

Do client knowledge and audit team composition mitigate partner workload?

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Abstract

A heavy workload for engagement partners leads to less effective audits. The Center for Audit Quality and the Public Company Accounting Oversight Board cautioned on this negative impact from partner busyness; several studies show that audit partner heavy workloads indeed damage audit quality (e.g., Sundgren and Svanström, 2014). However, how the burden of heavy workloads can be mitigated has not been thoroughly investigated, despite its important implications. Our results using Japanese public firms, for which partner-level engagement team member names are available, show that audit quality declines as the number of clients assigned to an engagement partner increases. However, we find that client-specific knowledge accumulated by partners and the availability of higher-ranked personnel in an audit team are mitigating factors for the partners' heavy workload to maintain audit quality. These results remain constant when using abnormal accruals and restatements as audit quality measures.

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Abstract

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INTRODUCTION

Partner workload has attracted attention as a factor that influences audit quality. For instance, the Center for Audit Quality (CAQ, 2014) and the Public Company Accounting Oversight Board (PCAOB, 2015a) released potential AQIs (Audit Quality Indicators) and specified partner workload as one of the indicators. Partner workload is critical in practice, since heavy workload is likely to damage audit quality, implying that how to ease this workload is an important issue in the audit industry.

Partners' heavy workload leads to poor audit quality because it induces a lack of concentration and fatigue or limits partner time to oversee the work of the engagement team (Sweeney and Summers 2002; Lopez and Peters 2012; PCAOB 2015b).¹ Indeed, prior studies show that the number of clients assigned to a partner, which represents partner's workload, has a negative impact on audit quality (Sundgren and Svanström 2014; Goodwin and Wu 2016).² These results may suggest that a system is needed to cap the number of clients assigned to a partner to maintain audit quality. However, such a system would discourage accounting professionals from earning better reputations or expanding their clientele, which in turn would increase costs in the audit industry (Goodwin and Wu 2016). Thus, how to address the negative consequences from increased numbers of clients assigned to a partner is an open question.

¹ However, busyness might represent the audit partner's reputation for quality audits, because audit firms might assign more clients to partners with high reputation, expecting that the partners can achieve quality audits for all the clients assigned with their high capability. Despite this possibility, we assume that higher workload would deteriorate audit quality in this study according to the rationale provided by CAQ and PCAOB on the possible negative impact of partner workload on audit quality.

² Note that Goodwin and Wu (2016) find a negative relation between engagement partners' workload and going concern issuance for financially distressed as well as bankrupt Australian public firms when the market was disturbed by the demise of Arthur Andersen and the enactment of rigorous new rules, while they do not find a significant relation in other periods.

Our study investigates two factors that might ease the workload for a partner who is assigned more clients. Specifically, we highlight the extent to which the partner has client-specific knowledge and the availability of dependable audit team members as factors that mitigate the burden of workloads for partners. Regarding the former factor, partners having a longer tenure with a client should accumulate client-specific knowledge, allowing them conduct audits in an efficient manner while keeping audit quality high (Chen, Lin, and Lin 2008; Manry, Mock, and Turner 2008). The latter factor, on the other hand, represents a situation in which the partner depends on higher-ranked audit team members to delegate some functions. If the audit team has more experience and higher-ranked team member resources, the partner would depend on it to oversee less-experienced staff while maintaining audit quality (PCAOB 2015b).³ Investigating these factors should provide insight about possible mitigating factors for partners' heavy workload when they are responsible for multiple clients. Note that these factors are measured using data for other clients assigned to the partner of the client investigated. By so doing, we can measure how busy the partner is in relation to other clients for whom the partner is responsible.

We highlight the Japanese setting because this market allows us to collect necessary data for our analysis. First, since the engagement partner's names are disclosed on audit reports in Japan, the number of clients assigned to the audit partner is countable. Importantly, the Japanese market enables us to test our expectation for a relatively longer window, because engagement partner names have been disclosed since the system of the financial statement audit for the listed companies

³ PCAOB (2015a) indicates staffing leverage as their first AQI. According to PCAOB (2015b), staffing leverage should be measured in terms of the tenure of experienced senior personnel relative to that of lower-ranked personnel.

was formally started in 1957.⁴ Second, Japan has unique auditing practices that assign more than one engagement partner to a client, and all engagement partner names are disclosed on the audit reports.⁵ The engagement partner who signs at the top of the audit report (lead partner) is supposed to oversee the auditing, and the other partner(s) takes on a supportive role as a vice engagement partner (vice partner).⁶ Using this unique practice, we assume that the number of vice partners represents the availability of higher-ranked personnel on an engagement team.

We utilize three output measures as proxies for audit quality. In accordance with DeFond and Zhang (2014), we choose three measures that relate to three different aspects of audit outcomes: abnormal accruals for financial reporting quality; restatements for material misstatements; and going concern issuance for auditor communication. As a base result, we show that the number of other clients assigned to a lead partner relates to (1) a higher level of abnormal accruals, (2) a higher frequency of restatements, and (3) a lower inclination to issue a going concern opinion, all of which represent low audit quality. We further find that firms represent higher probability of achieving target earnings (the latest management forecast) using abnormal accruals as the number of clients assigned to a lead partner increases.

⁴ However, our sample period is limited to 2004 to 2012, since the stylized database about engagement partners we use (Nikkei NEEDS) includes the data only for 2000 and later. This research window is comparable to those used to investigate Chinese or Australian markets (e.g., Gul, Wu, and Yang, 2013; Goodwin and Wu, 2016), while it is longer than those that focus on some European countries (e.g., Carcello and Li, 2013).

⁵ The CPA Act in Japan requires audit firms to designate one or more engagement partners for individual audit contracts, and thereby more than one engagement partner is generally assigned to a client. Details of the regulations are explained in the next section.

⁶ However, all the engagement partners bear unlimited liability to the client.

The results of our main analysis indicate that the number of other clients with whom the lead partner has three years' or more tenure has no significant relation to audit quality measures. In contrast, lead partners with more new clients (two years' or less tenure) represent significantly lower audit quality. These relations are observed for two out of three of our audit quality measures, which are abnormal accruals and restatements. Further, we find that the number of other clients for which the lead partner has two or more vice partners does not exhibit a significant relation to audit quality measures, but the number of other clients for which the lead partner has one or no vice partners shows significantly negative effects on audit quality. We consistently observe these relations again for two of three our audit quality measures, abnormal accruals and restatements. In our additional test, the results using abnormal accruals and restatements indicate that clients whose lead partner has shorter tenure with other clients, *as well as* having more other clients for which one or no vice partner is available, experience the least effective audit quality. Collectively, these results have an important implication for audit practice with respect to mitigating factors on partners' heavy workload. Concretely, our results indicate that imposing a cap on audits per partner may not be necessary to mitigate the burden of partner workload. Instead, systematically limiting the number of new clients assigned to a partner or audit firms allocating sufficient higher-ranked team members per client would be effective in controlling partner workloads to maintain audit quality.

