Audit Office Size and Audit Quality: The Influence of City-Level Industry Specialists and Audit Firm Tenure

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Abstract

Prior studies suggest that audit quality is positively related to audit office size, i.e. the size of a local practice office within an audit firm. Based on a sample of U.S. listed companies over the period 2004 - 2013, this study shows that the positive association between audit office size and audit quality is weaker for firms audited by city-level industry specialists and long-tenured audit offices. These findings suggest that city-level industry specialization (long office-level auditor tenure) leads to deep industry (client-specific) knowledge, which tends to be beneficial in small audit offices where the accounting professionals has less experience related to the audits of listed companies.

Key Words: Office Size; City-level Industry Specialist; Audit Firm Tenure; Audit Quality

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I. Introduction

In recent years, a growing number of studies show that audit quality is affected by office-level auditor characteristics. This line of research is motivated by the notion that audits are administrated by the engagement offices located in the same city as the clients' headquarters (e.g. Penno and Walther 1996; Ferguson, Francis and Stokes 2003; Francis 2004). Hence, human capitals and economic dependence on individual clients tend to be office-specific phenomenon, leading to quality differentiation across practice offices within the same audit firm.

Existing literature shows that the size of the audit engagement office (i.e. audit office size) is one of the determinants of audit quality (e.g., Reynolds and Francis 2000; Francis and Yu 2009; Choi, Kim, Kim and Zang 2010). "A Big 4 accounting firm is not so big when we shift to the office level of analysis" (Francis 2004 pp. 355). For example, based on the sample of U.S.-listed companies used for this study, we observe a cross-sectional variation in office size within a Big 4 audit firm. In 2004, nearly 24% of PwC's audit fee revenues were earned by the largest office in New York, while the smallest offices individually earned less than 1% of the audit firm' audit fee revenues. The literature provides two interpretations for heterogeneous quality across practice offices. Francis et al. (2009) explain this finding from the perspective of auditors' competence. Larger audit offices have more in-house experience related to the audits of public companies. That is, accountants have more opportunities to accumulate knowledge or experience if they work in larger audit offices with larger clientele bases; in addition, they can consult with their peers within the same offices, leading to an increased likelihood of detecting financial misstatement and hence higher audit quality. Put differently, larger offices supply higher-quality audits due to abundant human capitals. Choi et al. (2010) raises an explanation related to the argument of DeAngelo (1981), i.e., larger offices have a greater number of clients, thus earning more client-specific quasi-rents that serve as collateral against auditors' opportunistic behaviors. As a result, auditors in larger audit offices have less incentive to compromise their independence.

In this study, we first examine how the association between audit office size and audit quality is affected by city-level industry specialization. Prior studies have documented the positive effect of city-level industry leadership on audit quality (e.g. Ferguson et al. 2003; Francis, Reichelt and Wang 2005), suggesting that deep industry knowledge is limited to specific offices. We expect that the shortage of human capitals in small audit offices can be mitigated by the accumulation of industry-specific knowledge. In addition, as stated previously, small offices are more economically dependent on particular clients, thus they are more likely to acquiesce. If they are city-level industry specialists, we expect the likelihood of auditor acquiescence could be reduced, as industry specialists have incentives to protect their reputation (Reichelt and Wang

2010). Based on the discussions above, we argue that city-level industry leadership mitigates the association between audit office size and audit quality.

Next, we investigate how office-level auditor tenure affects the association between audit office size and audit quality. Prior studies show that auditors can accumulate more client-specific knowledge and supply higher-quality audits, as the length of auditor tenure increases (e.g. Johnson, Khurana, and Reynolds 2002; Myers, Myers and Omer 2003; Gul, Fung and Jaggi 2009). The aforementioned studies focus on auditor tenure at firm level. We extend this line of research to the office level. We argue that client-specific knowledge resides in the engagement offices, thus the longer-tenured audit offices can accumulate more client-specific knowledge, thus weaken the lack of in-house experience in small offices, i.e., weaken the linkage between small office size and poor audit quality.

Using the data of U.S. listed companies from 2004 to 2013, we empirically test the two questions and have the following findings. First, audit office size is positively associated with audit quality as measured by absolute discretionary accruals. Second, this positive association is weakened for city-level industry specialists. Third, this association is also mitigated if a company is audited by an office with longer auditor tenure (e.g. at least 3 years). To summarize, either city-level industry specialization or increased office-level auditor tenure alleviates the positive association between audit office size and audit quality.

This study contributes to current literature in the following aspects. Firstly, prior studies present evidence of lower-quality audits supplied by smaller offices, due to the lack of human capitals or lower auditor independence (Francis et al. 2009; Choi et al. 2010). Our paper makes contributions to this line of research, by identifying other office-level auditor characteristics (i.e., city-level industry specialization and audit office tenure) that mitigate heterogeneous quality across audit offices of various sizes. Secondly, our study adds to current literature in the effect of city-level industry specialization on audit quality (e.g. Ferguson et al. 2003; Francis et al. 2005; Reichelt et al. 2010). Our findings suggest that city-level industry specialization play an important role in small audit offices. Thirdly, to the best of our knowledge, our paper is one of few studies that pay attention to auditor tenure at office level. Current literature generally focuses on auditor tenure at firm level, and suggests the lack of client-specific knowledge in the early years of audit engagements. We apply this argument to office-level analysis, based on the notion that client-specific knowledge is held by engagement offices and is not easily shared among audit offices within an audit firm.

The reminder of this paper is organized as follows. Section I reviews relevant literature and develops the hypotheses. Section III introduces the research design. Section IV describes the sample and presents descriptive statistics. Section V reports the results of multivariate analysis. In Section VI, we draw the conclusions.

II. Literature Review and Hypothesis Development

Audit Office Size and Audit Quality

The literature generally suggests that Big 4 audit firms supply audits of higher quality than do Non-Big 4 audit firms (e.g. DeAngelo 1981; Dye 1993; Lennox 1999). However, "a Big 4 accounting firm is not so big when we shift to the office level of analysis" (Francis 2004). In recent years, a body of research concludes that audit quality is positively related to the size of engagement office, namely audit office size (Reynolds et al. 2000; Francis et al. 2009; Choi et al. 2010); hence there is quality differentiation across practice offices within the same audit firm. This finding is consistent with the argument of DeAngelo (1981), i.e., in larger offices, auditors can earn more aggregate client-specific quasi-rents which serve as collateral against opportunistic behaviors; in other words, auditors in larger offices have "more to lose" in case of audit failures; they have less incentives to compromise their independence, and hence, provides audits of higher quality (Reynolds et al. 2000; Choi et al. 2010). Francis et al. (2009) provides an alternative explanation. That is, in larger offices with larger clientele base, the accountants can accumulate more "in-house" experience related to the audits of public companies, leading to "collective human capital". Moreover, larger offices can provide auditors with greater support networks for consultation, i.e., auditors may consult with their peers when meeting with problems. As a result, the accountants working in larger offices tend to be more competent.

