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Auditor workload compression and busy season portfolio changes – U.S. evidence

Dennis M. López*
College of Business – Department of Accounting
University of Texas at San Antonio
San Antonio, TX 78249
E-mail: dennis.lopez@utsa.edu

Marshall K. Pitman
College of Business – Department of Accounting
University of Texas at San Antonio
San Antonio, TX 78249
E-mail: marshall.pitman@utsa.edu

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Dennis M. López*
College of Business – Department of Accounting
University of Texas at San Antonio
San Antonio, TX 78249
E-mail: dennis.lopez@utsa.edu

Marshall K. Pitman
College of Business – Department of Accounting
University of Texas at San Antonio
San Antonio, TX 78249
E-mail: marshall.pitman@utsa.edu

*****corresponding author

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Abstract: The purpose of this study is to investigate the impact of auditor workload compression on the likelihood of changes to the busy season client portfolio of an audit firm. Using the local offices of the Big-N firms as the unit of analysis, we find evidence of a positive association between workload compression and the likelihood of changes to the busy season client portfolio. We also find evidence of a positive association between auditor-client misalignment and the likelihood of such changes. The results for our auditor risk proxies are consistent with prior studies, in support that auditors with greater levels of risk in their portfolios are more likely to engage in busy season client turnover. By using alternative research methods and considering previously overlooked variables, this study sheds new light on the factors influencing the portfolio management decisions of auditors.

Keywords: audit fees; auditor change; auditor risk; auditor switch; Big-N firms; busy season; client portfolio management; December year-end; earnings management; workload compression; United States of America

JEL Codes: M42, M48, M49

Data Availability: All analyses are based upon publicly available data.

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1 Introduction

A significant portion of publicly-traded companies in the U.S. have a fiscal year-end date of December. In some countries, the fiscal year is the same as the calendar year for nearly all public companies (e.g., France, Mexico and Taiwan), while in other countries most public companies use the same fiscal year as government authorities (e.g., Australia and India). The selection of a particular fiscal year-end date by companies in a country is mainly determined by local laws and customary business practices. Frequent use of certain months, such as December in the U.S., creates a condition known to auditors as the *busy season*. In this study, we refer to the relative concentration of companies with the same fiscal year-end in an auditor's client base as *workload compression*. The purpose of this study is to examine the impact of workload compression on the likelihood of changes to the busy season client portfolio of an audit firm.

Prior behavioral research and anecdotal evidence suggests that time demands resulting from the busy season have a detrimental effect on individual auditor performance (Alderman and Dietrick, 1982; Kelley and Margheim, 1990; Raghunathan, 1991; Willet and Page, 1996; Coram, et al., 2004; Tackett, 2004). The archival literature recognizes the impact of the busy season, but there is still a need for empirical work that specifically investigates the effects of workload compression on the portfolio management decisions of auditors. In addition, the reporting and filing requirements of auditors have increased considerably over recent years (i.e., IFRS, SOX, accelerated filing). On the other hand, recent technological advances and the development of new auditing techniques have improved the efficiency of auditors. These opposing forces further highlight the need for new evidence about the current role of workload compression on the portfolio management decisions of auditors.

As proxy for auditor workload compression, we use the proportion of audit fees from clients with a December fiscal year-end date to total audit fees generated by a local office of an audit firm. As part of our control variables, we develop a proxy for auditor-client misalignment using the methods in Shu (2000). We also consider three dimensions of auditor risk: earnings manipulation risk, financial performance risk, and litigation risk. Our sample consists of 1,073 local office-year observations for 2004–2007. Due to data limitations, our sample only includes local offices of the Big-N firms located in U.S. cities, but the findings have important implications to researchers and practitioners across the globe. We find evidence of a positive association between workload compression and the likelihood of changes to the constituents of the busy season client portfolio of a local office. We also find evidence of a positive association between auditor-client misalignment and the likelihood of such changes. The evidence for our auditor risk proxies is consistent with prior studies, in support that auditors with greater levels of risk in their client portfolios are more likely to engage in busy season client turnover.

In contribution to the literature, the methods in this study consider the local offices of the Big-N firms as unit of analysis. This allows for a more robust examination of the supply-side determinants of client portfolio management. By using the local offices as the unit of analysis, we move the focus of our research away from client-based data and toward measures that directly describe the overall composition of an auditor's client portfolio. As a result, this study presents a new line of evidence on the portfolio management decisions of auditors and evaluates the findings of studies that use audit clients as unit of analysis (e.g., Jones and Raghunandan, 1998; Shu, 2000; Choi et al., 2004; Johnstone and Bedard, 2004; López and Peters 2011).

