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Audit Office Size, Audit Quality and Audit Pricing

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SUMMARY: Using a large sample of U.S. audit client firms over the period 2000-2005, this paper investigates whether and how the size of a local practice office within an audit firm (henceforth, office size) is a significant, engagement-specific factor determining audit quality and audit fees over and beyond audit firm size at the national level and auditor industry leadership at the city or office level. For our empirical tests, audit quality is measured by unsigned abnormal accruals, and the office size is measured in two different ways: one based on the number of audit clients in each office and the other based on a total of audit fees earned by each office. Our results show that the office size has significantly positive relations with both audit quality and audit fees even after controlling for national-level audit firm size and office-level industry expertise. These positive relations support the view that large local offices provide higher-quality audits, compared with small local offices and that such quality differences are priced in the market for audit services.

Keywords: audit office; office size; audit quality; audit pricing.

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

Audit Office Size, Audit Quality and Audit Pricing

"The way we think about an accounting firm changes dramatically when we shift the unit of analysis away from the firm as a whole, to the analysis of specific city-based offices within a firm. In terms of DeAngelo's (1981b) argument, a Big 4 accounting firm is not so big when we shift to the office level of analysis. For example, while Enron represented less than 2% of Arthur Andersen's national revenues from publicly listed clients, it was more than 35% of such revenues in the Houston office." (Francis 2004, 355)

INTRODUCTION

As alluded in the above quote, the size of a city-based audit engagement office could be a more crucial determinant of audit quality (and thus audit fees) than the size of a national-level audit firm because the city-based office is a semi-autonomous unit within an audit firm with its own client base. It is an office-based engagement partner or audit team, not national headquarters, who actually administers and implements individual audit engagement contracts, including the delivery of audit services and the issuance of an audit opinion. In this regard, Wallman (1996) and Francis (2004) argue that the assessment of auditor independence needs to focus more on the individual office level rather than the entire firm level because most of the audit decisions with respect to a particular client are made within each individual office. The anecdotal evidence on the collapse of Enron, which was audited by the Houston office of Arthur Andersen, is a good example that demonstrates the importance of office-level audit quality.[1] However, much of extant audit research has focused its attention to two *national-level* audit firm characteristics as fundamental determinants of audit quality, namely: audit firm size (e.g., Simunic and Stein 1987; Becker et al. 1998;

[1] Choi and Doogar (2005) report that there was no significant difference in the audit quality, measured by the magnitude of abnormal accruals and the tendency of auditors to issue going-concern audit opinion, between the clients of Arthur Andersen and those of other large auditors. This suggests the possibility that audit failure related to Enron is an isolated case restricted to the Houston office of Enron, not the entire Arthur Andersen.

Francis and Krishnan 1999; Kim et al. 2003; Choi and Doogar 2005) and auditor industry leadership (e.g., DeFond et al. 2000; Balsam et al. 2003; Krishnan 2005).

These studies find, in general, that large audit firms with international brand names (i.e., Big 4 auditors) or industry expertise provide higher-quality audit services than small audit firms which lack such brand names or industry expertise.[2] Implicit in this line of research is the assumption that audit quality is homogeneous across offices of various sizes located in different cities within the same audit firm. As a result, we have little evidence on cross-office differences in audit quality, and in particular, whether and how the size of a local engagement office has an impact on audit quality and/or audit pricing. A natural question to ask is: Is the office size an additional engagement-specific factor determining audit quality and thus audit pricing over and beyond audit firm size and industry leadership? We aim to provide direct evidence on this unexplored question.

Several recent studies provide indirect evidence suggesting that audit quality may differ across different engagement offices within an audit firm. For example, in the first U.S. study that uses each engagement office as the unit of analysis, Reynolds and Francis (2000, 375) find that when client size is measured at the office level using office-specific clienteles, "Big Five auditors report more conservatively for larger clients."[3] Further, Ferguson et al. (2003) and Francis et al. (2005) find that city-specific, office-level industry leadership, when combined with the national-level leadership, generates the highest audit fee premiums (and thus, by inference, higher audit quality) in the Australian and U.S. audit markets, respectively, while national-level industry leadership alone has no effect. Subsequently, Francis et al. (2006) document that client earnings quality proxied by abnormal accruals is higher when

[2] For convenience, throughout the paper, Big 4 auditors refer to not only current Big 4, but also previous Big 5, 6, and 8 auditors where appropriate. For a comprehensive review of audit quality research, see Francis (2004).
[3] However, they find no clear relation between client size and auditor behavior when client size is measured at the firm-level with national clienteles.

auditors are city-level industry leaders alone, or they are both city-level and national-level industry leaders. Put differently, their results indicate that national-level industry leadership alone has no significant impact on audit quality. More recently, Choi et al. (2007) show that the geographical proximity of the city-based engagement office to clients' headquarters is positively associated with the accrual quality of clients, suggesting that the geographical location of the auditor's office is an important engagement-specific determinant of audit quality. The above findings, taken together, suggest that city-based, office-level characteristics may play an important role in determining audit quality and thus audit pricing. It should be pointed out, however, that none of these studies has paid attention to the question of whether the *size* of a local engagement office is systematically associated with audit quality and fees paid to auditors.

To bridge this gap in our knowledge, we investigate a hitherto under-researched question of whether, and how, the size of a local engagement office (hereafter, office size) is associated with audit quality and audit pricing. We first hypothesize that office size is systematically associated with audit quality even after controlling for audit firm size at the national level and auditor industry expertise at the office level. As will be further elaborated in the next section, one would observe a positive association if the audits by large offices are of higher quality than the audits by small offices. Second, we also examine the association between the office size and audit fees. Previous research shows that audit quality is priced in the market (Choi et al. 2008; Craswell et al. 2009; Ferguson et al. 2003; Francis et al. 2005). To the extent that the office size is positively associated with audit quality, one can predict that the larger is the office size, the higher is the audit quality, and thus the greater is the audit fee. Therefore, a positive association between the office size and audit fees could be viewed as evidence corroborating the positive association between the office size and audit quality.

In testing our hypotheses, we assert that biased earnings reporting can be used to draw inferences about audit quality, and we use the magnitude of abnormal accruals as a proxy for audit quality.[4] To measure abnormal accruals, we rely on two alternative models developed by Ball and Shivarkumar (2006) and Kothari et al. (2005). In addition, we estimate the size of a local engagement office using the *Audit Analytics* database which provides the identity of audit engagement offices for all SEC registrant clients. We measure office size in two different ways: one based on the number of audit clients in each office, and the other based on a total of audit fees earned by each office.

Briefly, our results reveal that, in the U.S. audit market, both audit quality and audit fees are positively associated with office size after controlling for audit firm size at the national level (proxied by a Big 4 dummy variable), industry leadership at the local office level (proxied by an industry specialist dummy variable), and other relevant factors. These results are robust to a battery of sensitivity checks we perform.

Our study contributes to the existing literature in several ways. First, our paper is one of few studies which document that audit quality is not homogeneous across local offices within an audit firm. To our knowledge, our paper is one of the first studies that provide *direct* evidence that the size of an audit engagement office is an important engagement-specific determinant of audit quality in the U.S.[5] The results of our study suggest that future research on audit quality differentiation needs to pay more attention to office-level auditor behavior as the unit of analysis and to the size of a local engagement office. Second, this

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4 It is difficult to assess audit quality *ex ante* because the only observable outcome of the audit is the audit report and the overwhelming majority of reports are standard clean opinions. However, as in Myers et al. (2003), we claim that high quality audits constrain the extreme accrual choices that managers would like to make for financial reporting while low quality audits do not limit such choices and in some cases may even aid management in "pushing the boundaries" of Generally Accepted Accounting Principles. This claim is consistent with the SEC's view that higher quality auditing will lead to higher quality earnings (see Levitt's famous "Numbers Game" speech in 1998).

5 A contemporaneous study of Francis and Yu (2009) also report that office size of Big 4 auditors are associated with audit quality measured by auditors' tendency to issue going-concern opinion, client firms' magnitude of the discretionary accruals, and client firms' likelihood of meeting earnings benchmarks.

paper is the first to consider office size as a critical factor in audit pricing. Given that no previous research has examined whether audit fees are influenced by the size of a local office, our evidence helps us better understand the nature of auditor-client relationships in the context of audit pricing.

Finally, the findings in this study provide both regulators and practitioners with useful insights into what determines audit quality and thus audit fees. Our results suggest that regulators would have a better assessment of audit quality if they shift the level of quality comparison to small versus large auditors at the office level, and away from Big 4 versus. non-Big 4 auditors at the national level. Economic theory on quality premiums claims that producing goods and services of a uniform quality for various markets and consumers over time is crucial for maintaining quality premiums (e.g., Klein and Leffler 1981; Kreps and Wilson 1982; Shapiro 1983). Similarly, our evidence suggests that large, Big 4 auditors should take care to maintain a similar level of audit quality across offices of different sizes because a systematically poor-quality audit service performed by a local office could potentially cause damage to the reputation for the entire audit firm.[6]

The remainder of the paper is structured as follows. In the next section, we develop our research hypotheses. The third section discusses the variable measurements and empirical models. The fourth section describes the sample and reports descriptive statistics. The fifth section presents empirical results. The final section concludes the paper.