City-level Industry Specialists, Audit Office Size and Audit Quality

An office is defined as a city-level industry specialist if it has the largest market shares in an industry in a particular city and in a particular year. Francis, Stokes and Anderson (1999) find that a national market leader is not always a city-level market leader. Ferguson et al. (2003) and Francis et al. (2005) show that joint national and city-level industry specialists can earn audit fee premium; while national industry leadership *alone* does not generate any fee premium. Reichelt et al. (2010) presents evidence of higher audit quality supplied by joint national and city-level industry specialists, as well as city-specific industry specialists alone (i.e., without being national industry specialists). These studies imply that deep industry-specific knowledge is specifically held by city-based individual accountants in local engagement offices; there exists no “positive network externalities” and the city-level industry expertise cannot be easily distributed to other practice offices (Ferguson et al. 2003; Francis 2004)

Based on the literature, we expect that city-level industry specialization can help small audit offices to conduct effective audits, through the accumulation of deep industry-specific knowledge, thus the linkage between small offices and poor audit quality is alleviated. Moreover, small offices are more likely to acquiesce to clients' demand for favorable reporting, as they tend to be more economically dependent on individual clients. However, if they are city-based industry experts, they enjoy greater reputational capitals than do non-specialists. The incentive for reputation protection could outweigh economic dependence to affect audit quality (e.g. Reynolds et al. 2000; DeFond, Raghunandan and Subramanyam 2002; Li 2009). Based on the discussions above, we argue that the effect of audit office size and audit quality tends to be mitigated by city-level industry specialists. Therefore, we develop the first hypothesis as follows:

H1: *City-level industry specialization weakens the positive association between audit office size and audit quality, ceteris paribus.*

Audit Office Tenure, Audit Office Size and Audit Quality

A stream of literature suggests that shorter auditor tenures at firm level lead to lower audit quality, as auditors lack client-specific knowledge in the early years of audit engagement (e.g. Johnson, Khurana, and Reynolds 2002; Myers, Myers and Omer 2003; Ghosh and Moon 2005; Chen, Lin and Lin 2008; Gul, Fung and Jaggi 2009). As the length of auditor tenure increases, auditors can develop more client-specific knowledge and hence are more likely to detect financial misstatement and conduct effective audits. So far, there is little empirical research that shifts the analysis of auditor tenure to the office level.

Similar to industry-specific knowledge, we expect that client-specific knowledge are specifically held by city-based local engagement offices and cannot be easily transferred to other offices. Therefore, the office-level auditor tenure should a fundamental determinant of audit quality. Moreover, we expect the client-specific knowledge acquired by long-tenured audit offices tend to be more beneficial in small offices that have less in-house experience. In the early years of audit engagements, audit partners lack client-specific knowledge; they more likely to rely on the existing office-based support network. As audit office tenures increase, enhanced client-specific knowledge could mitigate the lack of in-house experience in small offices. Even if the clients switch audit partners within the same office, the client-specific knowledge acquired by the predecessor partners can be shared within the office, contributing to the local support network. To summarize, the audit office size – audit quality association is alleviated for long-tenured audit offices.

To empirically test this issue, we develop the second hypothesis as below:

H2: *Long office-level auditor tenure weakens the positive association between audit office size and audit quality, ceteris paribus.*

III. Research Design

Measurement of Audit Quality

We use the absolute values of discretionary accruals to measure audit quality. Based on prior studies (e.g., Choi et al. 2010; Choi, Kim, Qiu and Zang 2012), we use two proxies of discretionary accruals. The first one is based on the model in Ball and Shivakumar (2006):

$$\begin{aligned} TACC_{jt}/TA_{jt-1} = {} & \alpha_0 + \alpha_1 (1/TA_{jt-1}) + \alpha_2[(\Delta REV_{jt} - \Delta REC_{jt})/TA_{jt-1}] + \alpha_3 (PPE_{jt}/TA_{jt-1}) \\ & + \alpha_4 CFO_{jt}/TA_{jt-1} + \alpha_5 DCFO_{jt} + \alpha_6 CFO_{jt}/TA_{jt-1} \times DCFO_{jt} + \varepsilon_{jt} \end{aligned} \qquad (1)$$

Where, the subscript *j* and *t* (*t*-1) represent firm *j* in year *t* (*t*-1). *TACC* denotes total accruals, i.e., income before extraordinary items minus cash flow from operations; *TA* denotes year-end total assets; ΔREV and ΔREC represent the changes in net revenue and the changes in receivables, respectively; *PPE* denotes gross property, plant and equipment. *CFO* refers to cash flows from operation; *DCFO* is an indicator variable equal to 1 if *CFO* is negative and 0 otherwise. We estimate Eq. (1) for each two-digit SIC code industry and every year with at least 20 observations. The discretionary accruals, denoted as |*DA1*|, are equal to the residuals estimated from Eq. (1).

The second proxy is the performance-matched discretionary accruals developed by Kothari, Leone and Wasley (2005). We estimate the modified Jones model in Eq. (2) and denote the unadjusted discretionary accruals (i.e. the residuals from Eq. (2)) as *DA*. Then we match each observation of *DA* with the one that has the closest return on assets (*ROA*) in the same two-digit

SIC code industry and in the same year. The performance-adjusted discretionary accruals, denoted as *DA2*, equal to *DA* minus the matched firm's *DA*.

$$TACC_{jt}/TA_{jt-1} = \alpha_0 + \alpha_1 (1/TA_{jt-1}) + \alpha_2 [(\Delta REV_{jt} - \Delta REC_{jt})/TA_{jt-1}] + \alpha_3 (PPE_{jt}/TA_{jt-1}) + \varepsilon_{jt} \quad (2)$$

Model for Testing Hypothesis

To test hypothesis H1, we construct the empirical model specified as follows:

$$\begin{aligned} |DA1|_{jt}\ or\ |DA2|_{jt} = {} & \beta_0 + \beta_1 OFFICE\_SIZE_{jt} + \beta_2 OFFICE\_SIZE_{jt} \times INDSPEC_{jt} \\ & + \beta_3 INDSPEC_{jt} + \beta_4 LONG_{jt} + \beta_5 BIG4_{jt} + \beta_6 LNTA_{jt} + \beta_7 CFO_{jt} \\ & + \beta_8 STD\_CFO_{jt} + \beta_9 LEV_{jt} + \beta_{10} LOSS_{jt} + \beta_{11} ISSUE_{jt} + \beta_{12} MTB_{jt} \\ & + \beta_{13} SALES\_GROWTH_{jt} + \beta_{14} SALES\_VOL_{jt} + \beta_{15} IND\_GROWTH_{jt} \\ & + \beta_{16} LAGACC_{jt} + \varepsilon_{jt} \end{aligned} \quad (3)$$

Where, for firm *j* in year *t*, |*DA1*| and |*DA2*| denotes the absolute values of *DA1* and *DA2*, respectively. *OFFICE_SIZE* represents audit office size as measured by natural logarithm of an office's aggregate audit fee revenues (Francis et al. 2009). *INDSPEC* is an indicator variable equal to 1 for city-level industry specialists and 0 otherwise. Existing literature suggests that both larger audit office size and city-level industry specialization lead to higher audit quality (e.g. Francis et al. 2009; Reichelt et al. 2010), we thus expect negative coefficients on *OFFICE_SIZE* and *INDSPEC*. As predicted by H1, city-level industry specialists mitigate the association between audit office size and audit quality, which translates to a positive coefficient on *OFFICE_SIZE×INDSPEC*.