The remainder of this study is organized as follows. In Section 2, we present our literature review and background information. Section 3 describes the methodology and research sample. Section 4 offers the descriptive statistics and discusses the results. Section 5 presents the conclusions and suggestions for future research.

2 Literature review and background

2.1 Portfolio risk management

Effective client portfolio management enables the long-term survival of audit firms (Gramling et al., 1998; Bell et al., 2002). Auditors assess different types of risk and evaluate the sufficiency of their fees to cover the costs associated with the underlying risks proposed by their clients (Johnstone and Bedard, 2003; Bedard and Johnstone, 2004). This assessment is, therefore, a vital component of an auditor's client acceptance and retention decisions (Huss et al., 1993; Johnstone, 2000; Bell et al., 2002). Besides charging higher fees, auditors employ several different strategies to control for risk when managing their client portfolios. These strategies may include performing additional audit procedures and closely monitoring personnel-related policies (Bell et al., 2002; Asare et al., 2005; Boone et al., 2008; Manry et al., 2008).

Research investigating the client portfolio management decisions of auditors from an auditor-side perspective is rather limited, but there are some important studies in the area. In a revolutionary study, Johnstone and Bedard (2003) isolate the auditor side of the new client evaluation and acceptance process by observing a sample of prospective clients that a large audit firm accepted or rejected for auditing services. This unique insight into the operations of the observed firm provided the researchers with direct evidence of the relative importance of the different attributes auditors consider during the new client evaluation stage. Shu (2000) investigates the supply-side factors of the client portfolio management process. She asserts that intertemporal differences in the "weights" of the estimated regression coefficients are the result of changes in the opportunity sets of auditors, which implies that such coefficients capture supply-side information about auditors' portfolio management strategies. Similarly, Choi et al. (2004) observe interactions across different client types (i.e., incoming clients, continuing clients), auditor types (i.e., Big-N, non Big-N), and time period indicators. The methods in Choi et al. (2004) allowed the researchers to document evidence of changes in the overall riskiness in the client portfolios of the Big-N firms.

2.1 Local auditor offices and local client portfolios

Empirical and anecdotal evidence indicates that many attributes of the final audit product depend on the local office of the auditor in charge of an engagement (e.g., Francis et al., 1999; Reynolds and Francis, 2000; Ferguson et al., 2003; Francis et al., 2005; Krishnan, 2005; Gaver and Patterson, 2007). Some studies consider differences in the pricing of auditor expertise at the firm-level versus the local office level. For instance, Ferguson et al. (2003) assert that market perceptions and the pricing of industry expertise for Big-N audits in Australia depend primarily on the industry leadership position of the local office of the firm performing the engagement. Similarly, Francis et al. (2005) find that national- and local-level industry leadership jointly affect auditor reputation and pricing among audits performed by the Big-N firms on U.S. publicly traded companies. Other studies in this area recognize the influence of large clients on the operations of local offices but find conflicting evidence. For example, Reynolds and Francis (2000) find that auditors handle influential clients more conservatively, while Gaver and Patterson (2007) find that the relative importance of a client to a local office attenuates auditor oversight over reporting decisions.

Local partners of the Big-N firms usually contract directly with their clients and have primary responsibility for all audit work performed, including overseeing the tasks they relay to other local offices. In addition, local partners play an important role in the client acceptance, retention, and dismissals decisions of a firm. This supports the notion that the local offices of the Big-N firms operate as decentralized, semi-autonomous units (Bell et al., 2002). These conditions, however, pose some challenges to the operations of the Big-N firms. Trompeter (1994) finds that the compensation schemes of the Big-N, by being closely tied to local client retention, may influence the judgment of local office partners. In a related study, Hay et al. (2007) find that audit firms that are more financially integrated (i.e., firms that share their profits across a larger pool of partners) are associated with riskier client portfolios. We expect these conditions to influence the portfolio management decisions of local partners, making the analyses in this study more relevant at the local office level.