HYPOTHESIS DEVELOPMENT

Office Size and Audit Quality

[6] A good example is the case of Enron audited by the Houston office of Arthur Andersen. Ironically, the Houston office was one of the large offices among Arthur Andersen's local offices.

A growing body of audit research emphasizes the importance of analyzing the behavior of auditors in city-based, local engagement offices.[7] However, none of these studies has paid attention to the size of a local office in the context of audit quality. Why does the office size matter in audit quality over and beyond two well-known audit firm characteristics, i.e., audit firm size or brand name (Big 4 vs. non-Big 4) and industry expertise?

In DeAngelo's (1981b) framework, an auditor's incentive to compromise audit quality with respect to a particular client depends on the economic importance of the client relative to the auditor's client portfolio.[8] Her analysis indicates that large auditors are likely to provide higher-quality audit services to a particular client than small auditors because an auditor's economic dependence on that client is negligible for large auditors, and large auditors have more to lose (i.e., bear higher reputation loss) in case of audit failures, compared with small auditors.

DeAngelo's theory can also be applied to the analysis of audit quality differentiation between large versus small offices because a local engagement office can be viewed as a semi-autonomous unit in terms of its audit decisions, client base, revenue sources, and other factors (Francis 2004; Francis et al. 2006; Wallman 1996). Large local offices are less likely to depend on a particular client than small local offices because the former have deeper office-level clienteles and thus are less economically dependent on a particular client. In other words, large offices are less likely to acquiesce to client pressure for substandard reporting than small offices.

Further, local offices, whether small or large, may not bear the full amount of reputation losses associated with an audit failure because a substantial portion of the

[7] Please refer to Reynolds and Francis (2000), Craswell et al. (2002), Ferguson et al. (2003), Francis et al. (2005 and 2006), and Francis (2004) for example.
[8] In DeAngelo (1981a), audit quality is a positive function of auditor independence which is defined as the joint probability that an auditor will discover a breach and report the discovered breach.

reputation losses are likely borne by the national-level audit firm itself. While the reputation losses in the event of audit failures are likely to be greater for large audit firms (DeAngelo 1981b), the losses are not necessarily greater for large local offices than for small local offices, because these costs are more firm-wide in nature rather than office-specific.[9] This means that local offices may be more concerned with the economic importance of a particular client than a potential litigation risk from audit failures, in particular, when the offices are small in size. The above arguments lead us to predict that large local offices with relatively deep local clienteles are less likely to compromise audit quality with respect to a particular client, and thus that they are likely to provide higher-quality audit services, *ceteris paribus*, compared with small local offices with relatively thin local clienteles. In such a case, one would observe a positive association between office size and audit quality. We call this prediction '*the economic dependence perspective.'*

On the other hand, one may argue that Big 4 auditors with brand name recognition have incentives to maintain a homogeneous level of service quality across offices of different sizes within the U.S. and/or across countries. The economic model of quality premiums (e.g., Klein and Leffler 1981; Kreps and Wilson 1982; Shapiro 1983) suggests that providing a uniform quality over time and across different markets and consumers is vital to maintaining the premium associated with product or service quality. Similarly, prior studies in the marketing literature find that the reputation for product or service quality in one area transfers to other areas (e.g., Jacoby and Mazursky 1984; Herbig et al. 1994). These studies imply that it is critically important for large audit firms like Big 4 auditors to provide audit services of similar quality across different offices located in various regions or countries, irrespective of

[9] This notion is evidenced in the Enron debacle and the subsequent Andersen collapse.

their size.[10] Beside the aforementioned *incentives* for large audit firms to maintain homogeneous service quality, there are other internal forces which may help large audit firms maintain uniform quality across different local offices: large audit firms tend to place more emphases on staff training and/or peer review within the firm, and are more likely to use standardized audit procedures and techniques (e.g., computerized audit procedures), compared with small audit firms. This may facilitate knowledge sharing and transfer across local offices within the same firm, which in turn provides large audit firms with a comparative advantage in maintaining uniform service quality across local practicing offices.[11] In this circumstance, one may argue that what matters more is the size of national-level audit firms, not the size of a local office, and thus, that the office size is unlikely to be associated with audit quality over and beyond audit firm size (i.e., Big 4 vs. non-Big 4 auditors). We call this prediction '*the uniform quality perspective.*'

Given these two opposing perspectives on the effect of office size on audit quality, it is an empirical question whether and how the office size is associated with audit quality. To provide empirical evidence on this issue, we test the following hypothesis in null form:

> **H1**: Audit quality, measured by unsigned abnormal accruals, is not associated with the size of a local engagement office, other things being equal.

Office Size 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 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. (2008), predict

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[10] Large audit firms may be in a better position to maintain homogenous service quality across local practice offices using various features of internal operations such as common staff training, the use of common computer software and audit techniques, knowledge sharing, and the transfer/migration of skilled audit staff among practice offices in different locations.

[11] We thank an anonymous referee who brought the issue to our attention.

that audit fees, which are equal to audit costs in 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 audit firm size and industry expertise at the national level. In addition, recent studies by Ferguson et al. (2003) and Francis et al. (2005) document that auditors with city-based industry leadership are able to charge higher audit fees to their clients.

Office size may influence audit fees through its effect on the cost of delivering audit services and/or through its impact on audit quality. Large local offices may have cost advantages in producing audit services of similar quality due to economies of scale, which enables them to charge lower prices, compared with small local offices. For example, large offices are likely to have a larger pool of capable audit personnel who can share their understanding of and knowledge about business operations and internal control systems of existing and potential clients so that they spend audit resources more efficiently. Further, when an office has a larger clientele, audit-related overhead costs allocated to individual clients could be lower. These cost advantages may enable large local offices to charge lower fees to their clients than small local offices, leading to a negative association between audit fees and office size.

On the other hand, service quality is priced in the market for professional services (Tirole 1990), and thus providers of high-quality services should be able to charge higher fee premiums 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. 2008). This suggests that if large offices provide higher-quality audits than small offices, one would observe a positive association between audit fees and office size.

Given the two opposing views on the association between audit fees and office size, we test the following hypothesis in null form:

H2: Audit fees paid to auditors are not associated with the size of a local engagement office, other things being equal.

MESUREMENT OF VARIABLES AND MODEL SPECIFICATION

Empirical Proxies for Audit Quality

As in many other studies, we use the magnitude of abnormal accruals as a proxy for audit quality. Some previous studies use the likelihood of auditors issuing modified audit opinions as an additional proxy for audit quality. In this paper, we choose to use abnormal accruals rather than audit opinions for the following reason: while abnormal accruals capture the quality of accounting information in a more general sense, modified audit opinions are related to only a few extreme situations and thus do not differentiate audit quality for a broad cross-section of firms (Myers et al. 2003). Moreover, there exists much less variability in the audit opinion, which could cause a lack of statistical power in our empirical tests.

It is well known that the traditional abnormal or discretionary accrual measure using the Jones (1991) model is prone to estimation error (Dechow et al. 1995). To alleviate this concern, we obtain two alternative measures: (1) abnormal accruals obtained from the Ball and Shivakumar (2006) model which controls for the asymmetric timeliness of accruals in recognizing economic gain and loss; and (2) abnormal accruals adjusted for firm performance using Kothari et al.'s (2005) procedure. We denote these two measures by *DA1* and *DA2*, respectively.

To illustrate how we obtain *DA1*, consider the Ball and Shivarhumar model below:

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

where, for firm *j* and in year *t* (or *t - 1*), *ACCR* denotes total accruals (income before extraordinary items minus cash flow from operation); *A, ΔREV, ΔREC,* and *PPE* represent total assets, changes in net sales, changes in receivables, and gross property, plant and equipment, respectively; *CFO* represents cash flows from operation; *DCFO* is a dummy variable that equals 1 if *CFO* is negative and 0 otherwise; and ε is the error term.[12] We estimate Eq. (1) for each industry (by first two-digit SIC code) and year with a minimum of 20 observations. Our first measure of abnormal or discretionary accruals, *DA1*, is the difference between actual accruals and the fitted values of the accruals from Eq. (1).

Our second measure of discretionary accruals, i.e., *DA2*, is computed as follows. For each two-digit SIC-code industry and year with a minimum of 20 observations, we estimate the cross-sectional version 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 abnormal accruals are significantly correlated with firm performance. Following 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 *DA* (before performance-based adjustment) and the ROA-matched firm's *DA*.

Empirical Model for Testing the Effect of Office Size on Audit Quality

[12] Ball and Shivakumar (2006) show that accounting accruals recognize economic loss in a timelier manner than economic gain. To incorporate this asymmetry between economic gain and loss into the accrual model, Eq. (1) includes three additional variables, namely CFO_{jt}/A_{jt-1}, $DCFO_{jt}$, and $(CFO_{jt}/A_{jt-1})*DCFO_{jt}$, into the modified Jones model (Dechow et al. 1995).