We include a number of other control variables expected to affect discretionary accruals. *LONG* is an indicator variable equal to 1 if office-level audit tenure is larger than 3 years (Gul et al. 2009). *BIG4* captures the effects of audit firm size on audit quality (e.g. DeAngelo 1981; Dye 1993). *LNTA* is the natural logarithm of total assets and is expected to be negatively associated with |*DA1*| and |*DA2*|, as larger client firms have more stable operations and tend to report smaller discretionary accruals (e.g. Dechow and Dichev 2002). *CFO* denotes cash flows from operations deflated by total assets. There should be a negative correlation between cash flows and abnormal accruals (Frankel, Johnson and Nelson 2002). *STD_CFO* represents the standard deviation of *CFO* over the last three fiscal years (Hribar and Nichols 2007). *LEV* is total liabilities deflated by total assets. On one hand, highly leveraged firms are more likely to violate debt covenants and hence have more incentives to overstate reported earnings (e.g., DeFond and Jiambalvo 1994). On the other hand, high leverage may restrict managers' ability to manipulate earnings (e.g. Ke 2001; Iturriaga and Hoffmann 2005). Therefore, we do not predict the sign of the coefficient on *LEV*. Teoh, Wong and Rao (1998) finds that firms that are raising capitals have greater incentives to manipulate earnings, thus we use the indicator variable *ISSUE* to capture this effect. *LOSS* is an indicator equal to 1 if a firm reports negative net income and 0 otherwise;

it captures the effect of financial distress on earnings management. We also include *SALES_GROWTH* (sales growth) and *MTB* (market-to-book ratio) to control for firm growth (Ashbaugh, Lafond and Mayhew 2003; Gul et al. 2009). Yet empirical evidence regarding the relations between discretionary accruals and these variables are mixed. We also control for the volatility of sales as measured by the standard deviation of sales in the past three years (Hribar et al. 2007). *IND_GROWTH* is the sales growth in a two-digit SIC code industry and is predicted to have a positive relation with discretionary accruals (Myers, Myers and Omer 2003). Moreover, we use *LAGACC* (lagged total accruals) to capture the reversals of accruals over time (Ashbaugh et al. 2003; Choi et al. 2010). All the variables are defined in details in Appendix I.

We construct the regression model in Eq. (4) to test H2:

$$\begin{aligned} |DA1|_{jt} \ or \ |DA2|_{jt} = \ & \beta_0 + \beta_1 OFFICE\_SIZE_{jt} + \beta_2 OFFICE\_SIZE_{jt} \times LONG\_TENURE_{jt} \\ & + \beta_3 INDSPEC_{jt} + \beta_4 LONG_{jt} + \beta_5 BIG4_{jt} + \beta_6 LNTA_{jt} + \beta_7 CFO_{jt} \\ & + \beta_8 STD\_CFO_{jt} + \beta_9 LEV_{jt} + \beta_{10} LOSS_{jt} + \beta_{11} ISSUE_{jt} + \beta_{12} MTB_{jt} \\ & + \beta_{13} SALES\_GROWTH_{jt} + \beta_{14} SALES\_VOL_{jt} + \beta_{15} IND\_GROWTH_{jt} \\ & + \beta_{16} LAGACC_{jt} + \varepsilon_{jt} \end{aligned} \tag{4}$$

Eq. (4) is identical to Eq. (3), except that the interaction term is replaced by *OFFICE_SIZE×LONG*. H2 predicts that increased office-level auditor tenure can alleviate the negative relation between audit office size and discretionary accruals; thus we expect the positive coefficient on *OFFICE_SIZE×LONG*. The control variables in Eq. (4) are the same as those in Eq. (3), so there is no repeated interpretation here.

When estimating Eq. (3) and (4), we include year dummies and industry dummies into the model, and cluster the standard errors at firm level.

VI. Data Collection and Descriptive Statistics

Data Collection

We retrieve auditor-related information from *Audit Analytics* database, and then merge the data with the financial data extracted from *Compustat* database. The initial sample consists of 81,455 firm-year observations. First, 10,957 observations are excluded since their auditors are located outside the U.S. Second, we eliminate 63 observations of U.S. auditors that are not located in any of metropolitan statistical areas (MSAs) delineated by the Office of Management and Budget (OMB) in 2013. [1] These procedures leave 70,495 observations. Next, we delete the observations without complete data required to compute the variables in the regression models, or the observations that belong to the financial industry (SIC codes: 6000 - 6999). In the final sample, there are 33,469 observations over the period 2004 - 2013, representing 6,067 unique firms audited by 1,133 audit practice offices of 558 audit firms located in 158 MSAs. The sample selection is reported in Table 1.

[1] Following Francis et al. (2005), we identify the MSAs from the website of U.S. census: http://www.census.gov/population/metro/

[Insert Table 1 about Here]

Univariate Analysis

Table 2 reports the descriptive statistics for absolute discretionary accruals (|*DA1*| and |*DA2*|), audit office size (*OFFICE_SIZE*), and the other independent variables, based on the sample of 33,469 observations. The mean of |*DA1*| (|*DA2*|) is 0.238 (0.288), with the standard deviation of 0.652 (0.754). *OFFICE_SIZE* has the mean (median) value of 16.442 (17.073). The mean of *INDSPEC* and *LONG* is 0.377 and 0.617 respectively, i.e., on average, 37.7% of the firm-year observations are audited by city-level industry specialists, and 61.7% of the firm-years have been audited by the same office for at least three consecutive years. Big 4 audit firms (*BIG4*) account for 63.9% of the observations. In addition, client size (*LNTA*) has the mean value of 5.426, i.e., the mean client assets are approximately 227.239 million dollars. Most financial variables are highly skewed with large standard deviations. We will winsorize the continuous variables at the bottom 1% and the top 1% in the regression analyses.