2.3 Workload compression and portfolio management

Sweeney and Summers (2002) find that the workload compression demands of the busy season increase employee burnout and depersonalization of auditor commitment. Other behavioral studies find evidence indicating that time budget pressures may lead auditors to perform substandard audit work or engage in dysfunctional behaviors, such as premature sign-offs, superficial reviews of documents, and acceptance of insufficient client explanations (Alderman and Dietrick, 1982; Kelley and Margheim, 1990; Raghunathan, 1991; Willet and Page, 1996; Coram et al., 2004).

Knechel and Payne (2001) find that the audit reports of busy season companies are issued on average 17.34 days later than the audit reports of non-busy season companies, further highlighting the potential role of workload compression on auditor performance. Time budget pressures and the increased utilization of audit staff during the busy season create conditions that can negatively affect the performance of auditors (Tackett, 2004; Nagy and Cenker, 2007). We expect auditors to be more receptive to changes to their busy season client portfolios as their level of workload compression increases. Such changes could contribute to lower the overall risk of a local office and improve the composition of its client set. Therefore, we propose that the likelihood of changes to an auditor's busy season client portfolio relates positively to the level of workload compression.

2.4 Auditor-client misalignment

Studies that investigate the potential triggers of auditor switching among the Big-N firms tend to focus on the relative importance of different risk factors (e.g., Krishnan and Krishnan, 1997; Johnstone, 2000; Johnstone and Bedard, 2003, 2004). However, large but risky companies switching auditors are usually able to engage the services of another Big-N firm (Reynolds and Francis, 2000; Shu, 2000; Landsman et al., 2009). This suggests that factors other than risk management could be the underlying determinants of certain auditor switching transactions. In addition, auditors have an incentive to manage their client portfolios in reaction to changes in their opportunity sets. In some cases, these conditions may lead to a mismatch between a client and its auditors. Shu (2000) develops a measure of auditor-client misalignment and finds that auditor resignations relate positively to misalignment. Lending support to this finding, Landsman et al. (2009) find evidence of increased sensitivity to auditor-client misalignment in the post-Enron period. Similarly, we expect auditors to become more receptive to changes to their busy season client portfolios as the level of auditor-client misalignment in their client sets increases. Such changes could contribute to lower the overall risk of a local office and improve the composition of its client set.

2.5 Auditor risk factors

Prior studies investigating the association between auditor-client realignments and risk generally identify three major sources of auditor risk: earnings manipulation risk (EMR), financial performance risk (FPR), and litigation risk (LR) (Cassell et al., 2010). Earnings manipulation risk entails the possibility that an auditor may fail to detect intentional misstatements in the financial statements of a client. Abbott et al. (2006) find that auditors spend more time performing audits of companies with income-increasing accruals, indicating that clients with higher levels of earnings management place greater demands on the audit resources of their auditors. DeFond and Subramanyam (1998) find that auditor changes tend to be preceded by the reporting of income-decreasing discretionary accruals. Other related studies find evidence supporting the theory that the Big-N firms are more conservative and investors expect auditors to curb the earnings manipulations attempts of managers (Gul et al., 2002; Lai, 2009). Thus, we expect auditors to become more receptive to changes to their busy season client portfolios as the level of earnings management risk in their client sets increases.

Financial performance risk is the risk that a client's economic condition may deteriorate at some point in a foreseeable future (Johnstone and Bedard, 2003; Cassell et al., 2010). This risk is driven by weaknesses in a client's financial condition and can be measured through different financial distress indicators. Prior research indicates that a client's financial condition can affect the evaluation of auditor risk and vice versa (Kreutzfeldt and Wallace, 1986; Palmrose, 1987; Johnstone, 2000). Furthermore, financial risk is a primary determinant of auditors' client acceptance and retention decisions (Choi et al., 2004). Therefore, auditors should be more receptive to changes to their busy season client portfolios as the level of financial risk in their client sets increases.

Litigation risk is the risk of the auditor being sued, even if a quality audit was performed (Cassell et al., 2010). Companies operating in certain industries impose particularly high levels of litigation risk on their auditors (e.g., Ashbaugh et al., 2003; Raghunandan and Rama, 2007). Krishnan and Krishnan (1997) provide evidence of a positive association between litigation risk and auditor resignations, while Geiger et al. (2006) find that the reporting decisions of Big-N firms depend on the litigation risks inherent to their operating environment. Thus, auditors should be more receptive to changes to their busy season client portfolios as the level of litigation risk in their client sets increases.