To test our first hypothesis H1, we estimate the following regression that links the magnitude of absolute abnormal accruals with our variable of interest, i.e., the size of a local engagement office, and other control variables:

$$
\begin{aligned}
|DA|_{jt} = {} & \alpha_0 + \alpha_1 OFSIZE_{jt} + \alpha_2 BIG4_{jt} + \alpha_3 INDSPEC_{jt} + \alpha_4 NAS_{jt} + \alpha_5 LNTA_{jt} \\
& + \alpha_6 CHGSALE_{jt} + \alpha_7 LOSS_{jt} + \alpha_8 LEV_{jt} + \alpha_9 ISSUE_{jt} + \alpha_{10} BTM_{jt} + \alpha_{11} CFO_{jt} \\
& + \alpha_{12} LAGACCR_{jt} + IndustryDummies + \varepsilon_{jt}
\end{aligned}
\tag{3}
$$

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 audit quality. As mentioned earlier, we use two alternative measures of *DA*, namely, *DA1* and *DA2*. *OFSIZE* is our test variable which captures the size of a local engagement office within an audit firm. We measure this variable in two different ways: (1) the number of clients of a local engagement office in the fiscal year minus one, denoted by *OFSIZE1*; and (2) the sum of the audit fees of all clients of a local engagement office in the fiscal year minus the audit fee of client *j*, denoted by *OFSIZE2*.[13] We deflate both *OFSIZE1* and *OFSIZE2* using the largest values of the respective variables. This deflation leads to the values of both variables being measured in a unit-free form. An advantage of using these transformed measures is to make it easy to compare the effect of *OFSIZE* on audit quality with the effects of other auditor characteristics, i.e., *BIG4* and *INDSPEC*, because all three variables are now in a unit-free form and range from 0 to 1. Note here that both *BIG4* and *INDSPEC* are dummy variables that equal 1 for Big 4 auditors and city-level industry leaders, respectively, and 0 otherwise.[14]

[13] To calculate $OFSIZE2_j$, we deduct the audit fee of client *j* from the total sum of audit fees earned by its auditor office to exclude the effect of client *j*'s own size from the variable. However, when we repeat all the tests reported in the study without this deduction, we find that all the empirical results do not change qualitatively. Similarly, we deduct one from the number of clients of each office (*OFSIZE1*) to exclude the effect of the client itself. For details of our office size measures, refer to the fourth section and Appendix.

[14] *INDSPEC* equals 1 if the audit office is the industry leader (measured by audit fees) during the fiscal year in the audit market of a particular MSA (Metropolitan Statistical Area) where the audit office is located, and 0 otherwise. An industry is defined based on the two-digit SIC code (Francis et al. 2005, 2006).

We include in Eq. (3) a set of control variables that are known to affect the magnitude of abnormal accruals. We include *NAS* (the proportion of non-audit service fees relative to total fees) in order to control for potential detrimental effects of lucrative non-audit service on audit quality (Frankel et al. 2002). We include *LNTA* (log of total assets) to control for the client size effect on accruals quality (Dechow and Dichev 2002). *BTM* (book-to-market ratio) and *CHGSALE* (sales change) are included to control for firm growth, while *LOSS* (a dummy variable for loss-reporting firms) is included to control for potential differences in audit quality between loss and profit firms (Choi et al. 2007). We include *ISSUE* (a dummy variable for equity- or debt-issuance) because firms raising capital tend to manage earnings more aggressively (Teoh et al. 1998). *LEV* (leverage) is included because highly leveraged firms may have greater incentives for earnings management (Becker et al. 1998; DeFond and Jiambalvo 1994). We include *CFO* (cash flow from operation) to control for the potential correlation between accruals and cash flows (Kasznik 1999; Kothari et al. 2005). Following Ashbaugh et al. (2003), we include *LAGACCR* (lagged total accruals) to control for the reversal of accruals over time. Finally, we include industry dummies to control for industry fixed effects..

Empirical Model for Testing the Effect of Office Size on Audit Pricing

To test our second hypothesis H2 regarding the effect of office size on audit pricing, we posit the following audit fee model:

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

where, for client firm *j* and in year *t*, all variables are as defined in Table 1. Our test variable, *OFSIZE*, is the same as explained in the preceding section. The dependent variable, *AFEE*, is measured as the natural log of the audit fees (in thousand dollars).

For control variables, we include *BIG4* and *INDSPEC* to capture the effects of national-level audit firm size and city-level industry expertise, respectively, on audit pricing. Based upon prior evidence (Craswell et al. 1995; Francis et al. 2005), we expect positive coefficients on both variables. Following Simunic (1980) and Choi et al. (2008), 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*). We include *LOSS*, *LEV* and *ROA*, to control for client-specific risk. Because Simunic (1980) and Simunic and Stein (1996) suggest that auditors charge higher fees for risky clients, we expect a positive (negative) sign for the coefficients on *LOSS* and *LEV* (*ROA*). We include *ISSUE* and *BTM* to capture the effect of a client firm's growth on audit fees. Reynolds et al. (2004) report that the demand for audit services is greater for high-growth firms. We therefore expect a positive (negative) coefficient on *ISSUE* (*BTM*).

The magnitude of abnormal accruals may also influence audit pricing. Auditors may have to spend more time in detecting and restricting the earnings management of clients with abnormally high accruals, which in turn causes auditors to charge higher fees to compensate for their increased efforts. To control for 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).[15] Finally we include industry dummies in Eq. (4) to control for potential variations in audit fees across industries.

[INSERT TABLE 1 HERE!]

SAMPLE AND DESCRIPTIVE STATISTICS

Sample and Office Size

[15] For all the reported results throughout the paper, we use the predicted value of *DA1*, but the results are almost identical when we use that of *DA2*.

Our initial sample consists of all firms included in the *Audit Analytics* database for the six-year period from 2000 to 2005 for which data on audit fees and the location of city-level audit engagement offices are available. We exclude all client firm-year observations whose auditor office is located outside the 50 U.S. states. In other words, we exclude from our sample, client firms whose auditor is located in foreign countries or outlying U.S. territories (e.g., Puerto Rico, Virgin Island, Guam).[16] We further delete observations if their auditors are not located in one of 280 metropolitan statistical areas (MSAs) defined in the U.S. 2000 Census because it is problematic to calculate city-level auditor industry expertise for those firms.[17] These procedures leave us with 55,704 firm-year observations. We calculate the aggregate number of clients (for *OFSIZE1*), aggregate audit fees (for *OFSIZE2*), and auditor industry expertise (*INDSPEC*) for each local engagement office using these observations from *Audit Analytics*.

Next, we retrieve all other financial data from *Compustat*, and then merge them with the data extracted from *Audit Analytics*. This merging procedure leads to a loss of observations because of no-matching between the two databases and/or missing data. Further, we remove firms that belong to financial or utility industries with SIC codes being 6000-6999 and 4900-4999, respectively, due to the difficulty in measuring abnormal accruals for these firms. After applying the above sampling procedures, we obtain a total of 19,499 client firm-year observations for the test of H1 and a total of 16,559 observations for the test of H2. The final sample of 19,499 observations are audited by auditors from 963 unique audit practice offices of 387 audit firms located in 128 MSAs.

[16] Firm-years whose auditor office is located in Alaska or Hawaii are included in the sample, but the exclusion of those observations from our sample does not affect our results qualitatively.
[17] Refer to Francis et al. (2005) for details of MSA classification system, especially footnote 4.

Appendix provides six-year pooled summary statistics on the size of local engagement offices in our final sample for fiscal years 2000-2005.[18] Since the 963 offices can be counted up to six times over our six-year sample period, we report descriptive statistics of aggregate audit fees (Panel A) and the number of clients (Panel B) for 3,482 pooled office-years. The tables show significant variations in office size among Big 5, Middle 4 and all other small audit firms, and even within an audit firm. The median-size office has approximately $1.328 million of aggregate audit fee revenues and about six SEC registrant clients. The PWC New York office is the largest in terms of audit fee revenues, while the PWC Boston office is the largest in terms of the number of clients. The former records about $626 million audit fee revenues in fiscal year 2004 while the latter 358 clients in fiscal year 2004. In contrast, 424 office-years (about 12%) have audit fee revenues of less than $0.1 million, and 491 office-years (about 14%) have only one SEC registrant client. We also observe substantial variations in office size within an audit firm. For example, among 367 PWC office-years, the median audit fee revenues (number of clients) is about $8 million (11 clients), 27 office-years have audit fee revenues of less than $1 million, and 25 office-years have only one SEC registrant client.

Descriptive Statistics

Table 2 presents the descriptive statistics for our earnings management measures, |*DA1*| and |*DA2*|, and audit fee (*AFEE*) as well as the variable of interest (*OFSIZE*) and other control variables. With respect to the descriptive statistics, the following are noteworthy. On average, the absolute value of abnormal accruals is about 10% (14%) of lagged total assets

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[18] Since these summary statistics are based on the SEC registrant U.S. clients that are followed by the *Audit Analytics* database, the actual size of offices in terms of their audit fees and clients would be greater than those reported in the tables. Among Big 5 auditors, Arthur Andersen has the fewest number of office-years because it surrendered its practice licenses in 2002. However, in years 2000 and 2001 alone, Arthur Andersen is ranked 3rd in terms of market share. To remove the potential effect of Arthur Andersen, we repeat all our tests after excluding all the clients of Arthur Andersen but the results are qualitatively similar.

when we use *DA1* (*DA2*).[19] For two measures of *OFSIZE*, we report the values before they are transformed to values between 0 and 1 in order to show the actual distribution of the variables. In our sample, the maximum number of clients that an audit office has (*OFSIZE1*) is 357 and the mean (median) number of clients is about 45 (22).[20] The mean (median) total audit fee of an office (*OFSIZE2*) is about $36 million ($14 million). About 79% of clients are audited by one of Big 4 auditors (*BIG4*), and about 47% of clients hire an auditor with city-level industry leadership (*INDSPEC*). The average client size (*LNTA*) is 12.129 which is equivalent to about $185 million. The average audit fee (*AFEE*) is 5.857 which is equivalent to about $350 thousand.

