothari et al. 2005) *|DA*|* in Equation (4) is the predicted value of the model in Equation (3);
DSTATE	=	an indicator variable for auditor location. 1 if the auditor and the client firm are located in the same state, 0 otherwise;
DIST	=	the measure of exact distance, calculated as the natural log of (1+ distance between auditor and client in miles);
LONG_DIST	=	an indicator variable for a long-distance between the auditor and the client. It equals 1 if the distance between the client and its auditor is greater than 150 miles and 0 otherwise;
LNTA	=	natural log of total assets in thousand dollars;
BIG4	=	1 if the auditor is one of Big 4 firms, 0 otherwise;
TENURE	=	auditor tenure, measured as the natural log of (1 + number of years);
NAS	=	the relative importance of non-audit service, measured as the ratio of the natural log of non-audit fees over natural log of total fees;
INDSPEC	=	an indicator variable for auditor industry expertise. It equals to 1 if the audit firm is the industry leader for the audit year in the audit market of the state where the client is located, and 0 otherwise; We calculate each audit firm's industry market share of audit fees for a state as a proportion of audit fees earned by each firm in the total audit fees paid by all clients in the state that serve the same industry; Each industry is defined based on the two-digit SIC code;
CHGSALE	=	changes in sales deflated by lagged total assets;
BTM	=	book-to-market ratio, windsorized at 0 and 4;
LOSS	=	1 if the firm reports a loss for the year, 0 otherwise;
LEV	=	leverage, measured as total liabilities divided by total assets;
ISSUE	=	1 if the sum of debt or equity issued during the past 3 years are more than 5% of the total assets, 0 otherwise;
CFO	=	operating cash flows, taken from the cash flow statement, deflated by lagged total assets;

Table 1: Variable Definition and Measurement (Continued)

FEE	=	natural log of fees paid to auditors. We try three proxies: *AFEE* stands for audit fees (fees paid for the financial statement audits); *NAFEE* is the non-audit fees; and *TFEE* is the total fees paid to the auditor;
LAGACCR	=	one-year lagged total accruals; Accruals are defined as income before extraordinary items minus operating cash flows from the statement of cash flow deflated by lagged total assets;
EMPLOY	=	square root of the number of employees;
AC	=	an indicator variable for an auditor change. 1 if a firm's auditor is in the first year of audit engagement and 0 otherwise;
NBS	=	natural log of one plus number of business segments;
NGS	=	natural log of one plus number of geographic segments;
INVREC	=	inventory and receivables divided by total assets;
FOREIGN	=	1 if the firm pays any foreign income tax, 0 otherwise;
EXORD	=	1 if the firm reports any extraordinary gains or losses, 0 otherwise;
ROA	=	return on assets (income before extraordinary items divided by average total assets);

Table 2
Descriptive Statistics

Panel A: Descriptive Statistics and Univariate Tests for the Differences between Local and Non-local Audits

	***DSTATE* = 1**[a]			***DSTATE* = 0**[b]			**Test for Equality**	
Variable	**Mean**	**Median**	**Std. Dev.**	**Mean**	**Median**	**Std. Dev.**	***t*-test**	***Wilcoxon* *test***
│DA 1│	0.0903	0.0516	0.1103	0.1100	0.0584	0.1070	*-6.36****	*-3.57****
│DA 2│	0.1139	0.0794	0.1070	0.1280	0.0916	0.1401	*-4.82****	*-4.03****
AFEE	5.8130	5.6776	1.3169	5.5843	5.3822	1.3564	*6.18****	*6.68****
NAFEE	4.7414	4.8760	2.1110	4.3563	4.5466	2.3250	*6.41****	*6.22****
TFEE	6.2796	6.1965	1.4154	6.0186	5.8275	1.4992	*6.53****	*7.13 ****

Panel B: Descriptive Statistics for Control Variables[c]