3 Methodology

3.1 Regression model

We model a local office's decision to make changes to its busy season client portfolio as a function of workload compression, client misalignment, and auditor risk. The dependent variable of interest, BS_PORTF_CH, equals 1 if there are changes to the constituents of the busy season client portfolio of a local office, 0 otherwise. That is, BS_PORTF_CH signals the existence of incoming and outgoing busy season clients. The model is estimated using logistic regression and local offices without changes to their busy season client portfolios serve as baseline condition. The regression equation is as follows:

$$
\begin{aligned}
BS\_PORTF\_CH_{i,t} = \; & \beta_0 + \beta_1 DEC\_WLC_{i,t-1} + \beta_2 MISALIGNED_{i,t-1} + \\
& \beta_3 EMR_{i,t-1} + \beta_4 FPR_{i,t-1} + \beta_5 LR_{i,t-1} + \\
& \beta_6 CLIENT\_SIZE_{i,t-1} + \beta_7 OFFICE\_SIZE_{i,t-1} + \\
& \beta_8 LOCL\_DT_{i,t} + \beta_9 LOCL\_EY_{i,t} + \\
& \beta_{10} LOCL\_KPMG_{i,t} + \Sigma\, \beta_t YEAR_t + \varepsilon_{i,t}
\end{aligned}
$$

where *i* subscripts for local office and *t* subscripts for signoff year. We define data cross-sections according to the year in the auditor's opinion report (i.e., signoff date), instead of the financial statement year. This procedure is intended to eliminate potential timing issues created by audits completed several months after the fiscal year-end date of a company or audits performed by more than one auditor.

The independent variable of interest, DEC_WLC, refers to the concentration of December year-end companies (i.e., busy season companies) in the client portfolio of a local office. We operationalize this variable as the ratio of aggregate audit fees from December year-end clients to total audit fees generated by a local office during a year.[1,2] Higher values for DEC_WLC indicate higher concentrations of December year-end companies in the client portfolio of a local office. We expect a positive association between this variable and the likelihood of client portfolio changes, because local offices with higher levels of workload compression should be more receptive to client changes that may improve the overall composition of their client sets.

We expand the procedures suggested by Shu (2000) to develop a proxy for the overall level of auditor-client misalignment in the client portfolio of a local office. First, we estimate the misalignment model in Shu (2000) and obtain an estimate of the probability that a company should be paired with a Big-N auditor. We then classify auditor-client pairs with predicted probabilities below a predetermined cutoff point as misaligned and auditor-client pairs with predicted probabilities above the predetermined cutoff point

[1] The operationalization of this variable uses methods similar to those in the auditor industry specialization literature (e.g., Francis et al., 1999; Francis et al., 2005).

[2] DEC_WLC should not be interpreted as a measure of resource utilization or available capacity.

as correctly aligned. MISALIGNED is the ratio of audit fees from auditor-client pairs classified as misaligned to total audit fees generated by a local office during a year. Higher values for this variable indicate greater concentrations of misaligned companies in the client portfolio of an auditor, which in turn should be increasing with the likelihood of auditor switching.

To proxy for earnings manipulation risk (EMR), we take the weighted average of the absolute value of the performance-adjusted discretionary accruals of all companies in the client portfolio of a local office (Jones, 1991; Kothari et al., 2005). We use audit fees as weight variable for the calculation of this average. Given that discretionary accruals measure the magnitude of managers' reporting discretions, higher values for EMR imply higher overall levels of earnings management activity among the clients of a local office. We expect a positive association between EMR and the likelihood of client turnover.

To proxy for financial performance risk (FPR), we take the weighted average of the Altman Z-score of all companies in the client portfolio of a local office (Altman, 1968). We use audit fees as weight variable for the calculation of this average. FPR captures the overall level of financial performance risk of the companies in an auditor's client portfolio. Higher values for the Altman-Z score are associated with a lower likelihood of bankruptcy or financial risk. Thus, we multiply the Altman-Z scores by −1 before estimating the FPR variable. Higher values for FPR indicate higher overall levels of financial performance risk in an auditor's client portfolio. We expect a positive association between FPR and the likelihood of auditor switching.

As proxy for litigation risk (LR), we use the ratio of audit fees from clients in litigious industries to total audit fees generated by a local office during a year. Similar to prior research (e.g., Ashbaugh et al., 2003; Raghunandan and Rama, 2007), we identify the following industry sectors as litigious: pharmaceuticals (SIC 2833-2836), computers (SIC 3570-3577), electronics (SIC 3600-3674), retail (5200-5961), and software developers (7370). Higher LR values suggest higher overall levels of litigation risk in an auditor's client portfolio, which should increase the likelihood of auditor switching.