[INSERT TABLE 2 HERE!]

Table 3 presents a Pearson correlation matrix among variables included in Eqs. (3) and (4). Panel A shows the correlation matrix for all the variables used to test H1 (N = 19,499) and Panel B shows the correlation matrix for selected variables used to test H2 (N = 16,559). In Panel A, our abnormal accruals measures, namely |*DA1*| and |*DA2*|, are highly correlated with a correlation coefficient of 0.519 ($p < 0.01$). The two office size measures, i.e., *OFSIZE1* and *OFSIZE2,* are highly correlated with each other ($\rho = 0.731$), and they are significantly negatively correlated with |*DA1*| and |*DA2*|. Both |*DA1*| and |*DA2*| are also correlated with all the other control variables, suggesting that these control variables are associated with accrual quality. Finally, we note that the pair-wise correlation among our explanatory variables is not very high in magnitude with the correlation between *LNTA* and *BIG4* of 0.517 being the highest. Except for the correlation between *LNTA* and *BIG4*, there

[19] These statistics are similar to the findings in the prior studies of Becker et al. (1998), Choi et al. (2007), Myers et al. (2003), and Reynolds and Francis (2001) which use the absolute value of discretionary accruals in their analyses.

[20] The mean and median office size reported in Table 2 are greater than those reported in Appendix because Table 2 provides descriptive statistics on client firm-year observations while Appendix provides those on audit office-year observations.

exist no other correlations which are higher than 0.4. This suggests that multicollinearity is unlikely to be a serious problem in 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) to test H2. Because the correlations among some of the variables used in Eq. (4) are already reported in the Panel A, we report only correlations among *AFEE*, *OFSIZE1*, *OFSIZE2* and other control variables not covered in Panel A. As shown in Panel B, we note that audit fees (*AFEE*) are highly correlated with office size (both *OFSIZE1* and *OFSIZE2*) and other control variables, especially with *INDSPEC* (0.255), *BIG4* (0.445), *LNTA* (0.821), *EMPLOY* (0.613), *NGS* (0.411) and *FOREIGN* (0.524).[21]

EMPIRICAL RESULTS

Results of Univariate Tests

To assess the effect of office size on audit quality and audit pricing, we first partition our total sample into two subsamples: (1) the large office sample with office size greater than the sample median; and (2) the small office sample with office size less than the sample median. We then compare the mean and median of our audit quality measures, |*DA1*| and |*DA2*|, and our audit fee measures, *AFEE*, between the two subsamples. Panel A of Table 4 reports the results of univariate tests for mean and median differences in |*DA1*| and |*DA2*|, while Panel B reports the same tests for *AFEE*. As shown in the rightmost two columns of Panel A, both t- and z-statistics indicate that the mean and median values of |*DA1*| and |*DA2*| are significantly smaller for the large office sample than for the small office sample, regardless of whether we use the median value of *OFSIZE1* or *OFSIZE2* to split the sample.

[21] Among control variables, the correlations between *LNTA* and *EMPLOY* (0.7014), *LOSS* and *ROA* (-0.5607), *LNTA* and *BIG4* (0.5270) and *FOREIGN* and *LNTA* (0.4734) are relatively high.

The differences between the two subsamples are highly significant in all cases. These results suggest that audit quality, proxied by unsigned abnormal accruals, is significantly higher for the large office sample than for the small office sample, which is consistent with *the economic dependence perspective* underlying our hypothesis, H1.

[INSERT TABLE 4 HERE!]

As shown in the two rightmost columns of Panel B, both t- and z-statistics show that the mean and median values of *AFEE* are significantly greater for the large office sample than for the small office sample. This result is robust to whether we use *OFSIZE1* or *OFSIZE2* to partition the total sample into the two subsamples. These results imply that audit fees are significantly higher for the large office sample than for the small office sample, which is consistent with the rejection of our null hypothesis, H2.

In sum, the results presented in Panels A and B, taken together, strongly indicate that large local offices are delivering higher-quality audit services than small local offices, and that this quality difference between large and small offices are priced in the audit market.

Results of Multivariate Tests for H1 on the Effect of Office Size on Audit Quality

Table 5 reports the results of regression in Eq. (3) for the test of H1. In section A, |*DA1*| is used as the dependent variable, while |*DA2*| is used in section B. All reported *t*-statistics throughout the paper are corrected for heteroskedasticity and serial correlations by using the White's (1980) method and the firm-level clustering procedure, respectively.[22]

As shown in column (1a), when |*DA1*| is regressed on *OFSIZE1*, the coefficient on *OFSIZE* is significantly negative at the one percent level with its magnitude of -0.0193 and *t* = -4.21. This indicates that audit services provided by large offices are of higher quality than

[22] For all the regression analyses we performed in this study, we calculate the variance inflation factor (VIF) to examine if the multicollinearity significantly influences our empirical results. Though not reported for brevity, we find no case where the VIF value is greater than 10, suggesting that multicollinearity is not a serious problem for our regression results.

those provided by small offices in the sense that the large offices are more effective in deterring opportunistic earnings management than small offices.[23] As shown in column (2a), when |*DA1*| is regressed on an alternative measure of office size, i.e., *OFSIZE2,* the coefficient on *OFSIZE* remains qualitatively similar with its magnitude of -0.0176 and *t* = -2.05. Section B of Table 5 reports the regression results using |*DA2*| as the dependent variable. Overall, the comparison of the results between Sections A and B reveals that the effect of office size on audit quality is robust to alternative measures of abnormal accruals and office size. The coefficient on *OFSIZE* is significantly negative in both columns (1b) and (2b).

The significantly negative coefficient on *OFSIZE* we observe in both sections A and B of Table 5 leads us to reject our null hypothesis H1, and is consistent with what we call *the economic dependence perspective* that large local offices are less economically dependent on a particular client, and thus are able to provide higher-quality audits, compared with small local offices.[24]

[INSERT TABLE 5 HERE!]

The coefficients on the control variables are in line with evidence reported in prior research. The coefficient on *BIG4* is significantly negative, suggesting that national-level office size does matter in determining audit quality. The coefficient on *INDSPEC* is significantly negative as well in Section A, and supports the view that an office-level industry specialist is more effective than a non-specialist in deterring opportunistic earnings management.[25] The coefficient on *NAS* is either marginally significant in columns (1a), (2a),

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[23] If we measure city-level auditor industry expertise not by the dummy variable but by city-level auditor industry market share, the coefficient on *OFSIZE1* is -0.0238 with *t* = -5.17.

[24] However, it is at odds with *the uniform quality perspective* that large audit firms such as Big 4 provide audit services of the same or similar quality across different-size offices within the same firm. To obtain further insights into this issue, we perform a subsample analysis using a subsample of only Big 4 clients in the subsequent section.

[25] *INDSPEC* is an indicator variable representing the office-level auditor industry expertise. When an additional indicator variable is added to the regression to control for national-level industry expertise, we find that the coefficient on this variable is insignificant and that the coefficients on all other variables remain qualitatively

and (1b) or insignificant in column (2b), a finding that is consistent with previous research that documents a weak (if any) effect of non-audit services on audit quality (e.g., Ashbaugh et al. 2003; Chung and Kallapur 2003; Frankel et al. 2002). Similar to evidence reported in previous research (e.g., Francis et al. 2006; Choi et al. 2007), all other control variables are highly significant with the expected signs.

The results in Table 5 clearly reveal that the office size variable, *OFSIZE*, is a significant determinant of audit quality even after controlling for the national-level audit firm size, *BIG4*, and city-level industry expertise, *INDSPEC*.[26] The estimated coefficient of -0.0193 means that the absolute magnitude of abnormal accruals decrease by about 1.93% of the lagged total assets if the scaled value of *OFSIZE1* increases from 0 to 1. Considering that the mean value of |*DA1*| is 0.102 as reported in Table 2, it implies that the office size determines nearly 19% of the magnitude of absolute abnormal accruals (0.0193 / 0.102 = 0.1892).[27] In short, our results in Table 5 suggest that the size of the audit engagement office is an important determinant of audit quality.[28]

To further examine whether the effect of office size on audit quality differs systematically between clients with income-increasing abnormal accruals and those with

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unaltered. For example, while the coefficient on the national-level industry expertise indicator variable is 0.0012 (t = 0.61), the coefficient on *OFSIZE1* is -0.0190 (t = -4.15), that on *INDSPEC* is -0.0076 (t = -3.63). The results indicate that the effect of office-level industry expertise dominates the effect of national-level industry expertise in our sample. This finding is consistent with the results reported in Francis et al. (2006).