Variable	**Mean**	**Std. Dev.**	**1%**	**25%**	**Median**	**75%**	**99%**
DSTATE	0.8542	0.3529	0	1	1	1	1
DIST	2.4226	1.9590	0	0	2.6821	3.4535	7.6338
LONG_DIST	0.0889	0.2847	0	0	0	0	1
LNTA	12.0947	2.1741	7.6109	10.5510	12.0270	13.5502	17.3075
BIG4	0.8079	0.3940	0	1	1	1	1
TENURE	1.8892	0.9133	0	1.3863	1.9459	2.4849	3.4657
NAS	0.6614	0.2539	0	0.6103	0.7406	0.8211	0.9563
INDSPEC	0.4246	0.4943	0	0	0	1	1
CHGSALE	0.0584	0.4281	-0.8782	-0.0525	0.0341	0.1478	1.2125
BTM	0.6264	0.6730	0	0.2268	0.4442	0.7769	4
LOSS	0.4670	0.4989	0	0	0	1	1
LEV	0.5188	0.4472	0.0428	0.2546	0.4526	0.6538	2.1674
ISSUE	0.4169	0.4931	0	0	0	1	1
CFO	0.0202	0.2420	-0.8720	-0.0305	0.0654	0.1338	0.4320
LAGACCR	-0.1241	0.5796	-1.2558	-0.1433	-0.0725	-0.0253	0.3459
AC	0.1082	0.3107	0	0	0	0	1
NBS	1.0055	0.4706	0	0.6931	0.6931	1.3863	2.0794
NGS	0.9859	0.6303	0	0.6931	1.0986	1.3863	2.3026
INVREC	0.2539	0.1833	0	0.1043	0.2276	0.3625	0.7576
EMPLOY	49.1113	65.7530	2	12.3288	26.4575	59.2874	329
ROA	-0.0859	0.3250	-1.2619	-0.1297	0.0130	0.0644	0.2732
FOREIGN	0.4576	0.4982	0	0	0	1	1
EXORD	0.2144	0.4104	0	0	0	0	1

***, ** and * denote p-value<1%, <5% and <10% with two-tailed tests, respectively.

[a] The sample size is 9,489 for │*DA 1*│ and │*DA 2*│and 8,517 firm-year observations for other variables.

[b] The sample size is 1,619 for │*DA 1*│ and │*DA 2*│and 1,509 firm-year observations for other variables.

[c] The sample size is 11,108 for twelve variables from *LNTA* to *LAGACCR* and 10,027 firm-year observations for other eight variables from *AC* to *EXORD*.

Table 3
Correlation Matrix

Panel A: The Pearson Correlations between Earnings Management, Auditor Locality and Other Control Factors

	│DA 1│	*│DA 2│*	*DSTATE*	*LNTA*	*BIG4*	*TENURE*	*NAS*	*IND-SPEC*	*CHG-SALE*	*BTM*	*LOSS*	*LEV*	*ISSUE*	*CFO*
│DA 2│	0.4294 (<0.001)													
DSTATE	-0.0602 (<0.001)	-0.0456 (<0.001)												
LNTA	-0.3120 (<0.001)	-0.2995 (<0.001)	0.0611 (<0.001)											
BIG4	-0.1648 (<0.001)	-0.1701 (<0.001)	0.1405 (<0.001)	0.5017 (<0.001)										
TENURE	-0.1105 (<0.001)	-0.0817 (<0.001)	0.0238 (0.012)	0.2553 (<0.001)	0.2553 (<0.001)									
NAS	-0.1233 (<0.001)	-0.1190 (<0.001)	0.0087 (0.358)	0.4368 (<0.001)	0.3019 (<0.001)	0.0141 (0.137)								
INDSPEC	-0.1499 (<0.001)	-0.1163 (<0.001)	-0.0395 (<0.001)	0.3219 (<0.001)	0.2747 (<0.001)	0.1342 (<0.001)	0.1555 (<0.001)							
CHGSALE	0.0254 (0.0075)	0.0053 (0.576)	0.0013 (0.894)	0.0529 (<0.001)	-0.0120 (0.206)	-0.0021 (0.824)	0.0273 (0.004)	0.0141 (0.138)						
BTM	-0.0843 (<0.001)	-0.0716 (<0.001)	0.0132 (0.164)	-0.0839 (<0.001)	-0.0591 (<0.001)	-0.0175 (0.065)	-0.1195 (<0.001)	-0.0200 (0.035)	-0.1418 (<0.001)					
LOSS	0.2569 (<0.001)	0.1925 (<0.001)	-0.0189 (0.046)	-0.3155 (<0.001)	-0.1005 (<0.001)	-0.1297 (<0.001)	-0.1521 (<0.001)	-0.1010 (<0.001)	-0.1876 (<0.001)	0.1038 (<0.001)				
LEV	0.1358 (<0.001)	0.0574 (<0.001)	-0.0784 (<0.001)	-0.0315 (0.001)	-0.1211 (<0.001)	-0.0505 (<0.001)	-0.0610 (<0.001)	0.0490 (<0.001)	-0.0449 (<0.001)	-0.1834 (<0.001)	0.1209 (<0.001)			