[Insert Table 2 about Here]

Table 3 represents the correlation matrix among the variables used in Eq. (3) and Eq. (4). First, office size (*OFFICE_SIZE*), city-level industry specialists (*INDSPEC*) and long-tenured office (*LONG_TENURE*) have significantly negative correlations with both |*DA1*| and |*DA2*|, suggesting that larger offices, city-level industry specialization and longer office-level auditor tenure might restrict earnings management. Second, |*DA1*| and |*DA2*| are negatively correlated with the variables such as *BIG4*, *LNTA*, *CFO*, *MTB* and *LAGACC*, and are positively correlated with *STD_CFO*, *LEV*, *LOSS*, *ISSUE*, *SALES_GROWTH*, *SALE_VOL* and *IND_GROWTH*. That is, the correlation coefficients between discretionary accruals and the control variables are significant with predicted signs. Third, there is no serious problem of multicollinearity, as most independent variables are not highly correlated with each other, except the correlation between *OFFICE_SIZE* and *BIG4* (*LNTA*) of 0.771 (0.634), as well as the correlation between *BIG4* and *LNTA* of 0.663.

[Insert Table 3 about Here]

Next, we plots the mean values of |*DA1*| for each quintile of audit office size for city-level industry specialists and non-specialists respectively,[2] to further examine whether the association between audit quality and office size differs between the two sub-samples. As shown in Figure 1, as audit office size increases, the magnitudes of discretionary accruals decline for both sub-samples. In the 1st quintile of audit office size, the mean |*DA1*| for non-specialists is substantially higher than that of city-level industry specialists. The mean |*DA1*| of the two sub-samples converges in the 5th quintile. That is, the magnitudes of |*DA1*| decline more quickly for

[2] The plots of mean |*DA2*| for each quintile of audit office size are similar.

the sub-sample non-specialists, suggesting the effect of audit office size on audit quality tends to weaker for the companies audited by city-level industry specialists.

[Insert Figure 1 about Here]

We also plot the mean of |*DA1*| for each quintile of audit office size for long-tenured audit offices (> 3 years) and short-tenured audit offices (at most 3 years) respectively. As illustrated in Figure 2, short-tenured audit offices tend to be associated with higher |*DA1*| than do long-tenured audit offices in the 1st quintile of audit office size; while the means of |*DA1*| for long-tenured and short-tenure offices gradually converge as audit office size increases. Figure 2 supports our prediction that the audit office size – audit quality association is mitigated by longer office-level auditor tenure.

[Insert Figure 2 about Here]

V. Multivariate Analysis

Results of Regression Analysis for H1 and H2

We estimate Eq. (3) to test H1 and report the results in Table 4 Panel A. Section (1) and Section (2) reports the regression results when using |*DA1*| and |*DA2*| as the dependent variable, respectively. The coefficients on *OFFICE_SIZE* are significantly negative, and the interaction term *OFFICE_SIZE* ×*INDSPEC* is positively associated with |*DA1*| and |*DA2*|, i.e., city-level industry specialists mitigates the positive association between accrual quality and audit office size, supporting H1. The variable *INDSPEC* also has significant coefficients with the negative sign, suggesting that accruals quality tends to be higher if a firm is audited by a city-level industry specialist.

[Insert Table 4 about Here]

The coefficients on the other control variables have the expected signs. The coefficient on *LONG* is negative, reflecting that longer audit office tenure leads to higher audit quality. Client size (*LNTA*) and cash flows from operation (*CFO*) are negatively associated with |*DA1*| and |*DA2*|, and cash flow volatility (*STD_CFO*) has positive association with |*DA1*| and |*DA2*|. The coefficients on *LEV* and *LOSS* are positive suggesting that earnings quality tends to be lower in the firms with more debts or negative earnings. *ISSUE* has a positive association with |*DA1*| and |*DA2*|, reflecting that the companies that are raising funds are more likely to manage earnings. The coefficients on *MTB* are negative, and the coefficients on *SALES_GROWTH* and *SALES_VOL* are significantly positive. The positive (negative) coefficients on *IND_GROWTH* (*LAGACC*) are consistent with prior research (e.g. Myers et al. 2003; Choi et al. 2010).

Table 4 Panel B reports the results of testing H2, with Section (1) and Section (2) reporting the results of using |*DA1*| and |*DA2*|, respectively. Similarly, *OFFICE_SIZE* is negatively related to |*DA1*| and |*DA2*|, and the coefficients on *OFFICE_SIZE*×*LONG* are positive.

These results are consistent with H2, i.e. longer office-level auditor tenure weakens the effect of audit office size on audit quality. The coefficients on the other control variables are qualitatively similar to those reported in Panel A of Table 4, thus we do not interpret them repeatedly

Sensitivity Tests

We conduct a variety of sensitivity tests. First, we use signed discretionary accruals as the alternative measure of audit quality. We estimate Eq. (3) and Eq. (4) based on the sub-samples of positive and negative discretionary accruals. Table 5 Panel A present the results of Eq. (3). For the sub-samples of positive discretionary accruals (*DA1*>0 or *DA2*>0), the coefficients on *OFFICE_SIZE* are negative and the coefficients on *OFFICE_SIZE ×INDSPEC* are positive. In contrast, *OFFICE_SIZE* and *OFFICE_SIZE ×INDSPEC* have positive and negative association with negative discretionary accruals (*DA1*<0 or *DA2*<0), respectively. These results suggest that larger offices can effectively restrict both positive and negative discretionary accruals, and this effect could be alleviated by city-level industry leadership.

Table 5 Panel B reports the results of Eq. (4) using signed discretionary accruals as the independent variable. Using the sub-samples of positive discretionary accruals, we derive negative (positive) coefficients on *OFFICE_SIZE* (*OFFICE_SIZE ×LONG*). When we estimate Eq. (4) using the sub-samples of negative discretionary accruals, the coefficients on

OFFICE_SIZE and *OFFICE_SIZE* ×*LONG* are positive and negative, respectively. In summary, increased audit office tenure mitigates the relation between audit office size and signed discretionary accruals.

[Insert Table 5 about Here]

Third, we re-estimate Eq. (3) using the alternative measures of city-level industry specialists based on Reichelt et al. (2010), i.e., an auditor is defined as a city-level industry specialists if it has the largest market share in a two-digit SIC category in a particular city and in a particular year, and its market share is at least 10% higher than the second largest industry leader, with the results presented in Table 6. The use of the alternative measure does not qualitatively alter our main findings.

[Insert Table 6 about Here]

To make sure that the results for testing H2 are driven by office-level audit tenures rather than firm-level audit tenures, we conduct a sensitivity test as follows: first, we replace the variable *LONG* in Eq. (4) by *OFFICE_CHG*, i.e., an indicator equal to 1 if the company change engagement office with the same audit firm in current fiscal year and 0 otherwise; second, we estimate Eq. (4) using the sub-samples of companies do not switch audit firms during the sample period. The insignificant (negative) coefficients on *OFFICE_SIZE* (*OFFICE_SIZE* ×

OFFICE_CHG) suggest that the effect of audit office size on audit quality is more pronounced in the year of intra-audit firm office change.