In addition to the auditor risk measures discussed above, we include controls for average client size, local office size, Big-N firm affiliation, and the fixed effects of time. We operationalize CLIENT_SIZE as the mean of the logs of audit fees from all clients of each local office. For OFFICE_SIZE, we use the log of total audit fees from each local office (Francis and Yu, 2009). LOCL_DT, LOCL_EY, LOCL_KPMG, and LOCL_PWC identify the Big-N firm affiliation of the local offices in the sample (Francis and Yu, 2009). The local offices of PWC were randomly selected as the baseline group for the estimation of the regression model. Lastly, YEAR is a set of signoff year indicators, intended to control for structural shifts that may affect the portfolio management decisions of auditors. The variable definitions discussed in this section are listed in Table 1.

3.2 Research sample

We estimate the portfolio-based measures in this study using data from publicly-traded companies in Compustat and Audit Analytics with enough information to estimate the different components of the regression model. Audit Analytics only reports data from SEC registrants; thus, we limit our sample to local offices of the Big-N firms located in U.S. cities. Audit fees, local auditor office identification, Big-N firm affiliation, and signoff year come from Audit Analytics; all other variables come from Compustat. We operationalize each regression model variable separately to maximize the number of company-year observations used in the estimation.

The sample includes observations for years 2004–2007. As shown in Table 2, there are 4,604 unique local office-year observations in the Audit Analytics database. We eliminate 3,010 observations from local offices not affiliated with a Big-N firm and 392 observations from local offices in cities outside the U.S. or in the District of Columbia. We drop an additional 129 local office-year observations due to missing data in Compustat or Audit Analytics. The final sample therefore consists of 1,073 local office-year observations, representing 289 unique local offices.

As discussed in the next section, the sample contains 614 office-year observations from local offices with changes to the constituents of their busy season client portfolios. Untabulated results show that 257 of these observations come from local offices with "expanding" busy season client portfolios (i.e., difference between audit fees from incoming December year-end clients and outgoing December year-end clients is positive); and 357 observations come from local offices with "contracting" busy season client portfolios (i.e., difference between audit fees from incoming December year-end clients and outgoing December year-end clients is negative).

4 Descriptive statistics and regression results

4.1 Descriptive statistics

In Table 3, we present descriptive statistics after we partition the sample into local offices with busy season client portfolio changes (n = 614) and local offices without busy season client portfolio changes (n = 459). The final set of columns reflects all observations in the sample (n = 1,073). Hereafter we refer to local offices with changes to the constituents of their busy season client portfolio as “offices with changes” and to local offices without such changes as “offices without changes.” As depicted in Table 3, offices with changes have higher concentrations of December year-end clients (0.783 vs. 0.754; p-value = 0.096) and higher concentrations of financial risk in their client portfolios (-1.321 vs. -1.642; p-value < 0.001). These offices are also larger than local offices without changes (16.844 vs. 15.649; p-value < 0.001). The firm affiliation indicator variables show that Ernst and Young maintains the largest proportion of local offices with changes (LOCL_EY = 0.290), whereas KPMG maintains the largest proportion of local offices without changes (LOCL_KPMG = 0.296 percent).

Table 4 presents the Pearson correlation coefficients. The correlations among the firm affiliation indicators (i.e., LOCL_DT, LOCL_EY, LOCL_KPMG, and LOCL_PWC) are high and statistically significant; however, these high correlations are an artifact of all observations being distributed among the four different auditor groups represented by the indicators. The correlations between MISALIGNED and the three proxies of auditor risk (i.e., EMR, FPR, and LR) are positive and significant, with values ranging from 20.3 to 25.6 percent. This finding provides some evidence that offices with greater levels of auditor-client misalignment are associated with riskier clients.