Table 3 (Continued)

ISSUE	0.0638	0.0597	-0.0543	0.0182	-0.0201	-0.0206	0.0195	0.0386	0.0990	-0.1488	0.0672	0.1644		
	(<0.001)	(<0.001)	(<0.001)	(0.055)	(0.034)	(0.030)	(0.040)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)		
CFO	-0.2593	-0.2136	0.0295	0.3574	0.1343	0.0976	0.1271	0.0990	0.1397	-0.4982	-0.1747	-0.1747	0.0470	
	(<0.001)	(<0.001)	(0.002)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	
LAGACCR	-0.1520	-0.0551	0.0079	0.0594	0.0205	0.0595	0.0197	0.0153	-0.0047	-0.1081	-0.0327	-0.0327	0.0342	0.1224
	(<0.001)	(<0.001)	(0.407)	(<0.001)	(0.031)	(<0.001)	(0.038)	(0.106)	(0.621)	(<0.001)	(0.006)	(0.001)	(<0.001)	(<0.001)

Panel B: The Pearson Correlations between Fees Paid to Auditors, Auditor Locality and Other Control Factors

	NAFEE	***TFEE***	***DSTATE***	***LNTA***	***EMPLOY***	***BIG4***	***INDSPEC***	***AC***	***NBS***
AFEE	0.7053	0.9566	0.0616	0.8309	0.6736	0.4607	0.3060	-0.1431	0.2341
	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)
NAFEE		0.8467	0.0639	0.7457	0.5823	0.4590	0.2503	-0.2123	0.1990
		(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)
TFEE			0.0651	0.8673	0.6966	0.4920	0.3065	-0.1633	0.2371
			(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)
DSTATE				0.0671	0.0369	0.1366	-0.0385	-0.0123	-0.0161
				(<0.001)	(<0.001)	(<0.001)	(<0.001)	(0.218)	(0.107)

	NGS	***INVREC***	***LOSS***	***LEV***	***ROA***	***ISSUE***	***BTM***	***FOREIGN***	***EXORD***
AFEE	0.4189	-0.0983	-0.2165	0.0799	0.2411	0.0306	-0.1559	0.5256	0.2233
	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(0.0021)	(<0.001)	(<0.001)	(<0.001)
NAFEE	0.3794	-0.0875	-0.2064	0.0173	0.2340	0.0096	-0.1075	0.4892	0.1861
	(<0.001)	(<0.001)	(<0.001)	(0.083)	(<0.001)	(0.337)	(<0.001)	(<0.001)	(<0.001)
TFEE	0.4320	-0.1095	-0.2256	0.0646	0.2553	0.0314	-0.1514	0.5499	0.2327
	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(0.002)	(<0.001)	(<0.001)	(<0.001)
DSTATE	0.0808	0.0095	-0.0205	-0.0769	0.0396	-0.0518	0.0111	0.0916	-0.0186
	(<0.001)	(0.340)	(0.040)	(<0.001)	(<0.001)	(<0.001)	(0.265)	(<0.001)	(0.062)

Two-tailed p-values are presented in the parentheses.