We acknowledge that the client allocation is not exogenously determined. In theory, audit firms should optimally allocate clients to their partners while maintaining audit quality, which should lead us to expect non-significant relationship between partner busyness and audit quality

(Goodwin and Wu, 2016). However the results we obtain for the base analysis show a contradict evidence for this optimal theory. Thus, the endogeneity issue, possibly stemming from partner-client allocation determination, seems not a major concern in our test.

Our study contributes to the literature in the following ways. First, our findings add to the debate over the AQIs of the CAQ and PCAOB, since our results show that audit quality decreases as the number of clients assigned to a partner increases, whereas there are mitigating factors to ease the burden of partner workload. Second, our study holds implications for the literature on auditor tenure. Although prior literature provides only mixed evidence on the efficacy of such measures (Carey and Simnett 2006; Chen et al. 2008; Chi, Huang, Liao, and Xie 2009; Azizkhani, Monroe, Shailer 2013), Our investigation clarifies that the relation between partner workload and poor audit quality intensifies as the number of newly assigned clients increases. This in turn implies that policy makers should be aware that under the rule on mandatory partner rotation, partners are more often assigned to new clients, which could lead to poor audit quality. Third, we add to the literature that analyzes resource allocation in audit engagements (O’Keefe, Simunic, Stein 1994; Stein, Simunic, and O’Keefe 1994; Hackenbrack and Knechel 1997; Fukukawa, Mock, and Wright 2011). Although prior literature clarifies some determinant factors on audit resource allocations, there is a lack of evidence on the impact of resource allocation decisions on audit outcomes. Our results indicate that allocating enough higher-ranked personnel to oversee staff members is necessary to maintain audit quality, which is new evidence to the literature.

This study proceeds as follows. We explain Japan's institutional background in the next section followed by development of our research prediction. After that, sample and data are provided and the following section sets forth our results on the effects of partner workload for other clients with regard to audit quality. Finally, we discuss our conclusions.

INSTITUTIONAL BACKGROUND

Japan's Financial Instruments and Exchange Act prescribes the financial disclosure systems for public companies. As per FIEA, public Japanese firms are required to prepare and file an annual securities report (*Yuka Shoken Hokokusho*) with the Financial Services Agency within three months after fiscal year-end, and the financial statement compiled in the report should be audited by a CPA or audit firm. Japan does not adopt International Financial Reporting Standards nor International Standards on Auditing, but domestic standards have been revised to make them qualitatively equivalent to international counterparts. More than 3,000 companies are listed on the stock exchanges in Japan as of the end of December 2015, and domestic firms account for more than 99% of listed companies. According to the World Bank, Japan has the third largest market capitalization of listed domestic companies in the world as of 2014.⁷ Thus, Japan has a large capital market in which audits on financial statements prepared by listed companies are mandatory.⁸

⁷ The data was extracted from the website of the World Bank (<http://data.worldbank.org/indicator/>).

⁸ As for other relevant information about the audit market in Japan, we note that this market is characterized by large audit firms, as in other developed countries. However, this market is somewhat unique in that three of the Big 4 dominate the market, Azusa, Shinnihon, and Tohmatsu, and they are affiliated with KPMG, E&Y, and Deloitte, respectively. PwC's affiliate, Aarata, has a small market share, i.e., they have only 98 listed company clients as of the end of December 2015 (extracted from the form issued by Aarata to the JICPA's registration system). They branched out from ChuoAoyama in 2006 after the series of accounting frauds committed by some ChuoAoyama clients (Skinner and Srinivasan, 2012). By

The Certified Public Accountants Act (CPA Act) and the implementation guidance issued by the Japanese Institute of Certified Public Accountants stipulate the format of audit reports attached to financial statements. Further, engagement partners must include their CPA qualifications, sign, and set the seal on the audit report. The CPA Act requires audit firms to designate one or more engagement partners for individual audit clients; thus, more than one engagement partner is generally assigned to a client. Engagement partners' names are signed in parallel on the top-right corner in an audit report and the engagement partner whose name comes first is the lead engagement partner. The lead engagement partner supervises the relevant affairs, and the other partners (vice partners) take supportive roles. Review partner names are not disclosed in audit reports in Japan.

Imposing audit partner rotation has been commonplace worldwide, especially since the Sarbanes–Oxley Act of 2002 enacted mandatory partner rotation. Japan is not an exception, and mandatory partner rotation has been required for financial statement audits of listed companies since 2004. The CPA Act enacts periodic partner rotation and prohibits engagement partners and review partners from engaging in auditing in the same listed company for more than seven consecutive years. For the lead partners of large audit corporations (those that have 100 or more listed company clients), the rotation rule is strengthened and they are required to rotate every five years.⁹

establishing a new audit firm, PwC could maintain their important Japanese clients, such as Panasonic and Sony within their network, but they were not successful in expanding their clientele afterward, which results in their current low market share in Japan.

⁹ This rule was enacted when the CPA Act was amended in 2007.

LITERATURE REVIEW AND RESEARCH PREDICTION

Prior literature and hypothesis development

It is common practice that audit firms assign more than one client to an audit partner. Since the reporting timetables of listed companies are similar because a large proportion of listed companies share the same fiscal year-end (in March for Japanese companies), engagement partners' workload is often concentrated in the three months after the fiscal year-end (Lopez and Peters 2012; CAQ 2014). During this busy season, partners are likely to struggle with time and resource constraints, which might negatively affect their level of professional skepticism as well as tire them physically and mentally.

The negative impact of partners' heavy workload may not be limited to the busy season; partners assigned multiple clients, regardless of client fiscal year-end, may get busier, which leads to less effective audits (PCAOB 2015a). Experimental, survey, and archival studies indeed show that heavy workload due to workload compression or the increased burden of workload from being assigned more clients jeopardizes audit quality (Sweeney and Summers 2002; Lopez and Peters 2012; Persellin, Schmidt, and Wilkins 2014; Sundgren and Svanström 2014; Goodwin and Wu 2016). To confirm this negative impact of partners' heavy workload on audit quality using Japanese data, we develop the following hypothesis.

H1: The number of other clients assigned to the lead partner negatively affects audit quality.

Even if an increase in the number of clients assigned to a partner induces less effective audits, there may be mitigating factors on this issue. For instance, accumulated client-specific knowledge may help partners ease the burden, such that they can reduce the time needed to interact with the client's personnel to understand the company's climate. Some studies show that partners with longer tenure achieve better-quality audits, probably due to accumulated client-specific knowledge (Chen et al. 2008; Manry et al. 2008).¹⁰ Thus, it is plausible to expect that partners can spare enough time for the client if they have some knowledge about other clients, even though a partner is assigned to several clients. Since length of tenure with a particular client is a reasonable proxy for the extent to which a partner knows about the client, we develop the following hypothesis to investigate the mitigating effect of client-specific knowledge on the burden of partner workloads. Conversely, partners who are assigned more new clients would suffer from workload compression, since they must consume more time for those other clients and can allocate less time to the client concerned.

H2a: Auditing more other clients with which the lead partner has longer tenure does not affect audit quality.

H2b: Auditing more other clients with which the lead partner has shorter tenure decreases audit quality.