[26] Note here that all three auditor characteristics, i.e., *OFSIZE*, *BIG4* and *INDSPEC*, are measured in a unit-free form ranging from 0 to 1. The *absolute* magnitude of the coefficient of *OFSIZE1* in column (1a) is 0.0193, which is significantly greater than that of *INDSPEC* which is 0.0092 (F = 4.29 with p = 0.038) and that of *BIG4* which is 0.0062 (F = 4.50 with p = 0.034). Though not tabulated, we also compute the beta coefficient on each of these three variables, and find that the beta-coefficient is -0.0254 for *OFSIZE1*, -0.0187 for *BIG4*, and -0.0343 for *INDSPEC*. The beta-coefficient of -0.0254 means that a 1 standard deviation increase in *OFSIZE1* leads to a 0.0254 standard deviation decrease in |*DA1*|.

[27] The estimated coefficient of 0.0193 is equivalent to 36.42% of the median |*DA1*| value which is 0.053 as reported in Table 2. .

[28] Though not reported, we also examined whether adding office size variable significantly improves the explanatory power of our model by comparing R^2 of the full model with R^2 of the reduced model which excludes *OFSIZE*. We find that the incremental explanatory power is significant. For example, for the model of column (1a), section A of Table 5, R^2 is 0.2063 for the reduced model without *OFSIZE1* while it is 0.2068 for the full model with *OFSIZE1*. This increase in R^2 is significant (Vuong's (1989) z = 2.47 with p = 0.0135). We also observe similar significant increases using the models in other columns of Table 5.

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 each sub-sample. Though not tabulated for brevity, we find that the coefficient on *OFSIZE* is highly significant with a negative sign for the sub-sample with *DA1* > 0, suggesting that large offices are more effective in constraining income-increasing accruals, compared with small offices. For example, when |*DA1*| is regressed on *OFSIZE1* and all other control variables in Eq. (3), the coefficient on *OFSIZE1* is -0.0251 (t = -4.17) for the *DA1* > 0 subsample. However, the same coefficient is insignificant for the *DA1* < 0 subsample across all specifications.[29] This insignificant result suggests that large offices are more effective than small offices in constraining *income-increasing* accruals, but not *income-decreasing* accruals.[30]

Results of Multivariate Tests for H2 on the Effect of Office Size on Audit Pricing

Table 6 reports the regression results for our audit fee model in Eq. (4) using a sample of 16,559 firm-years. In column (1), we report the result without our test variable, i.e., *OFSIZE*, so that it can be used as a benchmark for subsequent analyses. In column (2), our test variable is measured by *OFSIZE1*, whereas in column (3) it is measured by *OFSIZE2*. As shown in columns (2) and (3), the coefficient on *OFSIZE* is highly significant with its magnitude of 0.7513 and t = 25.58 when *OFSIZE1* is used, and of 2.0654 and t = 28.01 when *OFSIZE2* is used. These significantly positive coefficients on *OFSIZE* across all cases indicate that large local offices provide higher-quality audit services and thus charge higher audit fees to their clients, compared with small local offices.[31] This is consistent with the

[29] For example, if we use |*DA1*| and *OFSIZE1* for the *DA1* < 0 subsample, the coefficient on *OFSIZE1* is -0.0086 (t = -1.36).
[30] This result is in line 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 not more effective than non-Big 4 auditors in deterring income-decreasing earnings management.
[31] We also find that the increase in the explanatory power from column (1) to (2) or from (1) to (3) of Table 6 is statistically significant (Vuong z = 12.65 with p < 0.0001 and Vuong z = 19.05 with p = 0.0001, respectively).

finding of previous research that high-quality audit services are priced in the market as reflected in Big 4 fee premiums and industry expertise premiums (e.g., Choi et al. 2007, Craswell et al. 1995; DeFond et al. 2000; Ferguson et al. 2002 and 2003; Francis et al. 2005).

[INSERT TABLE 6 HERE!]

Overall, the coefficients on the control variables are highly significant with the expected signs, except for a few cases. One notable exception is that the coefficient on *BIG4* is insignificant in column (2) and significant with an unexpected negative sign in column (3), while it is significant with an expected positive sign in column (1) where *OFSIZE* is omitted. A possible reason for this observed inconsistency is due to a relatively high correlation between *BIG4* and *OFSIZE* (0.281 for *OFSIZE1* and 0.286 for *OFSIZE2*). To check this possibility, we split our total sample into two subsamples of Big 4 clients and non-Big 4 clients, and then re-estimate the regressions without the *BIG4* variable for each subsample. We find, however, that the new regression results for the Big 4 sample as well as for the non-Big 4 sample are qualitatively similar to those reported in Table 6. Though not tabulated for brevity, we find that, for the Big 4 sample (N = 12,963), the coefficient on *OFSIZE1* is 0.77 with t = 25.40, while the coefficient on *OFSIZE2* is 2.0709 with t = 27.76. We also find that, when we perform regressions for the non-Big 4 sample (N = 3,596), the coefficient on *OFSIZE1* is 1.5148 with t = 4.03, while the coefficient on *OFSIZE2* is 25.7672 with t = 12.76.

In short, the above subsample results suggest that large local offices charge higher audit fees than small local offices, and that this 'large office' premium applies irrespective of whether local auditors belong to a Big 4 or non-Big 4 audit firm. This evidence corroborates our earlier finding that large offices provide higher-quality audits than small offices as reported in Table 5.

As shown in columns (2) and (3) of Table 6, it is also interesting to observe that of the three audit firm characteristics, i.e., *OFSIZE, BIG4*, and *INDSPEC,* the audit fee effect of

OFSIZE is among the highest as reflected in the magnitude and significance of the coefficient on each characteristic.[32] For example, in column (2), the coefficients on *OFSIZE, BIG4*, and *INDSPEC* are 0.7513 (t = 25.58), -0.0116 (t = -0.74), and 0.0453 (t = 3.85), respectively, suggesting that the fee premium associated with the office size (captured by the *OFSIZE* coefficient) is greater than the national-level Big 4 premium (captured by the Big 4 coefficient) and the office-level industry specialist premium (captured by the *INDSPEC* coefficient).[33]

Sensitivity Checks

In this section, we perform various robustness tests. First, when we remove clients of each Big 4 audit firm, one at a time, and re-estimate all the regressions, the results remain qualitatively unaltered. For example, when we remove the clients of Arthur Andersen and re-perform the same test as reported in the column (1) of Table 5 (N = 15,478), the coefficient on *OFSIZE1* is -0.0243 (t = -3.96). When we perform the same test with the clients of Arthur Andersen only (N = 3,949), the coefficient on *OFSIZE1* is -0.0202 (t = -2.90). These results suggest that our results are unlikely to be driven by factors peculiar to a large audit firm.

Second, using the subsample observations that experience auditor switching during our sample period, we examine the relative office size of incoming and outgoing auditors, and compare the absolute magnitude of discretionary accruals. Among this subsample (N = 2004), we find that 1,146 (858) clients switch to a new auditor of larger (smaller) office when office size is measured by *OFSIZE1*. This suggests that client firms in our sample tend to switch their auditors from small-office auditors to large-office auditors during our sample

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[32] Although it is not separately reported, the coefficient on *OFSIZE* is significantly greater than that on *BIG4* and that on *INDSPEC*. When we compute the beta coefficients for three auditor-related variables, *OFSIZE, BIG4*, and *INDSPEC*, the beta coefficient on *OFSIZE* is the largest, followed by that on *INDSPEC* and then that on *BIG4*.

[33] Though not tabulated, we also estimated Eq. (4) after adding the national-level industry expertise as an additional control variable in the regression. We find that the coefficient on this new variable is insignificant across all cases, while the coefficients on the other auditor-related variables remain qualitatively unaltered.

period. Taking into account the finding of a strong effect of office size on audit quality, the above result is in line with the view that client firms with auditor changes tend to switch to a larger-office auditor who possesses a higher quality audit service and a better reputation. In addition, we find that absolute discretionary accruals of client firms switching to a larger-office auditor are lower, compared to those of client firms switching to a smaller-office auditor. For example, the mean (median) discretionary accruals (|*DA1*|) of the former is 0.1135 (0.0594), whereas that of the latter is 0.1239 (0.0606) when *OFSIZE1* is used to measure audit office size. The smaller (larger) magnitude of discretionary accruals for client firms switching to large-office (small-office) auditors also supports the argument that the large-office auditors provide a higher-quality audit service than small-office auditors.

Third, Hribar and Nichols (2007) suggest that using absolute discretionary accruals as the dependent variable potentially biases the test in favor of rejecting the null hypothesis of no earnings management and that adding volatilities of operating cash flows (*STD_CFO*) and cash-based revenues (*STD_REV*) as additional controls in the regression model substantially improves test specifications. Following their suggestion, we first obtain *STD_CFO* (standard deviations of operating cash flows deflated by lagged total assets for the years from t-4 to t) and *STD_REV* (standard deviations of cash-based revenues (revenues + changes in account receivables) deflated by lagged total assets for the years from t-4 to t). We then add these two variables into Eq. (3) as additional controls. Although the sample size decreases to 14,443 due to additional data requirements, the results are qualitatively the same as before. For example, if we perform an analysis which is comparable to column (1a) of Table 5, the coefficient on *OFSIZE1* is still negative and significant (coefficient = -0.0112, t = -2.44). The coefficients on *STD_CFO* and *STD_REV* are both positive and significant at the 1% level, consistent with Hribar and Nichols (2007).