4.2 Regression results

Table 5 depicts the regression results of the probability of changes to the constituents of the busy season client portfolio of a local office. The model is estimated using logistic regression and all local office-year observations in the sample (n = 1,073) are included in the estimation. The results indicate that the estimated regression coefficient for DEC_WLC is positive and significant, providing evidence that the likelihood of changes to the busy season client portfolio is increasing with the level of workload compression. We posit that this association could be an indication of client dissatisfaction resulting from customer service deficiencies or insufficient marketing efforts by the busiest offices of a firm. In addition, there are factors associated with the demand and supply for auditing services that could help further explain this finding. For instance, a company may decide to switch auditors to benefit from lower audit fees from another Big-N auditor or from a non Big-N firm. Certain regulatory changes during the sample period may have also contributed to an increase in the incidence of auditor switching, particularly among December year-end companies. These changes include the accelerated filing requirements of the SEC, and the mandatory audit partner rotations and stricter independence requirements of SOX. We explore other alternative explanations to this finding in the robustness tests section.

The estimated coefficients for MISALIGNED, EMR, and FPR are positive and significant. This indicates that the likelihood of changes to the busy season client portfolio is higher when a local office experiences higher levels of auditor-client misalignment, earnings management risk, and financial risk. However, the estimated coefficient for LR is not significant. The regression results for the other control variables in the model indicate that the likelihood of changes to the busy season client portfolio is significantly lower among local offices with larger clients (CLIENT_SIZE), but significantly greater among larger local offices (OFFICE_SIZE). None of the firm affiliation indicators (i.e., LOCL_DT, LOCL_EY, and LOCL_KPMG) is statistically significant.

There are 357 office-year observations in the sample coming from local offices with "contracting" busy season client portfolios (i.e., the difference between audit fees from incoming December year-end clients and outgoing December year-end clients is negative). This represents 33.27 percent of all observations in the sample. We posit that the relatively large number of the observations from local offices with a net decrease in the size of their busy season client portfolios could be a reflection of auditors' reaction to significant changes in regulation during the sample period; namely, SOX and the accelerated filing requirements of the SEC. To better understand the role of workload compression on the portfolio management decisions of auditors beyond this unique event in the U.S. environment, we eliminate local offices with expanding busy season portfolios from the sample (n = 257). This procedure reduces the sample to 816 office-year observations. We then define the dependent variable in this reduced sample regression, BS_PORTF_DECR, as an indicator that takes a value of 1 if the difference between audit fees from incoming December year-end clients and outgoing December year-end clients is negative, 0 otherwise. Local offices without changes to their busy season client portfolios serve as baseline condition.

Table 6 presents the results for the reduced sample regression. The interpretation and significance of the regression coefficients remain qualitatively similar to Table 5 but two key differences are worth noting. First, the estimated regression coefficient for MISALIGNED is now significantly larger, providing evidence that auditor-client misalignment could be a more important portfolio management factor for local offices with contracting busy season client portfolios. Second, the estimated coefficient for EMR is no longer significant. This could be an indication of differing risk priorities among local offices with contracting busy season client portfolios.

4.3 Robustness tests

We perform several tests to examine the robustness of the results. The dependent variable of interest, BS_PORTF_CH, conditions on whether there are changes to the constituents of the busy season client portfolio of a local office. Under certain conditions, this variable may fail to capture the true extent or direction of the portfolio management activities of an office. For example, the switching activity of an office could be associated with several small clients or with only one large client. To address this issue, we develop two alternative versions of the BS_PORTF_CH variable. The first variation is the log of the net change in audit fees from incoming and outgoing busy season clients; the second variation is the log of the net change in the number of incoming and outgoing busy season clients. Given that local offices with relatively small portfolio changes could be following a client replacement strategy, we also eliminate local offices with changes of less than 5 and 10 percent. The significance and interpretation of the regression results remain qualitatively unchanged after these alternative definitions of BS_PORTF_CH.

In our discussion of Table 5, we posit that the positive association between workload compression and auditor switching is an indication of client dissatisfaction resulting from customer service deficiencies or insufficient marketing efforts by the firm due to the competing demands of the busy season. Although most plausible explanations to this finding are rooted on auditor-related factors, client dismissals could also result from extraneous conditions beyond the control of auditors (e.g., auditor switching occurs as a result of a merger or acquisition transaction). To account for the potential influence of these client-motivated dismissals, we estimate the regression model using an alternative version of BS_PORTF_CH that equals 1 if there are changes to the constituents of the busy season client portfolio of a local office originating from client dismissals, 0 otherwise. The regression results remain significant and in the expected direction.