¹⁰ Note, however, that other studies provide competing evidence to this explanation. For example, Carey and Simnett (2006) show results for a negative effect on audit quality with increased partner tenure.

Moreover, the availability of experienced personnel on the audit team could ease the lead partner's burden of workloads. If the ratio of the number of higher-ranked personnel relative to lower-ranked personnel is low, audit quality may decrease due to the lack of attention in supervising less-experienced staff (PCAOB 2015b). Moreover, higher-ranked personnel need to engage in critical audit activities that require careful consideration, such as having a formal meeting with the client's manager (Hackenbrack and Knechel 1997). Thus, having more vice partners helps the lead partners ease their workloads, since they are the most experienced and responsible personnel on the audit team. On the other hand, if the lead partner has more other clients with whom there are fewer vice partners, their workload will remain heavy, leading to less time available for the audit concerned. As such, our third hypothesis is as follows:

H3a: Auditing more other clients with whom the lead partner has more vice partners does not affect audit quality.

H3b: Auditing more other clients with whom the lead partner has less vice partners decreases audit quality.

Audit quality measures

To measure audit quality using output variables in relation to input variables, we have several options to use, while every measure has some measurement error issues (DeFond and Zhang 2014).

To mitigate the issues brought about by the individual variables, we utilize three measures that capture different aspects of audit outputs, in accordance with DeFond and Zhang (2014).

Our first measure is abnormal accruals, which capture the extent to which the auditors allow their clients to engage in opportunistic earnings recognitions. To calculate abnormal accruals, we use a modified Jones model, and ROA is included in the model so as to control for the effect of performance on the estimated accruals (Kothari, Leone, and Wasley 2005). The regressions are estimated cross-sectionally based on two-digit Nikkei industry code. In addition to simply using abnormal accruals, we utilize a dichotomous variable for whether the firm achieves the target earnings (the latest management earnings forecast) by using abnormal accruals. Our second measure is whether the client restates its released financial reporting, which is a measure of whether client financial statements include material misstatements. This is a direct measure of audit failures. Our third measure is the propensity to issue going concern opinions for auditor communication. Propensity to issue a going concern opinion for financially distressed firms could reflect whether the auditor withstands client pressure not to issue an unfavorable audit opinion.

SAMPLE AND RESEARCH METHOD

Sample

Our sample is formed from the databases of Nikkei NEEDs, Financial Quest, and NPM Manager. We obtain the data for the audit partner from the Nikkei NEEDs database, which contains the lead and vice partner names (kanji character), their audit firms (kanji character), audit firm code

assigned by the data vendor, company identifier, and fiscal year-end; all of this information is available from March 2001. Using these data, we determine the lead partner's workload and other partner-related as well as audit firm-related variables. To calculate partner workloads, we identify the combination of the lead partner's name and audit firm code and count the number of clients assigned to the lead partner during a given fiscal year. Our sample is Japanese public firms during the period March 2004 to December 2012, since calculation of some audit-related variables requires data from the past three years. The number of our original sample firm-year observations is 29,574.

We obtain data on financial statements, restatements, and audit opinions from the Financial Quest database. The data on market capitalization and stock return are obtained from NPM Manager. We exclude firms that have not been listed for at least three years, those with missing data, those having negative book value of equity, those in the financial industry, and those whose audit reports are signed by more than one audit firms (joint audit). These sample selection procedures leave us with a final sample of 24,013 firm-year observations. Note that we implement the analysis of restatement firms from March 2008 to December 2012 since the database compiles restatement data only from March 2008.

Research method

We use three audit quality measures to investigate the two potential mitigating factors, which are the accumulated client-specific knowledge and the availability of higher-ranked personnel, on partner workload. By taking into account the possibility that other aspects of audit partner or audit firm characteristics influence audit quality, we include several audit-related control variables, such as the gender (*Fem*) and career (*Career*) of the lead partner, the lead partner's tenure with the client

(*PTen*), Big 4 or not (*BIG*), firm-level tenure with the client (*FTen*), and the number of the vice partner(s) assigned to the client (*NVice*). Moreover, several additional control variables are employed in the regression model since several firm characteristics could induce management's opportunistic earnings recognitions. In addition to these control variables, we include fiscal year-end month indicators to control for the effect of audit work compression due to busy seasons (Lopez and Peters 2012). Besides the industry and year dummies included, these three types of indicator variable are not shown in the model, for brevity. Variable definitions are provided in the Appendix. We determine the regression model as follows:

$$|Abacc| = \beta_0 + \beta_1 Busy + \beta_2 Fem + \beta_3 Career + \beta_4 PTen + \beta_5 BIG + \beta_6 FTen + \beta_7 NVice \\ + \beta_8 SIZE + \beta_9 Grow + \beta_{10} Lev + \beta_{11} ROA + \beta_{12} Loss + \beta_{13} INVREC + \varepsilon \quad (1)$$

Our test variable is *Busy*, which equals the number of other clients assigned to the lead partner, to investigate H1. For H2 and H3, we use the following four variables, namely, *LTenure*, *STenure*, *HVice*, and *LVice*. *LTenure* (*STenure*) represents the number of other clients for which the lead partner signs on the audit report as a lead partner for three years or more (two years or less). These variables replace *Busy* to test H2. *HVice* (*LVice*) represents the number of other clients for which the partner have two or more (one or zero) vice partners. We replace *Busy* by *HVice* and *LVice* to examine H3.

With respect to our second audit quality measure, we develop the following logistic regression model, which includes several audit-related and other control variables. As in the regression model for abnormal accruals, we include month, industry, and year dummies. We replace *Busy* by *LTenure* (*STenure*) or *HVice* (*LVice*) depending on the hypotheses we investigate.

$$RES = \beta_0 + \beta_1 Busy + \beta_2 Fem + \beta_3 Career + \beta_4 PTen + \beta_5 BIG + \beta_6 FTen + \beta_7 NVice + \beta_8 SIZE + \beta_9 Grow + \beta_{10} ROA + \beta_{11} Loss + \beta_{12} SDroa + \varepsilon \quad (2)$$

Our final audit quality measure is the propensity to issue going concern opinions. We include audit-related variables and other control variables that could influence the probability of going concern issuance.¹¹ Month, industry, and year dummies are also included in the following logistic model, as in models (1) and (2).

$$GC = \beta_0 + \beta_1 Busy + \beta_2 Fem + \beta_3 Career + \beta_4 PTen + \beta_5 BIG + \beta_6 FTen + \beta_7 NVice + \beta_8 SIZE + \beta_9 Grow + \beta_{10} |Abacc| + \beta_{11} LEV + \beta_{12} ROA + \beta_{13} SDroa + \beta_{14} CR + \beta_{15} Zscore + \varepsilon \quad (3)$$

¹¹ We use Altman's Z-score to measure bankruptcy risk (Altman 2002).