Fourth, we test if the differential wage level of auditors across MSAs influences the results of our audit fee regressions. We perform this test because large-size offices tend to be located in large MSAs such as New York, Boston, and San Francisco where the overall wage level is higher. To investigate this issue, we employ the following three approaches. First, we divide our sample into two subsamples: (1) the subsample of firms audited by offices in the top 10 MSAs where average office size is the largest during the sample period (N = 8,284); and (2) the subsample of all other firms (N = 8, 211). We then perform the tests by estimating our audit fee regressions separately for each subsample.[34] Second, we obtain the statistics of mean hourly wage of auditors and accountants in each MSA from *2005 Metropolitan Area Occupational Employment Statistics* published by the U.S. Bureau of Labor Statistics, and then divide our sample into two subsamples: (1) the subsample of firms audited by the audit offices located in the MSAs where the mean wage per hour is greater than the overall sample median (N = 8,587); and (2) the subsample of all other firms (N = 7, 908). We find that the results of our audit fee regressions for each subsample are qualitatively similar to those reported in Table 6 in that the office size has a significantly positive association with audit fee. Third, when we add the mean wage per hour in each MSA as an additional control variable into our audit fee regression without dividing the sample, we find that the results remain unaltered. For example, if we perform an analysis which is comparable to column (2) of Table 6, the coefficient on *OFSIZE1* is 0.6441 (t = 21.65) while the coefficient on the mean wage per hour is positive and significant at the 1% level. All these findings indicate that our main results reported in Table 6 are unlikely to be driven by differences in the wage level across MSAs.

[34] The top 10 MSAs are Chicago, San Francisco, Boston, Detroit, Philadelphia, Atlanta, Houston, New York, Washington, and St. Louis (listed by the order from the largest).

SUMMARY AND CONCLUDING REMARKS

While previous auditing research has examined whether and how audit fees and audit quality are influenced by audit firm size at the national level and auditor industry leadership at both the national level and the city level, this line of research has paid little attention to the effect of the size of a local engagement office within an audit firm (i.e., office size) in the context of audit quality and audit pricing. Unlike previous research, the focus of this paper is on whether the office size is an additional, engagement-specific factor determining audit quality and audit pricing over and beyond national-level audit firm size and office-level industry leadership. Our results can be summarized as follows:

First, we find that the office size is positively associated with audit quality proxied by unsigned abnormal accruals. Our finding is consistent with what we call the economic dependence perspective: large (small) local offices with deep office-level clienteles are less (more) likely to depend on a particular client, and thus are better (less) able to resist client pressure on substandard or biased reporting. Second, we find that large local offices are able to charge higher audit fees to their clients than small ones, which is consistent with the view that large offices provide higher-quality audits than small offices, and this quality differential is priced as a fee premium in the market for audit services. However, the above finding is at odds with the view that large offices have a cost advantage in producing audit services of similar quality, and thus are able to charge lower billing rates, compared with small offices. Taken together, our results highlight that office size is one of the most important engagement-specific determinants of audit quality and audit pricing. Lastly, while we use two alternative, advanced accrual models to alleviate a concern over the limitations inherent in the Jones (1991) model estimates of abnormal accruals, our measures of audit quality, namely unsigned abnormal accruals, may suffer from non-trivial measurement errors. We therefore cannot completely rule out the possibility that the estimated coefficients on our test variables are biased. However, given that a contemporaneous study of Francis and Yu (2009) document the same positive association between audit quality and audit office size using two additional proxies for audit quality, i.e., auditors' tendency to issue going-concern opinion and client firms' likelihood to meet earnings benchmarks, we believe that our results are unlikely driven by possible measurement errors.

Overall, our results suggest that both regulators and audit firms should pay more attention to the behavior of small offices because they are more likely to be economically dependent on a particular client and, thus, to compromise audit quality. In particular, Big 4 audit firms may need to implement strategies for providing a more homogenous level of audit services across offices of different sizes because a poor-quality audit by a small office could significantly damage the reputation of the entire firm. In today's global business environment, the issue of maintaining 'uniform quality' should be an even more important concern to reputable auditors because their business becomes increasingly internationalized in terms of locations and client profiles. For example, it may be more difficult for Big 4 audit firms to maintain uniform quality of service at the office level across different jurisdictions around the world. Further, local offices in different jurisdictions (e.g., European Union and China) have their own client bases, and are likely to be more autonomous in making audit-related decisions than those within the U.S. It is therefore possible that the size of a local practicing office plays a more significant role in determining the quality of audit services in other non-U.S. jurisdictions than in the U.S. Given the scarcity of international evidence regarding the effect of audit office size on audit quality and audit pricing, we recommend further research on the issue using international samples from different jurisdictions.

[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. 2006. The role of accruals in asymmetrically timely gain and loss recognition. *Journal of Accounting Research* 44 (2): 207-242.

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.

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.

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.

—————, J. –B. Kim, X. Liu, and D. Simunic. 2008. Audit pricing, legal liability regimes, and Big 4 premiums: Theory and cross-country evidence. *Contemporary Accounting Research* 25 (1): 1-49.

—————, ————, A. Qiu, and Y. Zang. 2007. Auditor locality, audit quality and audit pricing. *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.

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

—————. 1981b. Auditor size and audit quality. *Journal of Accounting and Economics* 3 (3): 183-199.

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.

—————, 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.

—————, and J. R. Francis, and T. J. Wong, 2000. Auditor industry specialization and market segmentation: Evidence from Hong Kong. *Auditing: A Journal of Practice and Theory* 19 (1): 49-66.

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.

—————, 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. 2004. What do we know about audit quality? *The British Accounting Review* 36: 345-368.

—————, and J. Krishnan. 1999. Accounting accruals and auditor reporting conservatism. *Contemporary Accounting Research* 16 (1): 135-165.

—————, 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.

—————, K. Reichelt, and D. Wang. 2006. National versus office-specific measures of auditor industry expertise and effects on client earnings quality. *Working Paper*, University of Missouri at Columbia.

—————, and D. Yu. 2009. The effect of big four office size on audit quality. *The Accounting Review* 84 (5). Forthcoming.

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.

Herbig, P., J. Milewicz, and J. Goden. 1994. A model of reputation building and destruction. *Journal of Business Research* 31: 23-31.

Hribar, P., and D. C. Nichols. 2007. The use of unsigned earnings quality measures in tests of earnings management. *Journal of Accounting Research* 45 (5): 1017-1053.

Jacoby, J. and D. Mazursky. 1984. Linking brand and retailer image—do the potential risk outweigh the potential benefits? *Journal of Retailing*: 105-122.

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

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

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

Klein, B. and K. B. Leffler. 1981. The role of market forces in assuring contractual performance. *Journal of Political Economy* 89: 615-641.

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.

Kreps, D. and R. Wilson. 1982. Reputation and imperfect information. *Journal of Economic Theory* 27: 253-279.

Krishnan, G. 2005. The association between Big 6 auditor industry expertise and the asymmetric timeliness of earnings. *Journal of Accounting, Auditing, & Finance* 20 (3): 209-228.

Levitt, A. 1998. The numbers game. Remarks delivered at the NYU Center for Law and Business, NY, September 28. Available at: http://www.sec.gov/news/speech/speecharchive/1998/spch220.txt.

Myers, J. N., L. A. Myers, T. C. 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): 759-778.

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.

Shapiro, C. 1983. Premium for high quality products as return to reputation. *Quarterly Journal of Economics* 98: 659-680.

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

—————, and M. Stein. 1987. Product differentiation in auditing: Auditor choice in the market for unseasoned new issues, *Canadian Certified General Accountants' Research Foundation*, Vancouver, British Columbia, Canada

—————, 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.

Teoh, S. H., T. J. Wong, and G. R. Rao. 1998. Are accruals during initial public offerings opportunistic? *Review of Accounting Studies* 3 (March): 175-208.

Tirole, J. 1990. *The Theory of Industrial Organization*. The MIT Press. Cambridge, Massachusetts.

Vuong, Q. H. 1989. Likelihood ratio tests for model selection and non-nested hypotheses, *Econometrica* (57): 307-333

Wallman, S. 1996. The future of accounting, Part III: Reliability and auditor independence. *Accounting Horizon* 10 (4): 76-97.

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

APPENDIX
SUMMARY STATISTICS ON OFFICE SIZE

This Appendix reports pooled summary statistics on the size of local engagement offices in our sample for the six-year sample period, 2000-2005, based on the data in *Audit Analytics*. Individual offices can be counted up to six times in the table (i.e., once per fiscal year). Panel A presents descriptive statistics on total audit fees (in thousands) of each offices and Panel B presents descriptive statistics on the number of audit clients of each office.