Table 4
Auditor Locality and Audit Quality

		Section A Using |*DA 1*| as the dependent variable				**Section B Using |*DA 2*| as the dependent variable**			
	Expected Sign	**(1a) Full Sample**	**(2a) Full Sample**	**(3a) Sub-sample with *DA1* > 0**	**(4a) Sub-sample with *DA1* < 0**	**(1b) Full Sample**	**(2b) Full Sample**	**(3b) Sub-sample with *DA2* > 0**	**(4b) Sub-sample with *DA2* < 0**
DSTATE	?		-0.0114 (-2.98***)	-0.0133 (-2.70***)	-0.0103 (-2.03**)		-0.0069 (-2.14**)	-0.0072 (-1.84*)	-0.0074 (-1.71*)
LNTA	-	-0.0116 (-14.97***)	-0.0116 (-14.93***)	-0.0134 (-12.80***)	-0.0091 (-8.61***)	-0.0114 (-16.85***)	-0.0114 (-16.78***)	-0.0141 (-14.52***)	-0.0089 (-9.51***)
BIG4	-	-0.0056 (-1.43)	-0.0040 (-1.02)	-0.0101 (-1.94*)	0.0045 (0.82)	-0.0119 (-3.48***)	-0.0109 (-3.17***)	-0.0204 (-4.49***)	0.0036 (0.70)
TENURE	-	-0.0009 (-0.78)	-0.0009 (-0.81)	0.0009 (0.58)	-0.0035 (-2.13**)	0.0007 (0.58)	0.0007 (0.56)	0.0029 (1.94*)	-0.0022 (-1.28)
NAS	?	0.0057 (1.24)	0.0051 (1.10)	-0.0002 (-0.03)	0.0052 (0.82)	0.0034 (0.76)	0.0030 (0.67)	-0.0053 (-0.91)	0.0108 (1.68*)
INDSPEC	-	-0.0120 (-5.46***)	-0.0127 (-5.73***)	-0.0107 (-3.68***)	-0.0137 (-4.28***)	-0.0029 (-1.34)	-0.0030 (-1.50)	-0.0033 (-1.16)	-0.0031 (-0.97)
CHGSALE	+	0.0195 (2.91***)	0.0195 (2.93***)	0.0331 (3.29***)	0.0096 (1.16)	0.0085 (2.08**)	0.0085 (2.09**)	0.0145 (2.70***)	0.0019 (0.29)
BTM	-	-0.0145 (-8.66***)	-0.0144 (-8.63***)	-0.0129 (-5.09***)	-0.0156 (-7.46***)	-0.0136 (-8.27***)	-0.0136 (-8.26***)	-0.0122 (-5.66***)	-0.0142 (-5.84***)
LOSS	+	0.0261 (8.49***)	0.0261 (8.51***)	-0.0176 (-3.39***)	0.0621 (18.18***)	0.0165 (6.59***)	0.0165 (6.60***)	-0.0027 (-0.77)	0.0350 (9.22***)

Table 4 (Continued)