[Insert Table 7 about Here]

VI. Conclusions

This study tests how city-level industry specialists and office-level auditor tenure affect the relation between audit office size and audit quality. First, we find that audit office size is positively associated with audit quality as measured by absolute discretionary accruals. This finding is consistent with prior studies (Francis et al. 2009; Choi et al. 2010). Second, we find that this association is weakened by city-level industry specialization and longer auditor tenure at office level. Our findings suggest that city-level industry specialists (long-tenured audit offices) have accumulated deep industry-specific (client-specific) knowledge, thus mitigate the lack of "in-house" experience related to the audits of public companies in smaller offices. Consequently, the effect of audit office size on audit quality is weaker if a company is audited by a city-level industry specialists or a long-tenured audit office.

In the past decade, the collapse of Enron, which represents more than 35% of Arthur Andersen's revenues in Huston office (Francis 2004), suggests the importance of office-level auditing research. Extant literature has presented the evidence of heterogeneous quality across practice offices within the same audit firm. In this study, we demonstrate two factors that could mitigate the heterogeneous quality at office level, i.e. city-level industry leadership and audit office tenure. Our study provides regulators and audit firms with insight into the influence of audit office characteristics on audit quality. Based on this study, we suggest that audit firms may pay particular attention to the audit quality of small offices that are not industry specialists or in the early years of audit engagement. Stated differently, if audit firms adopt certain strategies, e.g. to specialize in certain industries or to conduct strict audit procedures in the first few years of audit engagements, we expect that audit firms are likely to achieve 'uniform quality' across practice offices of various sizes.

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Appendix I

Variable Definitions

Dependent Variables	
DA1	= Discretionary accruals measured by Ball and Shivakumar (2006)'s model;
DA2	= Firm-performance discretionary accruals measured by Kothari et al. (2005).
Independent Variables	
OFFICE_SIZE	= The size of a practice office within an audit firm, which is measured by national logarithm of an office's aggregate client audit fees.
INDSPEC	= 1 if a firm is audited by a city-level industry specialist and 0 otherwise. City-level industry specialist is defined as an auditor the auditor whose market share is greater than 50% in a two-digit SIC category (in a particular city and a particular year).
LONG_TENURE	= 1 if the audit office tenure is at least 4 years and 0 otherwise.
BIG4	= 1 if a firm is audited by one of the Big 4 accounting firms and 0 otherwise.
LNTA	= Natural logarithm of total assets at the end of fiscal years.
CFO	= Cash flows from operations scaled by total assets at the end of fiscal years.
STD_CFO	= Cash flow volatility as measured by the standard deviation of *CFO* for the most recent three fiscal years.
LEV	= Total liabilities scaled by total assets.
LOSS	= 1 if a firm reports negative net income and 0 otherwise.
ISSUE	= 1 if the sum of debt or equity issued in the past 3 years are more than 5% of the total assets and 0 otherwise.
MTB	= Market-to-book ratio,
SALES_GROWTH	= Client-specific sales growth rate, i.e. changes in sales revenues deflated by sales revenue in prior year.
SALES_VOL	= Sales volatility as measured by the standard deviation of sales for the recent three fiscal years.
IND_GROWTH	= $\sum_{j=1}^{J} Sales_{j,t} \Big/ \sum_{j=1}^{J} Sales_{j,t-1}$ by two-digit SIC codes, where *J* is the number of companies in an industry.
LAGACC	= Lagged total accruals in the last fiscal year. Total accruals are measured by income before extraordinary items minus cash flow from operations.

Table 1

Sample Selection Process

Initial Sample	81,455
Step 1: Excluding observations audited by auditors located outside the U.S.	(10,957)
Step 2: Excluding observations audited by U.S. auditors not located in any MSA	(63)
Step 3: Excluding observations with incomplete data required to calculate the variables in the regression models	(33,690)
Step 4: Excluding observations in the financial industry	(3,276)
Final Sample (2004– 2013)	33,469

Table 2

Descriptive Statistics

Variable	N	Mean	Standard Deviation	1st percentile	Median	99th percentile
|DA1|	33469	0.238	0.652	0.001	0.080	3.243
|DA2|	33469	0.288	0.754	0.002	0.110	3.663
OFFICE_SIZE	33469	16.642	2.221	11.002	17.073	20.587
INDSPEC	33469	0.377	0.485	0.000	0.000	1.000
LONG	33469	0.617	0.486	0.000	1.000	1.000
BIG4	33469	0.639	0.480	0.000	1.000	1.000
LNTA	33469	5.426	2.760	-2.254	5.640	10.782
CFO	33469	-0.364	10.509	-5.197	0.066	0.354
STD_CFO	33469	1.012	26.467	0.002	0.048	7.044
LEV	33469	4.059	162.017	0.044	0.518	20.755
LOSS	33469	0.396	0.489	0.000	0.000	1.000
ISSUE	33469	0.832	0.374	0.000	1.000	1.000
MTB	33469	0.751	0.992	0.000	0.445	4.000
SALES_GROWTH	33469	1.209	71.190	-0.964	0.069	4.947
SALES_VOL	33469	0.199	0.997	0.000	0.088	1.697
IND_GROWTH	33469	1.058	0.127	0.693	1.065	1.349
LAGACC	33469	-1.660	66.368	-8.559	-0.062	0.535

Notes: This table reports descriptive statistics for the sample firms. The sample consists of 33,468 firm-year observations, representing 6,067 unique companies from 2004 to 2013. All variables are defined in Appendix I.

Table 3

Correlation Coefficient Matrix

	1.	2.	3.	4.	5.	6.	7.	8.
1. |DA1|	1.000							
2. |DA2|	0.896	1.000						
	(0.000)							
3. OFFICE_SIZE	-0.261	-0.246	1.000					
	(0.000)	(0.000)						
4. INDSPEC	-0.098	-0.095	0.082	1.000				
	(0.000)	(0.000)	(0.000)					
5. LONG	-0.108	-0.108	0.234	0.102	1.000			
	(0.000)	(0.000)	(0.000)	(0.000)				
6. BIG4	-0.255	-0.242	0.771	0.300	0.287	1.000		
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)			
7. LNTA	-0.404	-0.381	0.634	0.283	0.258	0.663	1.000	
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)		
8. CFO	-0.089	-0.075	0.065	0.011	0.019	0.052	0.134	1.000
	(0.000)	(0.000)	(0.000)	(0.055)	(0.001)	(0.000)	(0.000)	
9. STD_CFO	0.060	0.063	-0.050	-0.015	-0.030	-0.045	-0.060	-0.033
	(0.000)	(0.000)	(0.000)	(0.006)	(0.000)	(0.000)	(0.000)	(0.000)
10. LEV	0.124	0.107	-0.034	-0.012	-0.001	-0.029	-0.074	-0.148
	(0.000)	(0.000)	(0.000)	(0.027)	(0.866)	(0.000)	(0.000)	(0.000)
11. LOSS	0.232	0.216	-0.242	-0.159	-0.136	-0.296	-0.461	-0.054
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
12. ISSUE	0.047	0.045	0.060	0.032	-0.108	0.076	0.085	-0.012
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.027)
13. MTB	-0.132	-0.133	0.088	0.127	0.052	0.118	0.231	0.028
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
14. SALES_GROWTH	0.027	0.010	-0.013	-0.002	-0.002	-0.015	-0.012	0.001
	(0.000)	(0.057)	(0.020)	(0.765)	(0.760)	(0.007)	(0.029)	(0.905)
15. SALES_VOL	0.120	0.105	-0.108	-0.036	-0.032	-0.103	-0.163	-0.090
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
16. IND_GROWTH	0.037	0.041	0.015	-0.010	-0.084	-0.015	-0.050	-0.003
	(0.000)	(0.000)	(0.006)	(0.058)	(0.000)	(0.007)	(0.000)	(0.543)
17. LAGACC	-0.072	-0.069	0.032	0.013	0.023	0.031	0.049	0.018
	(0.000)	(0.000)	(0.000)	(0.015)	(0.000)	(0.000)	(0.000)	(0.001)