RESULTS

Descriptive statistics

We report descriptive statistics in Table 1. This table shows that the lead partners are assigned about four other clients on average, which means that average partners handle five clients simultaneously. Of the four other clients, average lead partners have roughly equal numbers of new and old other clients, but the mean number of other clients with which the lead partner has two or fewer tenures is slightly higher (2.1 versus 1.9). Turning to the number of vice partners, the number of other clients with one or no vice partner outnumbers that with two or more vice partners (2.9 versus 1.0).

(Insert Table 1 around here)

Partner busyness and abnormal accruals

Table 2 shows the results of abnormal accruals. We report the results for the full sample, the subsample with negative abnormal accruals, subsamples with positive abnormal accruals, and subsamples that achieve target earnings (latest management forecast). These results correspond to Panel A, Panel B, Panel C, and Panel D, respectively. In Panel D, we use only the subsamples achieving target earnings (latest management forecast) and the model's dependent variable is dichotomous, taking the value 1 if the firm meets or beats target earnings by using abnormal accruals, and zero otherwise. We show the expected signs for other basic control variables, and the

significant results are generally consistent with expectations. On the other hand, we offer no directional expectations (except for *BIG* and *NVice*) due to the shortage of conclusive prior results and convincing rationales for audit-related variables. Model 1 is the base result without the variables indicating the level of busyness of the lead partner; several control variables have significant values.

(Insert Table 2 around here)

With respect to our test variables, we consistently obtain significant coefficients on *Busy*, *STenure*, and *LVice*, all of which have positive values, except for the results in Panel B that represent marginally significant or insignificant coefficients of these variables. Since manager's opportunistic earnings adjustment is more critical when it is income-increasing earnings management, our results indicate that the lead partners who are busy with other clients are more tolerant to the client's problematic earnings management behavior. Importantly, consistent with our expectations, the number of other clients with which the lead partner has longer relations and those with more vice partners available do not have a significant relation to the level of abnormal accruals, except for *LTenure* in Panel D. Collectively, the results basically support all of our hypotheses.

Concerning the control variables, *FTen*, *SIZE*, *ROA*, and *LOSS* consistently have significant values. The negative coefficient on *FTen* suggests that longer audit firm tenure relates to better audit quality. Investigating the relation between audit firm tenure and audit quality is not our objective,

but this result is against the regulation that imposes mandatory audit firm rotation, which is another controversial issue in the audit industry.

Partner busyness and restatements

Table 3 shows the results of restatements. We report the results using the full sample and firms reporting negative earnings in Panel A and Panel B, respectively. In Panel A, *LVice* is positive and significant at the 5% level, whereas other test variables have insignificant values. These results indicate that number of other clients assigned to a lead partner does not relate to restatements. Nonetheless, firms tend to have a restatement if their lead partners have less vice partners for other clients, but this is not the case for clients whose lead partners have more vice partners for other clients. Collectively, Panel A results reject H1 and H2b, but support H2a, H3a, and H3b.

(Insert Table 3 around here)

However, turning to Panel B, in which we report the results for firms reporting losses, the significance of the coefficients is more prominent and the positive coefficients on *Busy* and *STenure* become statistically significant at the 1% level, supporting H1 and H2b. We investigate loss-making firms separately from the entire sample, since financially weak companies are inclined to have internal control problems (Ashbaugh-Skaife, Collins, and Kinney 2007; Doyle, Ge, and McVay 2007), which could lead to restatements. In limiting the sample to firms that are more likely to

restate, we obtain results consistent with all of our hypotheses. Moreover, this more explicit result in Panel B relative to Panel A may reflect that the effects of the lead partner's heavy workload would be more critical for loss firms, because the lead partner needs to make a careful judgment to loss-firm clients, due to their higher business risk. Regarding the results of control variables, we do not have consistently significant audit-related variables in both panels, but the coefficients on *BIG* are exceptional and have statistically significant negative values.

Partner busyness and going concern issuance

Table 4 shows the results of the propensity for going concern issuance. We report the results using firms reporting negative earnings, because assessing the firm's ability to continue as a going concern is critical only for financially distressed firms (DeFond, Raghunandan, and Subramanyam, 2002).

(Insert Table 4 around here)

Turning to our test variables, *Busy* has negative and significant value at the 10% level. This result implies that the lead partners having more other clients are less likely to issue a going concern opinion to financially distressed firms. However, when disaggregating the number of other clients based on the lead partner's tenure and the availability of vice partners for other clients, this negative

impact of the lead partner's busyness is not observed for any of our test variables. In sum, the results in Table 4 support H1, H2a, and H3a, but not H2b and H3b.

The weak results in Table 4, which are not consistent with H2b and H3b, might be caused by the increased audit procedures to the firms that need to be assessed their going concern status. Auditors are required to conduct additional audit procedures when there is substantial doubt about the firms' ability to continue as a going concern (AU Section 34). In such case, the level of partner workload may become irrelevant because experienced or specialized personnel are additionally assigned to the audit team and the entire audit team members might increase its level of professional skepticism.

Regarding the control variables, Table 4 shows that *Career*, *BIG*, *NVice*, *SIZE*, *Abacc*, *LEV*, *ROA*, *SDroa*, *CR*, and *Zscore* have significant values. The negative coefficient on *Career* indicates that the lead partners with longer careers as engagement lead partners are reluctant to issue going concern opinions. This result might seem contrary to the notion that prior experience favorably influences professional skepticism (Nelson 2009). However, experienced partners who have a long history of signing audit reports are likely to be advanced in age. Aged partner audit judgments could be doubtful, as their knowledge is outdated and they spend less time becoming familiar with new standards (Sundgren and Svanström 2014). This result may reflect this age effect rather than a partner's experience.

Combined effects of client knowledge and personnel availability

We obtain results that are generally consistent with our expectations. Stated differently, lead partner busyness indeed leads to less effective audits, but the accumulated client-specific knowledge and the availability of higher-ranked personnel with other clients mitigate the burden of the lead partner's heavy workload. Given these results, we investigate the combined effects of these two mitigating factors on audit quality to determine what is the most effective measure to ease the burden of partners' workloads. Specifically, we substitute *Busy* in models (1) through (3) with the following four variables: *LTenure_HVice*, *LTenure_LVice*, *STenure_HVice*, and *STenure_LVice*. These four variables are the multiplied values of our two types of test variables, *LTenure/STenure* and *HVice/LVice*.

The far right columns of all the panels of Table 2 through Table 4 show the results of this analysis. For the analysis on abnormal accruals in Table 2, the coefficient on *STenure_LVice* has statistically significant positive values, while the significant level is marginal in Panel B. These results correspond to the results of our main analyses. In short, heavy workloads make the lead partners more tolerant to problematic, or income-increasing, earnings management behavior. The results on restatements in Table 3 also exhibit positive and significant coefficients on *STenure_LVice* in both panels. The higher value of the estimate for loss-making firms is consistent with the results in the preceding section, implying that partners' heavy workloads are critical, especially for loss firms. On the other hand, the coefficient on *LTenure_HVice* is negative and insignificant in using the

going concern issuance measure in Table 4, which does not support our expectation but is consistent with our mail results.