LEV	+	0.0233 (4.72***)	0.0229 (4.65***)	0.0090 (1.57)	0.0343 (5.06***)	0.0049 (1.70*)	0.0047 (1.63)	0.0003 (0.08)	0.0073 (1.60)
ISSUE	+	0.0021 (0.93)	0.0018 (0.80)	0.0054 (1.82*)	-0.0006 (-0.19)	0.0053 (2.51**)	0.0051 (2.42**)	0.0061 (2.20**)	0.0040 (1.30)
CFO	-	-0.0441 (-3.71***)	-0.0442 (-3.73***)	-0.0976 (-5.35***)	-0.0058 (-0.39)	-0.0328 (-4.52***)	-0.0329 (-4.52***)	-0.0943 (-7.46***)	0.0294 (2.29**)
LAGACCR	-	-0.0190 (-5.03***)	-0.0190 (-5.06***)	-0.0027 (-0.46)	-0.0223 (-3.71***)	-0.0021 (-1.06)	-0.0021 (-1.06)	0.0074 (1.59)	-0.0037 (-1.26)
Intercept	?	0.2283 (25.57***)	0.2372 (24.43***)	0.2894 (21.82***)	0.2315 (13.51***)	0.2649 (31.88***)	0.2702 (31.20***)	0.3116 (26.10***)	0.2241 (18.56***)
Industry & Year Dummies		Included	Included	Included	Included	Included	Included	Included	Included
N		11,108	11,108	5,834	5,274	11,108	11,108	5,603	5,505
Adj.R^2		0.1870	0.1882	0.2024	0.2315	0.1306	0.1310	0.2261	0.0894

All t-statistics in parentheses are calculated using clustering procedure to correct for serial correlation and White's (1980) method to correct for heteroskedasticity.
*****, **, * denote p-value <1%, <5%, and <10%, respectively with two-tailed tests.*

Table 5
Auditor Locality and Audit Quality: Sensitivity Analyses

		Section A Using |*DA 1* | as the dependent variable			**Section B** Using |*DA 2*| as the dependent variable		
	Expected Sign	**(1a)**	**(2a)**	**(3a)**	**(1b)**	**(2b)**	**(3b)**
DIST	?	0.0006 (0.98)		-0.0007 (-1.12)	0.0005 (0.82)		-0.0006 (-0.91)
LONG_DIST	?		0.0114 (2.44**)			0.0086 (2.12**)	
DIST LONG_DIST*	?			0.0022 (2.76***)			0.0017 (2.35**)
LNTA	-	-0.0116 (-14.85***)	-0.0115 (-14.87***)	-0.0116 (-14.89***)	-0.0114 (-16.69***)	-0.0113 (-16.74***)	-0.0114 (-16.73***)
BIG4	-	-0.0053 (-1.34)	-0.0043 (-1.09)	-0.0044 (-1.11)	-0.0116 (-3.39***)	-0.0109 (-3.18***)	-0.0109 (-3.19***)
TENURE	-	-0.0009 (-0.78)	-0.0009 (-0.82)	-0.0009 (-0.82)	0.0007 (0.58)	0.0006 (0.55)	0.0006 (0.55)
NAS	?	0.0056 (1.22)	0.0055 (1.19)	0.0055 (1.20)	0.0033 (0.74)	0.0032 (0.72)	0.0032 (0.73)
INDSPEC	-	-0.0121 (-5.48***)	-0.0125 (-5.65***)	-0.0125 (-5.65***)	-0.0030 (-1.35)	-0.0033 (-1.49)	-0.0033 (-1.51)
CHGSALE	+	0.0195 (2.92***)	0.0195 (2.94***)	0.0195 (2.93***)	0.0084 (2.08**)	0.0085 (2.10**)	0.0085 (2.10**)

Table 5 (Continued)

BTM	-	-0.0145 (-8.66***)	-0.0145 (-8.64***)	-0.0145 (-8.66***)	-0.0136 (-8.27***)	-0.0136 (-8.27***)	-0.0136 (-8.28***)
LOSS	+	0.0260 (8.48***)	0.0259 (8.44***)	0.0259 (8.43***)	0.0165 (6.58***)	0.0164 (6.55***)	0.0164 (6.53***)
LEV	+	0.0233 (4.73***)	0.0230 (4.67***)	0.0230 (4.65***)	0.0049 (1.71*)	0.0047 (1.63)	0.0047 (1.61)
ISSUE	+	0.0020 (0.91)	0.0018 (0.83)	0.0018 (0.83)	0.0053 (2.49**)	0.0051 (2.42**)	0.0051 (2.43**)
CFO	-	-0.0442 (-3.72***)	-0.0443 (-3.73***)	-0.0441 (-3.72***)	-0.0329 (-4.53***)	-0.0329 (-4.53***)	-0.0328 (-4.52***)
LAGACCR	-	-0.0190 (-5.03***)	-0.0189 (-5.06***)	-0.0189 (-5.07***)	-0.0021 (-1.05)	-0.0021 (-1.04)	-0.0021 (-1.04)
Intercept	?	0.2259 (24.67***)	0.2260 (25.48***)	0.2284 (24.61***)	0.2630 (30.40***)	0.2631 (31.61***)	0.2650 (30.41***)
Industry & Year Dummies		Included	Included	Included	Included	Included	Included
N		11,108	11,108	11,108	11,108	11,108	11,108
Adj. R^2		0.1871	0.1878	0.1878	0.1306	0.1311	0.1311