Notes: p-value in parentheses

(Continued)

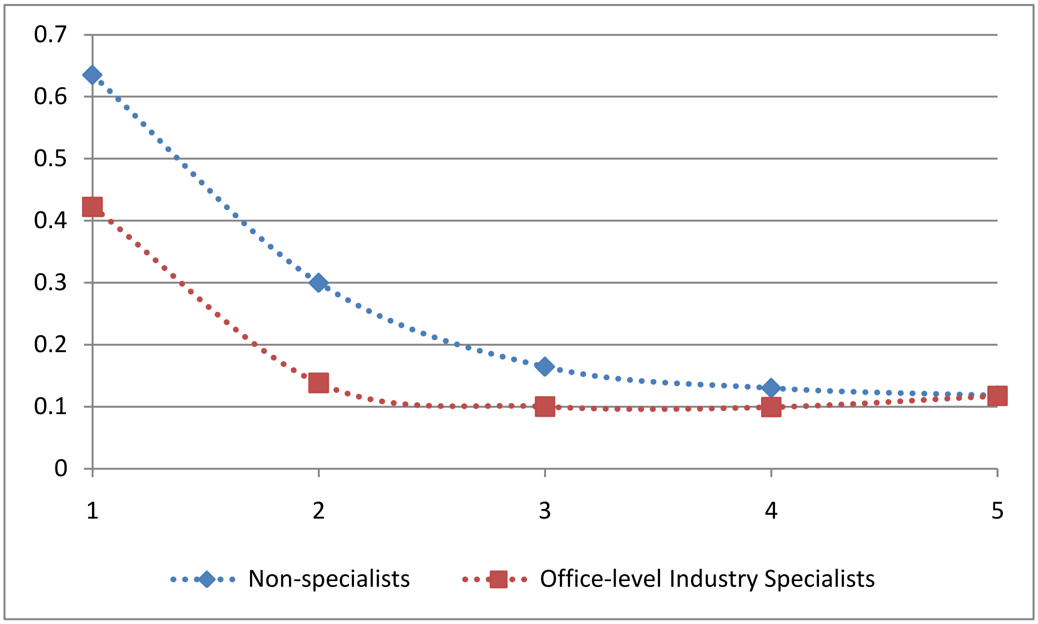
Table 3 (Continued)

	9.	*10.*	*11.*	*12.*	*13.*	*14.*	*15.*	*16.*
9. STD_CFO	1.000							
10. LEV	0.012	1.000						
	(0.033)							
11. LOSS	0.036	0.025	1.000					
	(0.000)	(0.000)						
12. ISSUE	0.013	0.005	0.062	1.000				
	(0.020)	(0.357)	(0.000)					
13. MTB	-0.022	-0.016	-0.072	-0.071	1.000			
	(0.000)	(0.004)	(0.000)	(0.000)				
14. SALES_GROWTH	0.009	0.001	0.006	0.004	-0.009	1.000		
	(0.086)	(0.931)	(0.279)	(0.444)	(0.085)			
15. SALES_VOL	0.023	0.081	0.071	0.007	-0.049	0.006	1.000	
	(0.000)	(0.000)	(0.000)	(0.198)	(0.000)	(0.252)		
16. IND_GROWTH	-0.002	0.006	-0.018	0.031	-0.060	0.001	-0.023	1.000
	(0.755)	(0.296)	(0.001)	(0.000)	(0.000)	(0.922)	(0.000)	
17. LAGACC	-0.396	-0.010	-0.028	-0.009	0.017	-0.004	-0.011	0.000
	(0.000)	(0.059)	(0.000)	(0.111)	(0.002)	(0.418)	(0.055)	(0.952)

Notes: p-value in parentheses

Figure 1

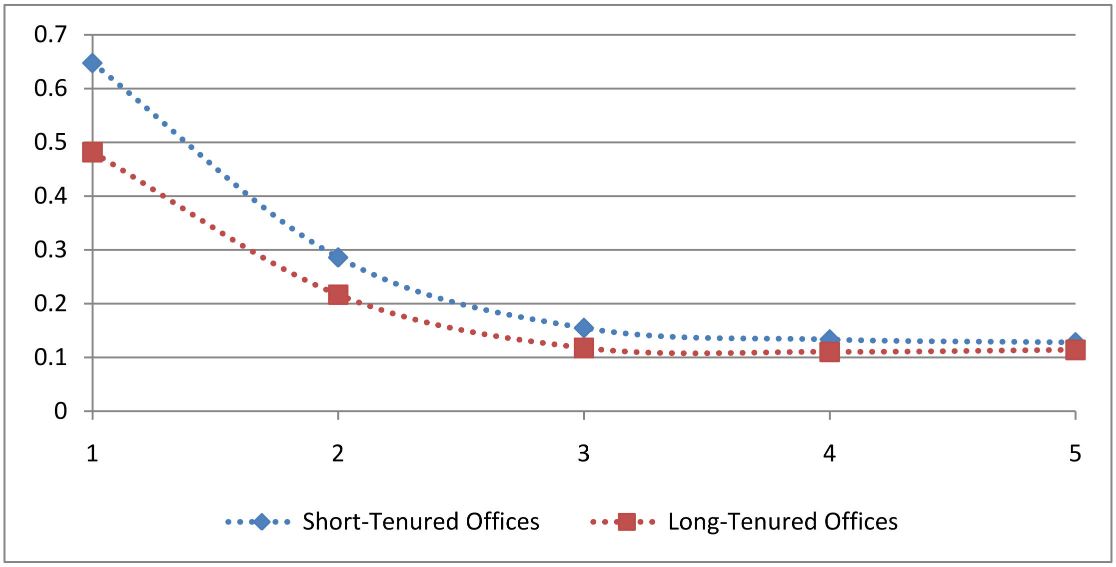
Distribution of Absolute Discretionary Accruals Categorized by Audit Office Size: City-level Industry Specialists vs. Non-Specialists



Notes: In Figure 1, based on the sub-sample of office-level industry specialists and non-specialists respectively, we divide the observations of audit office size (*OFFICE_SIZE*) into five percentile categories; we then plot the mean of |*DA1*| for the observations that belong to each of the five groups. The mean values of |*DA1*| are in the vertical axis and the group indicators of audit office size are in the horizontal axis.