Panel A: Audit Fees of Audit Engagement Offices for 2000-2005 (in thousands)

Auditor	N	Mean	Std Dev	Min	25%	Median	75%	Max
PWC LLP	367	28,100	62,744	97.5	2,829	8,024	25,046	626,173
Ernst & Young LLP	433	17,533	29,786	46.6	2,775	7,276	19,082	270,456
Deloitte & Touche LLP	378	18,568	38,489	55.0	1,616	6,138	19,818	442,698
KPMG LLP	452	14,100	29,716	43.7	1,376	4,053	12,168	293,046
Arthur Andersen LLP	121	7,260	12,913	65.8	1,394	2,890	6,156	96,654
Big 5	**1,751**	**18,375**	**40,420**	**43.7**	**2,040**	**5,755**	**17,765**	**626,173**
Grant Thornton LLP	197	2,259	3,321	51.8	448	1,155	2,460	24,681
BDO Seidman LLP	147	2,904	4,566	29.0	432	1,373	2,993	33,350
Crowe Chizek & Co. LLC	24	879	534	44.2	541	920	1,226	2,038
McGladrey & Pullen LLP	89	504	591	25.0	144	294	604	3,791
Middle 4	**457**	**2,052**	**3,506**	**25.0**	**332**	**895**	**2,168**	**33,350**
Others	**1,274**	**488**	**804**	**3.0**	**87**	**202**	**542**	**10,795**
All	**3,482**	**9,688**	**29,967**	**3.0**	**262**	**1,328**	**6,245**	**626,173**

Panel B: Number of Clients of Audit Engagement Offices for 2000-2005

Auditor	N	Mean	Std Dev	Min	25%	Median	75%	Max
PWC LLP	367	26.0	48.6	1	6	11	22	358
Ernst & Young LLP	433	23.4	39.6	1	6	11	22	312
Deloitte & Touche LLP	378	19.6	37.2	1	4	9	20	318
KPMG LLP	452	15.6	22.9	1	4	7	19	188
Arthur Andersen LLP	121	14.9	17.3	1	3	9	15	86
Big 5	**1,751**	**20.6**	**36.7**	**1**	**4**	**10**	**21**	**358**
Grant Thornton LLP	197	8.6	7.4	1	4	6	11	35
BDO Seidman LLP	147	8.2	7.7	1	3	6	11	51
Crowe Chizek & Co. LLC	24	9.3	5.6	1	5	9	12	20
McGladrey & Pullen LLP	89	2.8	2.4	1	1	2	3	11
Middle 4	**457**	**7.4**	**7.1**	**1**	**2**	**5**	**10**	**51**
Others	**1,274**	**6.1**	**8.1**	**1**	**1**	**3**	**7**	**68**
All	**3,482**	**13.6**	**27.6**	**1**	**2**	**6**	**14**	**358**

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 (2006) 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);
AFEE	=	natural log of audit fees paid to auditors;
OFSIZE	=	the size of a city-based, engagement office within an audit firm. Two proxies are used in the current study: *OFSIZE1* and *OFSIZE2*. *OFSIZE1* is the number of clients of the office minus one; *OFSIZE2* is the sum of the audit fees of all clients of the office minus the audit fee of the specific client. Both variables are deflated by the largest value of the respective variable and thus are converted into the value between 0 and 1;
BIG4	=	1 if the auditor is one of Big 4 firms, 0 otherwise;
INDSPEC	=	indicator variable for the office-level auditor industry expertise; It equals to 1 if the audit office is the industry leader for the audit year in the audit market of the MSA where the audit office is located, and 0 otherwise; We calculate each audit office's industry market share of audit fees for a MSA as a proportion of audit fees earned by each office in the total audit fees earned by all audit offices in the MSA that serve the same industry; Each industry is defined based on the two-digit SIC code;
BTM	=	book-to-market ratio, windsorized at 0 and 4;
CFO	=	operating cash flows, taken from the cash flow statement, deflated by lagged total assets;
CHGSALE	=	changes in sales deflated by lagged total assets;
EMPLOY	=	square root of the number of employees;
EXORD	=	1 if the firm reports any extraordinary gains or losses, 0 otherwise;
FOREIGN	=	1 if the firm pays any foreign income tax, 0 otherwise;
INVREC	=	inventory and receivables 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;
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;
LEV	=	leverage, measured as total liabilities divided by total assets;
LNTA	=	natural log of total assets in thousand dollars;
LOSS	=	1 if the firm reports a loss for the year, 0 otherwise;
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;
NBS	=	natural log of one plus number of business segments;
NGS	=	natural log of one plus number of geographic segments;
ROA	=	return on assets (income before extraordinary items divided by average total assets).

Table 2: Descriptive Statistics

Variable	N	Mean	Std. Dev.	1%	25%	Median	75%	99%
DA 1	19499	0.102	0.135	0	0.021	0.053	0.126	0.681
DA 2	19499	0.142	0.164	0.001	0.035	0.084	0.181	0.798
*OFSIZE1**	19499	45.026	63.391	0	9	22	53	317
*OFSIZE2**	19499	36049	63207	0	2695	14042	45037	325309
INDSPEC	19499	0.471	0.499	0	0	0	1	1
BIG4	19499	0.790	0.407	0	1	1	1	1
NAS	19499	0.592	0.355	0	0.368	0.721	0.868	0.991
LNTA	19499	12.129	2.175	7.429	10.617	12.118	13.582	17.231
CHGSALE	19499	0.097	0.509	-0.928	-0.032	0.057	0.194	1.535
LOSS	19499	0.430	0.495	0	0	0	1	1
LEV	19499	0.532	0.463	0.045	0.270	0.466	0.663	2.388
ISSUE	19499	0.437	0.496	0	0	0	1	1
BTM	19499	0.638	0.701	0	0.226	0.442	0.785	4
CFO	19499	0.016	0.270	-1.041	-0.026	0.068	0.138	0.458
LAGACCR	19499	-0.118	0.563	-1.262	-0.137	-0.068	-0.020	0.372
AFEE	16559	5.857	1.333	3.250	4.865	5.730	6.746	9.287
EMPLOY	16559	53.960	70.628	2	12.845	29.172	65.521	352.846
NBS	16559	0.996	0.465	0	0.693	0.693	1.386	2.079
NGS	16559	0.949	0.623	0	0.693	1.099	1.386	2.303
INVREC	16559	0.273	0.198	0	0.110	0.241	0.394	0.810
FOREIGN	16559	0.431	0.495	0	0	0	1	1
EXORD	16559	0.204	0.403	0	0	0	0	1
ROA	16559	-0.078	0.334	-1.386	-0.101	0.023	0.072	0.299

* *OFSIZE1* and *OFSIZE2* are converted into the value between 0 and 1 by dividing each observation by the maximum value of the variable (*OFSIZE1* = 357*;* *OFSIZE2* = 625,965). However, we report the values before the conversion for the illustrative purpose in this table. Note that these maximum *OFSIZE1* and *OFSIZE2* are slightly smaller than those in Appendix because we exclude the effect of its own observation to measure *OFSIZE1* and *OFSIZE2*.

Table 3: Correlation Matrix

Panel A: Pearson Correlations among Variables Included in the Audit Quality Model

.	│DA 1│	│DA 2│	OFSIZE1	OFSIZE2	IND-SPEC	BIG4	NAS	LNTA	CHG-SALE	LOSS	LEV	ISSUE
│DA 2│	0.519 (<0.001)	1.000										
OFSIZE1	-0.062 (<0.001)	-0.055 (<0.001)	1.000									
OFSIZE2	-0.085 (<0.001)	-0.087 (<0.001)	0.731 (<0.001)	1.000								
INDSPEC	-0.156 (<0.001)	-0.121 (<0.001)	0.017 (0.013)	0.058 (<0.001)	1.000							
BIG4	-0.196 (<0.001)	-0.183 (<0.001)	0.279 (<0.001)	0.276 (<0.001)	0.266 (<0.001)	1.000						
NAS	-0.098 (<0.001)	-0.090 (<0.001)	0.061 (<0.001)	0.074 (<0.001)	0.108 (<0.001)	0.199 (<0.001)	1.000					
LNTA	-0.344 (<0.001)	-0.319 (<0.001)	0.158 (<0.001)	0.245 (<0.001)	0.317 (<0.001)	0.517 (<0.001)	0.307 (<0.001)	1.000				
CHGSALE	0.041 (<0.001)	0.021 (0.004)	0.007 (0.304)	0.017 (0.019)	0.027 (<0.001)	0.003 (0.662)	0.033 (<0.001)	0.065 (<0.001)	1.000			
LOSS	0.259 (<0.001)	0.211 (<0.001)	-0.016 (0.029)	-0.076 (<0.001)	-0.139 (<0.001)	-0.138 (<0.001)	-0.148 (<0.001)	-0.353 (<0.001)	-0.173 (<0.001)	1.000		
LEV	0.146 (<0.001)	0.104 (<0.001)	-0.068 (<0.001)	-0.029 (<0.001)	0.017 (0.019)	-0.144 (<0.001)	-0.068 (<0.001)	-0.077 (<0.001)	-0.082 (<0.001)	0.143 (<0.001)	1.000	
ISSUE	0.091 (<0.001)	0.088 (<0.001)	-0.024 (<0.001)	-0.007 (0.303)	0.021 (0.003)	-0.015 (0.042)	0.005 (0.517)	-0.001 (0.935)	0.097 (<0.001)	0.101 (<0.001)	0.136 (<0.001)	1.000

Table 3: Correlation Matrix (Continued)