All t-statistics in parentheses are calculated using clustering procedure to correct for serial correlation and White's (1980) method to correct for heteroskedasticity.
*****, **, * denote p-value <1%, <5%, and <10%, respectively with two-tailed tests.*
*Test for DIST + DIST*LONG_DIST = 0: F = 4.77 with p = 0.0289 in column (3a) and F = 3.40 with p = 0.0653 in column (3b).*

Table 6
Auditor Locality and Audit Pricing

	Expected Sign	Section A *AFEE* as the dep. variable	Section B *NAFEE* as the dep. variable	Section C *TFEE* as the dep. variables
DSTATE	?	-0.0288	-0.0066	-0.0269
		(-1.24)	(-0.13)	(-1.12)
LNTA	+	0.3926	0.6011	0.4546
		(37.00***)	(29.25***)	(42.54***)
EMPLOY	+	0.0028	0.0023	0.0028
		(9.15***)	(4.97***)	(8.88***)
BIG4	+	0.3264	0.3899	0.3198
		(11.58***)	(6.31***)	(11.40***)
INDSPEC	+	0.0903	0.0063	0.0655
		(5.08***)	(0.17)	(3.66***)
AC	-	-0.1831	-0.9139	-0.2866
		(-7.50***)	(-15.56***)	(-12.17***)
NBS	+	0.0847	0.0613	0.0694
		(4.33***)	(1.65)	(3.57***)
NGS	+	0.1484	0.1919	0.1495
		(8.81***)	(5.26***)	(8.57***)
INVREC	+	0.4185	0.3382	0.3498
		(7.39***)	(2.53**)	(5.92***)
FOREIGN	+	0.2276	0.4391	0.2815
		(10.28***)	(8.95***)	(12.37***)
EXORD	+	0.1647	0.1768	0.1831
		(9.56***)	(4.85***)	(10.43***)
LOSS	+	0.1247	0.0135	0.1013
		(5.68***)	(0.29)	(4.81***)
LEV	+	0.1542	0.0732	0.1309
		(6.49***)	(1.40)	(5.53***)
ROA	-	-0.2803	-0.3384	-0.2791
		(-5.70***)	(-4.52***)	(-6.14***)
ISSUE	+	0.0144	0.0538	0.0381
		(1.02)	(1.72*)	(2.65***)
BTM	-	-0.0638	-0.1725	-0.0994
		(-4.52***)	(-5.00***)	(-7.08***)
$\|DA\ 1^*\|$	+	0.3991	0.3853	0.5716
		(0.93)	(0.42)	(1.50)
Intercept	?	0.6069	-3.6509	0.1608
		(4.27***)	(-12.61***)	(1.17)
Industry & Year dummies		Included	Included	Included
N		10,027	10,027	10,027
R^2		0.8132	0.6307	0.8345

All t-statistics in parentheses are calculated using clustering procedure to correct for serial correlation and White's (1980) method to correct for heteroskedasticity.
*****, **, * denote p-value <1%, <5%, and <10%, respectively with two-tailed tests.*