In sum, the results on abnormal accruals and restatements indicate that clients whose lead partner has shorter tenure with other clients *as well as* having more other clients for which one or zero vice partner is available experience the lowest audit quality. Although the result on going concern issuance does not support our expectations, we note that the results in Table 2 do not support either H2b or H3b. The special consideration to going concern firms might explain the results, as discussed in the previous section.

CONCLUSIONS

Partners' heavy workloads jeopardize audit quality. Physically and mentally exhausted partners may lack attention and their level of professional skepticism will decrease; the CAQ and PCAOB specify this as an aggravating factor. Against this backdrop, investigating potential mitigating factors on partners' heavy workloads has important implications for policymakers and practitioners and they should not leave this issue unaddressed.

Using data from Japanese listed companies, for which partner-level engagement team members' names are disclosed in the audit reports, we investigate whether the client-specific knowledge accumulated by partners and the availability of higher-ranked personnel in an audit team ease partner workloads. In keeping with the evidence in the literature, we find that the number of other clients assigned to partners negatively relates to audit quality for the client examined. This

relation is consistently observed for the three audit quality measures we use in this study. However, our main analyses clarify that audit quality is not damaged if the partner's other clients are those for which the partner has a three-year or more tenure or those for which there are two or more vice partners available, even though the partners are assigned several clients. These results are consistently observed using two audit quality proxies, abnormal accruals and restatements. Collectively, this paper shows that accumulated client knowledge and higher-ranked personnel availability could be mitigating factors on the burden of partner workloads.

This study is subject to limitations. First, although we utilize the number of vice partners as a proxy for the availability of higher-ranked personnel, manager-level personnel would be a more important contribution to easing the burden of partner workload, as they make substantial decisions, such as audit planning. Second, we highlight two factors that lessen partner workloads, but there could be other factors that have more significant mitigating effects. Third, readers should be cautious in generalizing the results of our study, since institutional factors could influence our results.

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Table 1 Descriptive statistics

(N = 24,013)	Mean	Median	Std.dev	10th percentile	90th percentile
<u>Quality of audit</u>					
<i>Abacc</i>	0.000	-0.001	0.053	-0.057	0.057
<i> Abacc </i>	0.038	0.025	0.042	0.004	0.086
<i>RES</i> (N = 13,355)	0.034	0.000	0.181	0.000	0.000
<i>GC</i>	0.018	0.000	0.134	0.000	0.000
<u>Workload of partner</u>					
<i>BUSY</i>	4.084	3.000	3.619	0.000	9.000
<i>Ltenure</i>	1.934	1.000	2.400	0.000	5.000
<i>Stenure</i>	2.150	2.000	2.260	0.000	5.000
<i>Hvice</i>	1.076	0.000	1.755	0.000	3.000
<i>Lvice</i>	3.008	2.000	3.102	0.000	7.000
<i>LTenure_Hvice</i>	0.563	0.000	1.251	0.000	2.000
<i>LTenure_Lvice</i>	1.371	1.000	1.985	0.000	4.000
<i>STenure_Hvice</i>	0.514	0.000	0.980	0.000	2.000
<i>STenure_Lvice</i>	1.637	1.000	2.016	0.000	4.000
<u>Partner characteristics</u>					
<i>Fem</i>	0.015	0.000	0.124	0.000	0.000
<i>Career</i>	0.844	1.000	0.363	0.000	1.000
<i>Pten</i>	0.457	0.000	0.498	0.000	1.000
<u>Audit-related variables</u>					
<i>BIG</i>	0.781	1.000	0.414	0.000	1.000
<i>Ften</i>	0.836	1.000	0.370	0.000	1.000
<i>Nvice</i>	1.263	1.000	0.482	1.000	2.000
<u>Firm characteristics</u>					
<i>SIZE</i> (in million yen)	239,118	33,318	1,085,733	6,231	382,551
<i>Grow</i>	0.028	0.022	0.194	-0.166	0.223
<i>Lev</i>	0.522	0.531	0.209	0.230	0.798
<i>ROA</i>	0.014	0.021	0.068	-0.038	0.069
<i>Loss</i>	0.186	0.000	0.389	0.000	1.000
<i>INVREC</i>	0.337	0.333	0.174	0.105	0.565
<i>Sdroa</i>	0.031	0.019	0.037	0.006	0.065
<i>CR</i>	1.970	1.526	1.479	0.825	3.578
<i>Zscore</i>	2.279	2.140	1.084	1.062	3.695

This table shows descriptive statistics for the test variables and control variables. Descriptive statistics are mean values, median values, standard deviations, 10 percentile values, and 90 percentile values. Definitions of the variables are given in the Appendix.

Table 2: Results using abnormal accruals

Variable	Expected sign	Panel A: $ Abacc $					Panel B: $Abacc < 0$				
		Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
<i>BUSY</i>	(+)		0.0002*** (3.11)					0.0002* (1.88)			
<i>LTenure</i>				0.0000 (0.12)					0.0001 (0.90)		
<i>STenure</i>	(+)			0.0005*** (3.71)					0.0002 (1.48)		
<i>HVice</i>					-0.0000 (-0.13)					0.0001 (0.32)	
<i>LVice</i>	(+)				0.0003*** (3.52)					0.0002* (1.92)	
<i>LTenure_HVice</i>						-0.0001 (-0.28)					0.0002 (0.56)
<i>LTenure_LVice</i>						0.0000 (0.36)					0.0001 (0.68)
<i>STenure_HVice</i>						0.0000 (0.13)					-0.0001 (-0.22)
<i>STenure_LVice</i>	(+)					0.0006*** (3.88)					0.0003* (1.68)
<i>Fem</i>	(+/-)	0.0009 (0.48)	0.0011 (0.63)	0.0011 (0.60)	0.0012 (0.64)	0.0011 (0.62)	0.0025 (0.93)	0.0027 (1.02)	0.0027 (1.02)	0.0027 (1.02)	0.0027 (1.02)
<i>Career</i>	(+/-)	0.0009 (1.13)	0.0002 (0.26)	0.0004 (0.49)	0.0002 (0.27)	0.0004 (0.53)	0.0007 (0.70)	0.0002 (0.18)	0.0002 (0.22)	0.0002 (0.18)	0.0003 (0.26)
<i>PTen</i>	(+/-)	0.0000 (0.09)	0.0001 (0.10)	0.0004 (0.62)	0.0001 (0.17)	0.0003 (0.62)	0.0004 (0.46)	0.0004 (0.47)	0.0004 (0.54)	0.0004 (0.49)	0.0004 (0.52)
<i>BIG</i>	(-)	-0.0010 (-1.53)	-0.0013* (-1.96)	-0.0014** (-2.04)	-0.0013* (-1.90)	-0.0013* (-1.91)	0.0009 (0.94)	0.0006 (0.70)	0.0006 (0.69)	0.0007 (0.72)	0.0007 (0.75)
<i>FTen</i>	(+/-)	-0.0074*** (-8.52)	-0.0074*** (-8.51)	-0.0074*** (-8.54)	-0.0074*** (-8.53)	-0.0074*** (-8.54)	-0.0063*** (-5.42)	-0.0063*** (-5.42)	-0.0063*** (-5.42)	-0.0063*** (-5.43)	-0.0063*** (-5.42)
<i>NVice</i>	(-)	-0.0008 (-1.61)	-0.0008 (-1.61)	-0.0008 (-1.54)	-0.0005 (-0.88)	-0.0005 (-0.89)	-0.0005 (-0.68)	-0.0005 (-0.70)	-0.0005 (-0.69)	-0.0003 (-0.44)	-0.0003 (-0.42)
<i>SIZE</i>	(-)	-0.0023*** (-12.30)	-0.0023*** (-12.19)	-0.0023*** (-12.09)	-0.0023*** (-12.16)	-0.0023*** (-12.09)	-0.0025*** (-10.01)	-0.0025*** (-9.93)	-0.0024*** (-9.92)	-0.0025*** (-9.93)	-0.0025*** (-9.93)