	$\lvert DA\ 1 \rvert$	$\lvert DA\ 2 \rvert$	*OFSIZE1*	*OFSIZE2*	*IND-SPEC*	*BIG4*	*NAS*	*LNTA*	*CHG-SALE*	*LOSS*	*LEV*	*ISSUE*	*BTM*	*CFO*
BTM	-0.078 (<0.001)	-0.074 (<0.001)	-0.081 (<0.001)	-0.087 (<0.001)	0.011 (<0.124)	-0.030 (<0.001)	-0.073 (<0.001)	-0.073 (<0.001)	-0.127 (<0.001)	0.094 (<0.001)	-0.165 (<0.001)	-0.134 (<0.001)	1.000	
CFO	-0.298 (<0.001)	-0.277 (<0.001)	-0.004 (0.579)	0.052 (<0.001)	0.111 (<0.001)	0.139 (<0.001)	0.113 (<0.001)	0.362 (<0.001)	0.108 (<0.001)	-0.489 (<0.001)	-0.112 (<0.001)	-0.203 (<0.001)	0.046 (<0.001)	1.000
LAGACCR	-0.134 (<0.001)	-0.077 (<0.001)	0.004 (0.606)	0.025 (<0.001)	0.027 (<0.001)	0.022 (0.003)	0.035 (<0.001)	0.066 (<0.001)	-0.006 (0.404)	-0.118 (<0.001)	-0.063 (<0.001)	-0.043 (<0.001)	0.023 (0.001)	0.115 (<0.001)

Panel B: Pearson Correlations among Selected Variables Included in the Audit Fee Model

	OFSIZE1	*OFSIZE2*	*INDSPEC*	*BIG4*	*LNTA*	*EMPLOY*	*NBS*	*NGS*
AFEE	0.237 (<0.001)	0.360 (<0.001)	0.255 (<0.001)	0.445 (<0.001)	0.821 (<0.001)	0.613 (<0.001)	0.233 (<0.001)	0.411 (<0.001)
OFSIZE1	1.000	0.731 (<0.001)	0.017 (0.031)	0.281 (<0.001)	0.156 (<0.001)	0.055 (<0.001)	-0.001 (0.890)	0.114 (<0.001)
OFSIZE2		1.000	0.055 (<0.001)	0.286 (<0.001)	0.246 (<0.001)	0.139 (<0.001)	0.034 (<0.001)	0.132 (<0.001)

	INVREC	*FOREIGN*	*EXORD*	*LOSS*	*LEV*	*ROA*	*ISSUE*	*BTM*
AFEE	-0.066 (<0.001)	0.524 (<0.001)	0.197 (<0.001)	-0.237 (<0.001)	0.034 (<0.001)	0.254 (<0.001)	0.008 (0.333)	-0.147 (<0.001)
OFSIZE1	-0.111 (<0.001)	0.137 (<0.001)	-0.009 (0.224)	-0.010 (0.184)	-0.063 (<0.001)	0.020 (0.010)	-0.024 (0.002)	-0.076 (<0.001)
OFSIZE2	-0.089 (<0.001)	0.173 (<0.001)	0.013 (0.087)	-0.073 (<0.001)	-0.024 (0.002)	0.073 (<0.001)	-0.006 (0.431)	-0.085 (<0.001)

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

Table 4: Results of Univariate Tests

Variable	(1) ***OFSIZE1*** **≥ median** Mean	(1) Median	(2) ***OFSIZE1*** **< median** Mean	(2) Median	(3) ***OFSIZE2*** **≥ median** Mean	(3) Median	(4) ***OFSIZE2*** **< median** Mean	(4) Median	**Difference** (2) – (1)	**Difference** (4) – (3)
Panel A: Tests for Differences in Unsigned Abnormal Accruals between Large and Small Offices										
|*DA 1*|	0.0968	0.0520	0.1077	0.0551	0.0881	0.0483	0.1178	0.0607	*t* = 5.69*** *z* = 3.64***	*t* = 15.47*** *z* = 12.90***
|*DA 2*|	0.1358	0.0807	0.1479	0.0869	0.1259	0.0757	0.1594	0.0942	*t* = 5.15*** *z* = 4.98***	*t* = 14.32*** *z* = 13.53***
Panel B: Tests for Differences in Audit Fees between Large and Small Offices										
AFEE	6.1816	6.0691	5.5353	5.3613	6.3840	6.2955	5.3297	5.1569	*t* = -32.15*** *z* = -31.75***	*t* = -55.41*** *z* = -52.20***

*** denotes p-value < 1% with two-tailed tests.

Table 5: Results of Regressions of Audit Quality on Office Size

		Section A Using |*DA 1*| as the dependent variable		Section B Using |*DA 2*| as the dependent variable	
	Exp. Sign	**(1a)** ***OFSIZE1***	**(2a)** ***OFSIZE2***	**(1b)** ***OFSIZE1***	**(2b)** ***OFSIZE2***
OFSIZE		-0.0193 (-4.21***)	-0.0176 (-2.05**)	-0.0176 (-3.05***)	-0.0340 (-3.38***)
BIG4	-	-0.0062 (-1.81*)	-0.0075 (-2.20**)	-0.0116 (-3.04***)	-0.0118 (-3.11***)
INDSPEC	-	-0.0092 (-4.46***)	-0.0090 (-4.35***)	-0.0013 (-0.53)	-0.0013 (-0.50)
NAS	+	0.0061 (2.03**)	0.0061 (2.02**)	0.0058 (1.65*)	0.0057 (1.62)
LNTA	-	-0.0143 (-20.17***)	-0.0142 (-20.03***)	-0.0166 (-20.00***)	-0.0165 (-19.73***)
CHGSALE	+	0.0237 (5.60***)	0.0236 (5.59***)	0.0185 (4.32***)	0.0185 (4.32***)
LOSS	+	0.0210 (7.63***)	0.0208 (7.58***)	0.0124 (4.06***)	0.0122 (4.00***)
LEV	+	0.0285 (7.12***)	0.0288 (7.19***)	0.0218 (5.77***)	0.0221 (5.84***)
ISSUE	+	0.0056 (2.89***)	0.0058 (2.98***)	0.0098 (4.07***)	0.0099 (4.11***)
BTM	-	-0.0091 (-5.98***)	-0.0089 (-5.87***)	-0.0116 (-6.24***)	-0.0116 (-6.24***)
CFO	-	-0.0684 (-8.40***)	-0.0681 (-8.38***)	-0.0892 (-9.64***)	-0.0891 (-9.63***)
LAGACCR	-	-0.0181 (-6.18***)	-0.0181 (-6.16***)	-0.0075 (-2.23**)	-0.0074 (-2.21**)
Intercept	?	0.2790 (31.76***)	0.2777 (31.58***)	0.3599 (35.06***)	0.3578 (34.81***)
Industry Dummies		Included	Included	Included	Included
N		19,499	19,499	19,499	19,499
R^2		0.2068	0.2064	0.1635	0.1635

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 6: Results of Regressions of Audit Fees on Office Size

		Dependent variable = AFEE		
		(1)	**(2)** ***OFSIZE1***	**(3)** ***OFSIZE2***
OFSIZE	+	-	0.7513 (25.58***)	2.0654 (28.01***)
BIG4	+	0.0623 (4.02***)	-0.0116 (-0.74)	-0.0352 (-2.26**)
INDSPEC	+	0.0226 (1.92*)	0.0453 (3.85***)	0.0509 (4.46***)
LNTA	+	0.4422 (69.67***)	0.4541 (68.71***)	0.4472 (69.50***)
EMPLOY	+	0.0011 (8.38***)	0.0012 (9.12***)	0.0011 (9.01***)
NBS	+	0.1031 (8.52***)	0.1070 (8.98***)	0.1057 (9.02***)
NGS	+	0.1482 (13.37***)	0.1396 (12.79***)	0.1376 (12.92***)
INVREC	+	0.3489 (11.01***)	0.3794 (12.14***)	0.3728 (12.17***)
FOREIGN	+	0.2868 (19.25***)	0.2731 (18.60***)	0.2634 (18.45***)
EXORD	+	0.1360 (9.65***)	0.1440 (10.37***)	0.1482 (10.95***)
LOSS	+	0.1006 (6.61***)	0.0738 (4.79***)	0.0770 (5.15***)
LEV	+	0.1543 (9.70***)	0.1376 (8.55***)	0.1207 (7.63***)
ROA	-	-0.3136 (-10.43***)	-0.2592 (-8.73***)	-0.2549 (-8.72***)
ISSUE	+	0.0205 (1.75*)	0.0163 (1.41)	0.0112 (0.99)
BTM	-	-0.1787 (-20.85***)	-0.1551 (-18.03***)	-0.1463 (-17.42***)

Table 6: Audit Office Size and Audit Fee (Continued)

|DA 1|*	+	-0.5077 (-1.72*)	0.5437 (1.65*)	0.7035 (2.22**)
Intercept	?	0.0431 (0.45)	-0.2728 (-2.62***)	-0.1991 (-1.98**)
Industry dummies		Included	Included	Included
N		16,559	16,559	16,559
R^2		0.7371	0.7461	0.7588

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% and <5%, respectively with two-tailed tests.*