Figure 2

Distribution of Absolute Discretionary Accruals Categorized by Audit Office Size: Short-tenured Offices vs. Long-tenured Offices



Notes: In Figure 2, based on the sub-sample of short-tenured and long-tenured audit offices respectively, we divide the observations of audit office size (*OFFICE_SIZE*) into five percentile categories; we then plot the mean of |*DA1*| for the observations that belong to each of the five groups. The mean values of |*DA1*| are in the vertical axis and the group indicators of audit office size are in the horizontal axis.

Table 4

Main Results of Testing Hypotheses

Panel A: Association Among Audit Quality, Audit Office Size and Office-level Industry Specialists

VARIABLES	Predicted Sign	Section (1) |*DA1*| Coefficient	P value	Section (2) |*DA2*| Coefficient	P value
OFFICE_SIZE	-	-0.0070**	0.013	-0.0094***	0.002
OFFICE_SIZE ×INDSPEC	+	0.0111***	0.003	0.0124***	0.002
INDSPEC	-	-0.1750***	0.008	-0.2019***	0.004
LONG	-	-0.0061	0.352	-0.0113	0.111
BIG4	-	-0.0057	0.552	-0.0020	0.849
LNTA	-	-0.0290***	0.000	-0.0298***	0.000
CFO	-	-0.0844***	0.000	-0.0922***	0.000
STD_CFO	+	0.0477***	0.000	0.0604***	0.000
LEV	?	0.0303***	0.000	0.0289***	0.000
LOSS	?	0.0315***	0.000	0.0283***	0.000
ISSUE	+	0.0391***	0.000	0.0400***	0.000
MTB	?	-0.0115***	0.000	-0.0174***	0.000
SALES_GROWTH	?	0.0408***	0.000	0.0382***	0.000
SALES_VOL	+	0.1129***	0.000	0.1218***	0.000
IND_GROWTH	+	0.0545**	0.026	0.0750***	0.006
LAGACC	-	-0.0762***	0.000	-0.0730***	0.000
Constant		0.5708***	0.000	0.7145***	0.000
Year Dummies		Included		Included	
Industry Dummies		Included		Included	
Observations		33,469		33,469	
Adjusted R2		0.403		0.372	

Notes: ***, ** and * indicates statistical significance at 1%, 5% and 10% level, respectively. All the variables are defined in Appendix I.

Table 4 (Continued)

Panel B: Association Among Audit Quality, Audit Office Size and Office-level Auditor Tenure

		Section (1) |*DA1*|		Section (2) |*DA2*|	
VARIABLES	Predicted Sign	Coefficient	P value	Coefficient	P value
OFFICE_SIZE	-	-0.0102***	0.001	-0.0145***	0.000
OFFICE_SIZE ×LONG	+	0.0127***	0.000	0.0170***	0.000
INDSPEC	-	0.0115**	0.030	0.0078	0.181
LONG	-	-0.2118***	0.000	-0.2877***	0.000
BIG4	-	-0.0106	0.245	-0.0076	0.441
LNTA	-	-0.0288***	0.000	-0.0297***	0.000
CFO	-	-0.0843***	0.000	-0.0920***	0.000
STD_CFO	+	0.0478***	0.000	0.0605***	0.000
LEV	?	0.0305***	0.000	0.0292***	0.000
LOSS	?	0.0326***	0.000	0.0296***	0.000
ISSUE	+	0.0382***	0.000	0.0388***	0.000
MTB	?	-0.0114***	0.000	-0.0172***	0.000
SALES_GROWTH	?	0.0411***	0.000	0.0386***	0.000
SALES_VOL	+	0.1122***	0.000	0.1207***	0.000
IND_GROWTH	+	0.0497**	0.043	0.0685**	0.012
LAGACC	-	-0.0757***	0.000	-0.0723***	0.000
Constant		0.6275***	0.000	0.8059***	0.000
Year Dummies		Included		Included	
Industry Dummies		Included		Included	
Observations		33,469		33,469	
Adjusted R2		0.403		0.372	

Notes: ***, ** and * indicates statistical significance at 1%, 5% and 10% level, respectively. All the variables are defined in Appendix I.

Table 5

Alternative Measures of Audit Quality: Signed Discretionary Accruals

Panel A: Association Among Audit Quality, Audit Office Size and Office-level Industry Specialists

	(1)		(2)		(3)		(4)	
	DA1>0		*DA1*<0		*DA2*>0		*DA2*<0	
VARIABLES	Coefficient	P value	Coefficient	P value	Coefficient	P value	Coefficient	P value
OFFICE_SIZE	-0.0065***	0.006	0.0077**	0.029	-0.0066***	0.009	0.0106**	0.011
OFFICE_SIZE ×INDSPEC	0.0083***	0.006	-0.0133***	0.005	0.0061*	0.061	-0.0163***	0.003
INDSPEC	-0.1295**	0.015	0.2220***	0.009	-0.0949*	0.098	0.2748***	0.005
LONG	-0.0031	0.591	0.0068	0.393	-0.0063	0.319	0.0052	0.557
BIG4	-0.0045	0.605	0.0102	0.388	-0.0033	0.720	0.0106	0.443
LNTA	-0.0268***	0.000	0.0228***	0.000	-0.0269***	0.000	0.0247***	0.000
CFO	-0.1192***	0.000	0.0253	0.166	-0.1248***	0.000	0.0269	0.166
STD_CFO	0.0327***	0.000	-0.0239**	0.036	0.0419***	0.000	-0.0334***	0.005
LEV	-0.0000	0.990	-0.0339***	0.000	0.0032	0.453	-0.0323***	0.000
LOSS	-0.0111*	0.068	-0.0817***	0.000	-0.0280***	0.000	-0.0920***	0.000
ISSUE	0.0357***	0.000	-0.0368***	0.000	0.0277***	0.000	-0.0492***	0.000
MTB	-0.0103***	0.000	0.0126***	0.000	-0.0168***	0.000	0.0161***	0.000
SALES_GROWTH	0.0345***	0.000	-0.0361***	0.000	0.0348***	0.000	-0.0274***	0.007
SALES_VOL	0.1328***	0.000	-0.1182***	0.000	0.1342***	0.000	-0.1229***	0.000
IND_GROWTH	0.0624***	0.006	-0.0443	0.175	0.0982***	0.000	-0.0422	0.224
LAGACC	-0.0142*	0.056	0.0943***	0.000	-0.0147*	0.068	0.0886***	0.000
Constant	0.5954***	0.000	-0.5132***	0.000	0.6328***	0.000	-0.7032***	0.000
Year Dummies	Included		Included		Included		Included	
Industry Dummies	Included		Included		Included		Included	
Observations	18,427		15,037		18,563		14,906	
Adjusted R2	0.399		0.473		0.382		0.417	

Notes: ***, ** and * indicates statistical significance at 1%, 5% and 10% level, respectively. All the variables are defined in Appendix I.