<i>Grow</i>	(+)	0.0119*** (5.53)	0.0119*** (5.49)	0.0118*** (5.49)	0.0118*** (5.48)	0.0118*** (5.47)	0.0036 (1.24)	0.0035 (1.21)	0.0035 (1.21)	0.0035 (1.20)	0.0035 (1.19)
<i>Lev</i>	(+)	0.0012 (0.77)	0.0013 (0.84)	0.0012 (0.82)	0.0013 (0.89)	0.0013 (0.87)	0.0064*** (3.05)	0.0065*** (3.08)	0.0065*** (3.08)	0.0066*** (3.11)	0.0066*** (3.11)
<i>ROA</i>	(-)	-0.0629*** (-7.35)	-0.0630*** (-7.37)	-0.0628*** (-7.34)	-0.0630*** (-7.36)	-0.0627*** (-7.34)	-0.0520*** (-4.49)	-0.0522*** (-4.51)	-0.0521*** (-4.50)	-0.0521*** (-4.50)	-0.0521*** (-4.50)
<i>Loss</i>	(+)	0.0049*** (5.06)	0.0048*** (5.06)	0.0049*** (5.07)	0.0048*** (5.05)	0.0048*** (5.06)	0.0041*** (2.93)	0.0041*** (2.93)	0.0041*** (2.93)	0.0041*** (2.92)	0.0040*** (2.91)
<i>INVREC</i>	(+)	0.0366*** (14.95)	0.0365*** (14.94)	0.0365*** (14.95)	0.0365*** (14.95)	0.0366*** (14.96)	0.0031 (1.01)	0.0031 (1.01)	0.0031 (1.01)	0.0031 (1.01)	0.0032 (1.03)
Month indicator variables		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year indicator variables		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry indicator variables		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant		0.0621*** (16.88)	0.0615*** (16.66)	0.0610*** (16.50)	0.0610*** (16.51)	0.0605*** (16.33)	0.0676*** (12.87)	0.0671*** (12.73)	0.0670*** (12.70)	0.0669*** (12.70)	0.0667*** (12.62)
Observations		24,013	24,013	24,013	24,013	24,013	12,158	12,158	12,158	12,158	12,158
Adjusted R ²		0.1848	0.1852	0.1853	0.1853	0.1854	0.1794	0.1796	0.1796	0.1796	0.1795

Table 2 (Continued)

Variable	Expected sign	Panel C: <i>Abacc</i> ≥ 0					Panel D: Samples achieving target earnings				
		Model 11	Model 12	Model 13	Model 14	Model 15	Model 16	Model 17	Model 18	Model 19	Model 20
<i>BUSY</i>	(+)		0.0003** (2.55)					0.0003* (1.90)			
<i>LTenure</i>				-0.0001 (-0.49)					-0.0005** (-2.47)		
<i>STenure</i>	(+)			0.0007*** (3.53)					0.0011*** (4.42)		
<i>HVice</i>					-0.0001 (-0.28)					-0.0002 (-0.75)	
<i>LVice</i>	(+)				0.0004*** (2.96)					0.0005** (2.53)	
<i>LTenure_HVice</i>						-0.0003 (-0.91)					-0.0007** (-2.00)

<i>LTenure_LVice</i>						0.0000					-0.0003
						(0.06)					(-1.33)
<i>STenure_HVice</i>						0.0002					0.0006
						(0.62)					(1.05)
<i>STenure_LVice</i>	(+)					0.0008***					0.0013***
						(3.48)					(4.32)
<i>Fem</i>	(+/-)	-0.0012	-0.0009	-0.0010	-0.0009	-0.0010	0.0007	0.0010	0.0007	0.0010	0.0008
		(-0.52)	(-0.40)	(-0.44)	(-0.37)	(-0.41)	(0.19)	(0.26)	(0.19)	(0.29)	(0.21)
<i>Career</i>	(+/-)	0.0009	0.0000	0.0003	0.0000	0.0003	0.0026*	0.0018	0.0024	0.0018	0.0023
		(0.76)	(0.04)	(0.28)	(0.04)	(0.28)	(1.76)	(1.19)	(1.57)	(1.17)	(1.50)
<i>PTen</i>	(+/-)	-0.0004	-0.0004	0.0002	-0.0003	0.0002	-0.0012	-0.0013	-0.0001	-0.0012	-0.0001
		(-0.48)	(-0.48)	(0.20)	(-0.40)	(0.21)	(-1.15)	(-1.18)	(-0.05)	(-1.09)	(-0.07)
<i>BIG</i>	(-)	-0.0032***	-0.0036***	-0.0037***	-0.0035***	-0.0036***	-0.0014	-0.0018	-0.0021	-0.0017	-0.0020
		(-3.36)	(-3.72)	(-3.80)	(-3.64)	(-3.70)	(-1.14)	(-1.44)	(-1.63)	(-1.36)	(-1.56)
<i>FTen</i>	(+/-)	-0.0075***	-0.0074***	-0.0075***	-0.0074***	-0.0075***	-0.0073***	-0.0073***	-0.0074***	-0.0073***	-0.0074***
		(-5.84)	(-5.82)	(-5.86)	(-5.83)	(-5.85)	(-4.37)	(-4.37)	(-4.43)	(-4.38)	(-4.42)
<i>NVice</i>	(-)	-0.0010	-0.0010	-0.0009	-0.0005	-0.0005	-0.0009	-0.0009	-0.0007	-0.0002	-0.0001
		(-1.33)	(-1.30)	(-1.24)	(-0.63)	(-0.67)	(-0.90)	(-0.88)	(-0.72)	(-0.15)	(-0.15)
<i>SIZE</i>	(-)	-0.0024***	-0.0023***	-0.0023***	-0.0023***	-0.0023***	-0.0027***	-0.0027***	-0.0026***	-0.0027***	-0.0026***
		(-8.22)	(-8.13)	(-8.04)	(-8.08)	(-8.01)	(-6.97)	(-6.89)	(-6.76)	(-6.82)	(-6.71)
<i>Grow</i>	(+)	0.0182***	0.0182***	0.0181***	0.0181***	0.0181***	0.0239***	0.0238***	0.0234***	0.0237***	0.0233***
		(5.89)	(5.87)	(5.85)	(5.86)	(5.84)	(5.92)	(5.90)	(5.80)	(5.87)	(5.78)
<i>Lev</i>	(+)	-0.0015	-0.0014	-0.0014	-0.0013	-0.0013	-0.0028	-0.0027	-0.0029	-0.0026	-0.0028
		(-0.69)	(-0.63)	(-0.66)	(-0.59)	(-0.62)	(-0.95)	(-0.92)	(-1.00)	(-0.89)	(-0.96)
<i>ROA</i>	(-)	-0.0758***	-0.0757***	-0.0751***	-0.0756***	-0.0750***	-0.0547***	-0.0543***	-0.0527***	-0.0542***	-0.0526***
		(-6.04)	(-6.03)	(-5.99)	(-6.03)	(-5.99)	(-2.93)	(-2.91)	(-2.84)	(-2.90)	(-2.84)
<i>Loss</i>	(+)	0.0055***	0.0055***	0.0056***	0.0055***	0.0056***	0.0049***	0.0049***	0.0049***	0.0050***	0.0050***
		(4.17)	(4.18)	(4.22)	(4.18)	(4.22)	(2.67)	(2.70)	(2.71)	(2.72)	(2.73)
<i>INVREC</i>	(+)	0.0632***	0.0631***	0.0631***	0.0631***	0.0631***	0.0633***	0.0633***	0.0634***	0.0634***	0.0634***
		(18.16)	(18.14)	(18.16)	(18.15)	(18.15)	(13.41)	(13.40)	(13.46)	(13.42)	(13.45)
Month indicator variables		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year indicator variables		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry indicator variables		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant		0.0587***	0.0580***	0.0571***	0.0573***	0.0566***	0.0657***	0.0650***	0.0635***	0.0641***	0.0629***
		(11.43)	(11.25)	(11.06)	(11.07)	(10.90)	(9.13)	(9.01)	(8.81)	(8.86)	(8.70)