Table 7

Auditor Locality and Audit Pricing: Sensitivity Analyses with Audit Fees

Independent variable	Expected sign	Section A Full sample (1)	Section A (2)	Section A (3)	Section B Big 4 clients only (4)	Section B (5)	Section C Non-Big 4 clients only (6)	Section C (7)
DIST	?	0.0058 (1.36)		0.0026 (0.44)		0.0027 (0.43)		0.0053 (0.39)
LONG_DIST	?		0.0397 (1.49)		0.0568 (2.41**)		0.0177 (0.38)	
DIST LONG_DIST*	?			0.0053 (0.88)		0.0089 (1.32)		-0.0017 (-0.15)
LNTA	+	0.3929 (37.00***)	0.3928 (37.04***)	0.3930 (37.05***)	0.3908 (30.93***)	0.3910 (30.93***)	0.3741 (15.15***)	0.3739 (15.11***)
EMPLOY	+	0.0029 (9.11***)	0.0028 (9.14***)	0.0028 (9.12***)	0.0029 (8.87***)	0.0029 (8.85***)	0.0041 (2.05**)	0.0041 (2.05**)
BIG4	+	0.3259 (11.52***)	0.3271 (11.55***)	0.3279 (11.58***)	-	-	-	-
INDSPEC	+	0.0916 (5.15***)	0.0902 (5.07***)	0.0905 (5.08***)	0.1035 (5.37***)	0.1037 (5.39***)	-0.0288 (-0.54)	-0.0269 (-0.50)
AC	-	-0.1833 (-7.50***)	-0.1831 (-7.50***)	-0.1831 (-7.50***)	-0.2043 (-6.65***)	-0.2046 (-6.66***)	-0.0732 (-1.91*)	-0.0731 (-1.90*)
NBS	+	0.0850 (4.36***)	0.0853 (4.37***)	0.0851 (4.36***)	0.0748 (3.64***)	0.0747 (3.63***)	0.1115 (2.23**)	0.1102 (2.21**)
NGS	+	0.1478 (8.76***)	0.1481 (8.78***)	0.1480 (8.77***)	0.1431 (7.68***)	0.1429 (7.66***)	0.1669 (4.64***)	0.1666 (4.64***)
INVREC	+	0.4174 (7.37***)	0.4198 (7.41***)	0.4200 (7.40***)	0.4314 (6.20***)	0.4313 (6.20***)	0.2796 (2.89***)	0.2786 (2.88***)

Table 7 (Continued)

FOREIGN	+	0.2275 (10.28***)	0.2279 (10.28***)	0.2280 (10.29***)	0.2158 (9.05***)	0.2161 (9.06***)	0.2653 (4.58***)	0.2651 (4.58***)
EXORD	+	0.1656 (9.61***)	0.1648 (9.56***)	0.1650 (9.58***)	0.1580 (8.77***)	0.1583 (8.79***)	0.1656 (3.47***)	0.1657 (3.47***)
LOSS	+	0.1244 (5.66***)	0.1242 (5.65***)	0.1241 (5.64***)	0.0899 (3.43***)	0.0897 (3.43***)	0.1903 (4.39***)	0.1902 (4.39***)
LEV	+	0.1253 (6.53***)	0.1541 (6.48***)	0.1544 (6.49***)	0.2607 (7.19***)	0.2607 (7.19***)	0.0914 (2.91***)	0.0919 (2.91***)
ROA	-	-0.2801 (-5.69***)	-0.2802 (-5.69***)	-0.2802 (-5.69***)	-0.3888 (-5.49***)	-0.3889 (-5.51***)	-0.1928 (-3.47***)	-0.1928 (-3.47***)
ISSUE	+	0.0146 (1.03)	0.0144 (1.02)	0.0143 (1.01)	0.0102 (0.68)	0.0100 (0.66)	0.0379 (1.07)	0.0382 (1.08)
BTM	-	-0.0638 (-4.51***)	-0.0640 (-4.53***)	-0.0639 (-4.53***)	-0.0626 (-3.55***)	-0.0626 (-3.55***)	-0.0914 (-3.61***)	-0.0913 (-3.59***)
$\|DA\ 1^*\|$	+	0.3940 (0.91)	0.3984 (0.92)	0.3955 (0.92)	0.6648 (1.03)	0.6638 (1.03)	-0.4483 (-0.58)	-0.4516 (-0.58)
Intercept	?	0.5642 (3.98***)	0.5752 (4.07***)	0.5675 (4.00***)	0.9637 (5.13***)	0.9557 (5.08***)	0.6063 (2.16**)	0.5984 (2.12**)
Industry & Year dummies		Included	Included	Included	Included	Included	Included	Included
N		10,027	10,027	10,027	8,088	8,088	1,938	1,938
R^2		0.8132	0.8132	0.8132	0.8025	0.8026	0.5623	0.5626