Table 5 (Continued)

Panel B: Association Among Audit Quality, Audit Office Size and Office-level Auditor Tenure

	(1)		(2)		(3)		(4)	
	DA1>0		*DA1*<0		*DA2*>0		*DA2*<0	
VARIABLES	Coefficient	P value	Coefficient	P value	Coefficient	P value	Coefficient	P value
OFFICE_SIZE	-0.0074***	0.006	0.0104***	0.008	-0.0114***	0.000	0.0108**	0.014
OFFICE_SIZE ×LONG	0.0066**	0.016	-0.0135***	0.001	0.0122***	0.000	-0.0108**	0.011
INDSPEC	0.0097**	0.046	-0.0035	0.593	0.0076	0.157	-0.0007	0.935
LONG	-0.1106**	0.020	0.2260***	0.001	-0.2044***	0.000	0.1803**	0.014
BIG4	-0.0077	0.357	0.0166	0.140	-0.0059	0.505	0.0181	0.169
LNTA	-0.0267***	0.000	0.0224***	0.000	-0.0269***	0.000	0.0243***	0.000
CFO	-0.1193***	0.000	0.0251	0.170	-0.1242***	0.000	0.0272	0.163
STD_CFO	0.0326***	0.000	-0.0246**	0.031	0.0416***	0.000	-0.0340***	0.004
LEV	0.0001	0.988	-0.0342***	0.000	0.0034	0.424	-0.0326***	0.000
LOSS	-0.0104*	0.087	-0.0830***	0.000	-0.0272***	0.000	-0.0934***	0.000
ISSUE	0.0351***	0.000	-0.0356***	0.000	0.0271***	0.000	-0.0479***	0.000
MTB	-0.0103***	0.000	0.0126***	0.000	-0.0167***	0.000	0.0161***	0.000
SALES_GROWTH	0.0347***	0.000	-0.0363***	0.000	0.0351***	0.000	-0.0276***	0.007
SALES_VOL	0.1328***	0.000	-0.1172***	0.000	0.1335***	0.000	-0.1230***	0.000
IND_GROWTH	0.0606***	0.007	-0.0368	0.261	0.0954***	0.000	-0.0345	0.320
LAGACC	-0.0141*	0.057	0.0935***	0.000	-0.0144*	0.074	0.0878***	0.000
Constant	0.6114***	0.000	-0.5611***	0.000	0.7171***	0.000	-0.7052***	0.000
Year Dummies	Included		Included		Included		Included	
Industry Dummies	Included		Included		Included		Included	
Observations	18,427		15,037		18,563		14,906	
Adjusted R2	0.399		0.473		0.383		0.416	

Notes: ***, ** and * indicates statistical significance at 1%, 5% and 10% level, respectively. All the variables are defined in Appendix I.

Table 6

Alternative Measures of Office-level Industry Specialists

		Section (1) |*DA1*|		Section (2) |*DA2*|	
VARIABLES	Predicted Sign	Coefficient	P value	Coefficient	P value
OFFICE_SIZE	-	-0.0079***	0.006	-0.0103***	0.001
OFFICE_SIZE ×INDSPEC2	+	0.0104***	0.003	0.0122***	0.001
INDSPEC2	-	-0.1674***	0.008	-0.1986***	0.004
LONG	-	-0.0063	0.339	-0.0115	0.104
BIG4	-	-0.0044	0.642	-0.0016	0.879
LNTA	-	-0.0288***	0.000	-0.0298***	0.000
CFO	-	-0.0845***	0.000	-0.0923***	0.000
STD_CFO	+	0.0476***	0.000	0.0603***	0.000
LEV	?	0.0302***	0.000	0.0289***	0.000
LOSS	?	0.0318***	0.000	0.0285***	0.000
ISSUE	+	0.0390***	0.000	0.0399***	0.000
MTB	?	-0.0113***	0.000	-0.0172***	0.000
SALES_GROWTH	?	0.0408***	0.000	0.0382***	0.000
SALES_VOL	+	0.1129***	0.000	0.1217***	0.000
IND_GROWTH	+	0.0562**	0.021	0.0767***	0.005
LAGACC	-	-0.0762***	0.000	-0.0729***	0.000
Constant		0.5828***	0.000	0.7269***	0.000
Year Dummies		Included		Included	
Industry Dummies		Included		Included	
Observations		33,469		33,469	
Adjusted R2		0.403		0.372	

Notes: The alternative measure defines a city-level industry specialist if the auditor that has the largest market share in a two-digit SIC category and its market share is at least 10% greater than the second largest industry leader (in a particular city and a particular year). ***, ** and * indicates statistical significance at 1%, 5% and 10% level, respectively. All the variables are defined in Appendix I.

Table 7

Association among Audit Quality, Audit Office Size and Office-level Auditor Tenure: Sub-sample Analysis

		Section (1) |*DA1*|		Section (2) |*DA2*|	
VARIABLES	Predicted Sign	Coefficient	P value	Coefficient	P value
OFFICE_SIZE2	-	-0.0016	0.315	-0.0028	0.126
OFFICE_SIZE2 ×OFFICE_CHG	+	-0.0208***	0.002	-0.0267***	0.001
INDSPEC	-	0.0046	0.287	-0.0020	0.692
OFFICE_CHG	-	0.3655***	0.002	0.4651***	0.001
BIG4	-	-0.0537***	0.000	-0.0552***	0.000
LNTA	-	-0.0157***	0.000	-0.0160***	0.000
CFO	-	-0.0899***	0.000	-0.0786***	0.000
STD_CFO	+	0.0378***	0.000	0.0410***	0.000
LEV	?	0.0236***	0.000	0.0266***	0.000
LOSS	?	0.0309***	0.000	0.0255***	0.000
ISSUE	+	0.0150***	0.007	0.0159**	0.012
MTB	?	-0.0069***	0.001	-0.0097***	0.000
SALES_GROWTH	?	0.0280***	0.000	0.0255***	0.000
SALES_VOL	+	0.1191***	0.000	0.1326***	0.000
IND_GROWTH	+	0.0446*	0.068	0.0570**	0.041
LAGACC	-	-0.0615***	0.000	-0.0655***	0.000
Constant		0.5873***	0.000	0.6941***	0.000
Year Dummies		Included		Included	
Industry Dummies		Included		Included	
Observations		17,651		17,651	
Adjusted R2		0.347		0.316	

Notes: We replace the variable *LONG* in Eq. (4) as *OFFICE_CHG* (an indicator variable equal to 1 if the company changes audit office within the same audit firm and 0 otherwise), and estimate the equation using the sub-sample of companies that do not change audit firms during the sample period, and replace as ***, ** and * indicates statistical significance at 1%, 5% and 10% level, respectively. All the variables are defined in Appendix I.