Observations	11,855	11,855	11,855	11,855	11,855	6,730	6,730	6,730	6,730	6,730
Adjusted R ²	0.2137	0.2142	0.2147	0.2143	0.2147	0.2221	0.2224	0.2250	0.2228	0.2250

Robust standard errors are shown in parentheses. Variables are defined in the Appendix.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 3 Results using restatements

Variable	Expected sign	Panel A: Total sample					Panel B: Negative earnings sample				
		Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
<i>BUSY</i>	(+)		0.026 (1.60)					0.073*** (3.03)			
<i>LTenure</i>				0.017 (0.64)					0.047 (1.14)		
<i>STenure</i>	(+)			0.035 (1.44)					0.092*** (2.66)		
<i>HVice</i>					-0.045 (-1.03)					0.020 (0.29)	
<i>LVice</i>	(+)				0.041** (2.27)					0.084*** (2.96)	
<i>LTenure_HVice</i>						-0.043 (-0.63)					0.048 (0.42)
<i>LTenure_LVice</i>						0.029 (0.99)					0.047 (0.96)
<i>STenure_HVice</i>						-0.046 (-0.66)					0.002 (0.02)
<i>STenure_LVice</i>	(+)					0.052** (1.97)					0.108*** (2.89)
<i>Fem</i>	(+/-)	0.588* (1.83)	0.618* (1.92)	0.616* (1.92)	0.616* (1.92)	0.613* (1.91)	0.095 (0.15)	0.207 (0.34)	0.206 (0.34)	0.204 (0.33)	0.191 (0.31)
<i>Career</i>	(+/-)	-0.269** (-2.02)	-0.339** (-2.40)	-0.332** (-2.33)	-0.327** (-2.33)	-0.320** (-2.26)	-0.026 (-0.12)	-0.226 (-0.98)	-0.208 (-0.90)	-0.218 (-0.95)	-0.196 (-0.85)
<i>PTen</i>	(+/-)	-0.065 (-0.55)	-0.063 (-0.53)	-0.052 (-0.44)	-0.061 (-0.51)	-0.050 (-0.42)	-0.326 (-1.61)	-0.312 (-1.53)	-0.281 (-1.38)	-0.308 (-1.51)	-0.278 (-1.36)
<i>BIG</i>	(-)	-0.325*** (-2.96)	-0.349*** (-3.15)	-0.345*** (-3.10)	-0.323*** (-2.88)	-0.319*** (-2.82)	-0.366* (-1.96)	-0.424** (-2.22)	-0.407** (-2.14)	-0.399** (-2.04)	-0.381* (-1.94)
<i>FTen</i>	(+/-)	-0.402*** (-3.20)	-0.404*** (-3.20)	-0.403*** (-3.19)	-0.407*** (-3.21)	-0.406*** (-3.20)	-0.327 (-1.55)	-0.324 (-1.51)	-0.328 (-1.53)	-0.331 (-1.53)	-0.337 (-1.56)
<i>NVice</i>	(-)	-0.013 (-0.11)	-0.010 (-0.08)	-0.011 (-0.09)	0.064 (0.49)	0.063 (0.49)	-0.003 (-0.01)	-0.004 (-0.02)	-0.009 (-0.05)	0.050 (0.24)	0.043 (0.21)
<i>SIZE</i>	(-)	-0.054 (-1.37)	-0.052 (-1.30)	-0.051 (-1.29)	-0.051 (-1.29)	-0.052 (-1.30)	0.004 (0.07)	0.012 (0.20)	0.012 (0.19)	0.012 (0.19)	0.011 (0.17)

<i>Grow</i>	(+)	0.602** (2.27)	0.603** (2.27)	0.603** (2.27)	0.600** (2.27)	0.601** (2.27)	0.050 (0.13)	0.050 (0.13)	0.052 (0.13)	0.054 (0.14)	0.051 (0.13)
<i>ROA</i>	(-)	-0.946 (-1.31)	-0.917 (-1.28)	-0.892 (-1.25)	-0.894 (-1.25)	-0.868 (-1.22)	-1.055 (-1.20)	-0.920 (-1.04)	-0.844 (-0.95)	-0.892 (-1.01)	-0.821 (-0.93)
<i>Loss</i>	(+)	0.549*** (3.87)	0.558*** (3.93)	0.560*** (3.96)	0.560*** (3.95)	0.562*** (3.97)					
<i>SDroa</i>	(+)	0.735 (0.53)	0.712 (0.51)	0.704 (0.50)	0.706 (0.50)	0.693 (0.49)	-0.109 (-0.05)	-0.075 (-0.04)	-0.105 (-0.05)	-0.046 (-0.02)	-0.074 (-0.04)
Month indicator variables		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year indicator variables		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry indicator variables		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant		-2.582*** (-3.57)	-2.650*** (-3.65)	-2.672*** (-3.66)	-2.723*** (-3.75)	-2.739*** (-3.76)	-1.537 (-1.53)	-1.708* (-1.68)	-1.744* (-1.71)	-1.763* (-1.74)	-1.778* (-1.75)
Observations		13,142	13,142	13,142	13,142	13,142	2,862	2,862	2,862	2,862	2,862
Pseudo R ²		0.0546	0.0552	0.0553	0.0562	0.0563	0.0494	0.0556	0.0560	0.0562	0.0568