All t-statistics in parentheses are calculated using clustering procedure to correct for serial correlation and White's (1980) method to correct for heteroskedasticity.
*****, **, * denote p-value <1%, <5%, and <10%, respectively with two-tailed tests.*
*Test for DIST + DIST *LONG_DIST = 0: F = 2.97 with p = 0.0849 in column (3), F = 4.99 with p = 0.0256 in column (5) and F = 0.18 with p = 0.6732 in column (7).*

Table 8

Auditor Locality and Audit Pricing: Control for Endogenous Auditor Choice

Independent variable	Expected sign	*AFEE* as the dependent variable		
		Section A Full sample	Section B Big 4 clients only	Section C Non-Big 4 clients only
DSTATE	?	-0.0578 (-2.47**)	-0.0650 (-2.45**)	-0.0298 (-0.66)
LNTA	+	0.3888 (36.44***)	0.3875 (30.48***)	0.3706 (15.04***)
EMPLOY	+	0.0029 (9.05***)	0.0029 (8.78***)	0.0041 (2.10**)
BIG4	+	0.2573 (8.20***)	-	-
INDSPEC	+	0.0956 (5.38***)	0.1083 (5.63***)	-0.0112 (-0.22)
AC	-	-0.1819 (-7.46***)	-0.1972 (-6.43***)	-0.0816 (-2.12**)
NBS	+	0.0964 (4.88***)	0.0842 (4.03***)	0.1206 (2.43**)
NGS	+	0.1463 (8.65***)	0.1418 (7.59***)	0.1640 (4.57***)
INVREC	+	0.4230 (7.48***)	0.4353 (6.24***)	0.2791 (2.91***)
FOREIGN	+	0.2270 (10.25***)	0.2143 (8.98***)	0.2592 (4.51***)
EXORD	+	0.1623 (9.39***)	0.1579 (8.72***)	0.1520 (3.19***)
LOSS	+	0.1259 (5.78***)	0.0915 (3.52***)	0.1951 (4.53***)
LEV	+	0.1843 (7.48***)	0.2872 (7.73***)	0.1266 (3.78***)
ROA	-	-0.2748 (-5.72***)	-0.3844 (-5.54***)	-0.1859 (-3.44***)
ISSUE	+	0.0131 (0.92)	0.0088 (0.58)	0.0396 (1.12)
BTM	-	-0.0638 (-4.54***)	-0.0630 (-3.59***)	-0.0903 (-3.62***)
$\|DA\ 1^*\|$	+	0.3605 (0.84)	0.6234 (0.98)	-0.4923 (-0.64)
INVMR	?	-0.4163 (-4.70***)	-0.3742 (-3.43***)	-0.4628 (-3.43***)
Intercept	?	0.8096 (5.46***)	1.1245 (5.88***)	0.8282 (2.79***)
Industry & Year dummies		Included	Included	Included
N		9,983	8,046	1,937
R^2		0.8141	0.8031	0.5676

All t-statistics in parentheses are calculated using clustering procedure to correct for serial correlation and White's (1980) method to correct for heteroskedasticity.
*****, **, * denote p-value <1%, <5%, and <10%, respectively with two-tailed tests.*