Robust standard errors are shown in parentheses. Variables are defined in the Appendix.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 4 Results using going concern issuance

Variable	Expected sign	Model 1	Model 2	Model 3	Model 4	Model 5
<i>BUSY</i>	(-)		-0.036* (-1.74)			
<i>Ltenure</i>				-0.049 (-1.36)		
<i>Stenure</i>	(-)			-0.027 (-0.89)		
<i>Hvice</i>					-0.041 (-0.81)	
<i>Lvice</i>	(-)				-0.035 (-1.44)	
<i>LTenure_Hvice</i>						-0.148* (-1.68)
<i>LTenure_Lvice</i>						-0.029 (-0.65)
<i>STenure_Hvice</i>						0.045 (0.58)
<i>STenure_Lvice</i>	(-)					-0.041 (-1.18)
<i>Fem</i>	(+/-)	-0.920 (-1.49)	-0.995 (-1.61)	-0.997 (-1.61)	-0.996 (-1.61)	-0.975 (-1.58)
<i>Career</i>	(+/-)	-0.425** (-2.42)	-0.319* (-1.70)	-0.312* (-1.67)	-0.319* (-1.70)	-0.318* (-1.71)
<i>Pten</i>	(+/-)	0.187 (1.07)	0.181 (1.04)	0.198 (1.09)	0.181 (1.04)	0.212 (1.17)
<i>BIG</i>	(+)	-0.420*** (-2.75)	-0.386** (-2.52)	-0.381** (-2.49)	-0.384** (-2.48)	-0.386** (-2.49)
<i>Ften</i>	(+/-)	-0.107 (-0.62)	-0.112 (-0.65)	-0.115 (-0.67)	-0.112 (-0.66)	-0.120 (-0.70)
<i>Nvice</i>	(+)	0.289* (1.79)	0.286* (1.79)	0.284* (1.78)	0.292* (1.72)	0.285* (1.67)
<i>SIZE</i>	(-)	-0.351*** (-5.33)	-0.356*** (-5.40)	-0.355*** (-5.39)	-0.356*** (-5.40)	-0.358*** (-5.44)
<i>Grow</i>	(-)	-0.240 (-0.84)	-0.255 (-0.88)	-0.255 (-0.88)	-0.255 (-0.89)	-0.245 (-0.85)
<i>Abacc</i>	(+)	2.129** (2.54)	2.179*** (2.60)	2.181*** (2.60)	2.179*** (2.60)	2.173*** (2.58)
<i>Lev</i>	(+)	3.279*** (6.97)	3.319*** (7.04)	3.322*** (7.04)	3.319*** (7.04)	3.334*** (7.05)
<i>ROA</i>	(-)	-6.604*** (-10.43)	-6.631*** (-10.48)	-6.615*** (-10.40)	-6.628*** (-10.50)	-6.579*** (-10.37)
<i>Sdroa</i>	(+)	4.651*** (3.21)	4.667*** (3.22)	4.658*** (3.21)	4.670*** (3.23)	4.678*** (3.22)
<i>CR</i>	(-)	0.109* (1.89)	0.116** (2.00)	0.117** (2.01)	0.116** (1.99)	0.119** (2.05)
<i>Zscore</i>	(+)	-0.195** (-2.19)	-0.197** (-2.21)	-0.198** (-2.22)	-0.197** (-2.21)	-0.198** (-2.22)
Month indicator variables		Yes	Yes	Yes	Yes	Yes
Year indicator variables		Yes	Yes	Yes	Yes	Yes
Industry indicator variables		Yes	Yes	Yes	Yes	Yes
Constant		-1.113	-1.059	-1.078	-1.062	-0.999

	(-1.12)	(-1.07)	(-1.09)	(-1.07)	(-1.01)
Observations	4,249	4,249	4,249	4,249	4,249
Pseudo R ²	0.333	0.334	0.334	0.334	0.335

Robust standard errors are shown in parentheses. Variables are defined in the Appendix.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Appendix: Variable definitions

Variable	Definition	Outlier treatment
<i>Abacc</i>	Abnormal accruals estimated using modified Jones model with ROA	Yes
<i>RES</i>	1 if the firm restates financial statements in financial highlights and zero otherwise	No
<i>GC</i>	1 if the firm receives going concern opinion and zero otherwise	No
<i>Busy</i>	Number of other clients that lead partner signs for on audit report	No
<i>LTenure</i>	Number of other clients lead partner signs for on audit report as lead partner for three years or more	No
<i>STenure</i>	Number of other clients lead partner signs for on audit report as a lead partner for two years or less	No
<i>HVice</i>	Number of other clients that two or more vice partners sign for on audit report	No
<i>LVice</i>	Number of other clients that one or no vice partners sign for on audit report	No
<i>LTenure_HVice</i>	Number of other clients lead partner signs for on audit report as a lead partner for three years or more and two or more vice partners sign for on audit report	No
<i>LTenure_LVice</i>	Number of other clients lead partner signs for on audit report as a lead partner for three years or more and one or no vice partners sign for on audit report	No
<i>STenure_HVice</i>	Number of other clients lead partner signs for on audit report as a lead partner for two years or less and two or more vice partners sign for on audit report	No
<i>STenure_LVice</i>	Number of other clients lead partner signs for on audit report as a lead partner for two years or less and one or zero vice partners sign for on audit report	No
<i>Fem</i>	1 if lead partner is female and 0 otherwise	No
<i>Career</i>	1 if lead partner has three years or more experience as a lead partner to sign audit reports for listed Japanese companies and 0 otherwise	No
<i>PTen</i>	1 if lead partner's tenure as a lead partner is three years or more and zero otherwise	No
<i>BIG</i>	1 if audit firm is Big 4 and zero otherwise	No
<i>FTen</i>	1 if audit firm's tenure is three years or more and zero otherwise	No
<i>NVice</i>	Number of vice partners	No
<i>SIZE</i>	Natural log of ((Market value of equity + book value of total liabilities)/1,000,000)	No
<i>Grow</i>	(Sales - salest-1)/salest-1	Yes
<i>Lev</i>	Total liabilities / total assets	Yes
<i>ROA</i>	Net income / total assets	Yes
<i>Loss</i>	1 if the firm reports negative net income and 0 otherwise	No
<i>INVREC</i>	(accounts receivable + inventories) / total assets	Yes
<i>SDroa</i>	Standard deviation of ROA over the past five years	Yes
<i>CR</i>	Current assets / current liabilities	No

<i>Z score</i>	Z score is calculated based on the following model: $0.717 * (\text{current assets} - \text{current liabilities}) / \text{total assets} + 0.841 * (\text{earned surplus} / \text{total assets}) + 3.107 * (\text{operating income} + \text{interest expense}) / \text{total assets} + 0.420 * (\text{total assets} - \text{total liabilities}) / \text{total liabilities} + 0.998 * \text{sales} / \text{total assets}$	Yes
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The far right column shows whether the outlier is treated. For outlier treatment, we winsorize the values at 1 (99) percentiles.