Another concern is the possibility of significant changes in the operations of continuing clients that could affect the level of workload compression. For example, a continuing December year-end client may double in size after a significant merger or acquisition transaction, but the auditor makes no changes to the constituents of its client portfolio. We address this concern by estimating an OLS version of the regression model with the percentage of change in total busy season fees (i.e., audit fees from continuing and non-continuing busy season clients) as dependent variable. The estimated regression coefficients for DEC_WLC, MISSALIGNED, and most of the auditor risk factors remain positive and significant.

Lastly, local offices with a non-December busy season (i.e., offices whose highest level of workload compression is not in December) could bias the results of this study. Approximately 16.2 percent of the observations in the sample come from local offices with a non-December busy season. To investigate whether the documented results are robust to this condition, we add an indicator to the main regression model that indentifies local offices with a non-December busy season; we also eliminate these offices from the sample. None of these tests alter the interpretation of the estimated coefficients for DEC_WLC or MISALIGNED. However, the significance of some of the estimated coefficients for the portfolio risk factors increase when we estimate the models using the reduced sample. As an additional robustness check, we re-estimated the models after including January year-end companies as part of the busy season period. The interpretation of the results remains unchanged.

5 Conclusions

Most companies across the globe select the same fiscal year-end date, usually December 31, due to local laws or customary business practices. This creates a condition known to auditors as the *busy season*. This study examines the impact of auditor workload compression on the likelihood of changes to the busy season client portfolio of the local office of an audit firm. Prior archival studies recognize the potential impact of the busy season under the assumption that the concentrated demands of this period increase the likelihood of auditor switching. However, formal empirical evidence directly investigating the topic is rather limited. The reporting and filing requirements of auditors have increased considerably over recent years (i.e., IFRS, SOX, accelerated filing). In contrast, recent technological advances and the development of new auditing techniques have improved the efficiency of auditors. These opposing forces create a need for new evidence about the current role of workload compression on the portfolio management decisions of auditors. This study represents an early attempt to address this need. As additional contributions, our regression model considers the local offices of the Big-N firms as the unit of analysis, and we develop methods that directly describe the overall composition of an auditor's client portfolio.

Using a sample of 1,073 local office-year observations for 2004–2007, we find evidence of a positive association between workload compression and the likelihood of changes to the constituents of the busy season client portfolio of a local office. The results lend support to our expectation that the likelihood of busy season client turnover is increasing with the concentration of companies with a December year-end date in an auditor's client portfolio. We also find evidence of a positive association between auditor-client misalignment and the likelihood of busy season client portfolio changes. The results for the auditor risk proxies are generally consistent with prior studies, in support of the notion that auditors with greater levels of risk in their client portfolios are more likely to engage in busy season client turnover.

We encourage additional research that investigates the effects of workload compression on auditor switches, as well as on auditor performance and behavior. In particular, we encourage research that investigates how the factors we examine in this study affect the performance of the non-Big-N firms, given that these firms are an increasingly important but poorly understood sector of the audit market. Future research that considers additional supply-side determinants of auditor performance and the risk management strategies of auditors may benefit from the portfolio methods developed herein.

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Table 1: Variable definitions

BS_PORTF_CH = 1 if there are changes to the constituents of the busy season client portfolio of a local office, 0 otherwise. This variable signals the existence of incoming and outgoing busy season clients.

BS_PORTF_DECR = 1 if the difference between audit fees from incoming December year-end clients and outgoing December year-end clients is negative, 0 otherwise.

DEC_WLC = ratio of aggregate audit fees from December year-end clients to total audit fees generated by a local office during a year.

MISALIGNED = ratio of audit fees from auditor-client pairs classified as misaligned to total audit fees generated by a local office during a year. Consistent with Shu (2000):

$$BIG\_N = \alpha + \beta_1 SIZE_t + \beta_2 ACQUISITION_t + \beta_3 EX\_FINANCE_t + \beta_4 PROFITABILITY_t + \beta_5 MKT\_BK_t + \varepsilon_t$$

EMR = weighted average of the absolute value of performance adjusted discretionary accruals of all companies in the client portfolio of a local office (weighted by audit fees). Performance-adjusted discretionary accruals are estimated as follows:

$$TA_t/ASSETS_{t-1} = \alpha + \beta_1 1/ASSETS_{t-1} + \beta_2(\Delta SALES_t - \Delta AR_t)/ASSETS_{t-1} + \beta_3 PPE_t/ASSETS_{t-1} + \beta_4 ROA + \varepsilon_t$$

FPR = weighted average of the Altman Z-score of all companies in the client portfolio of a local office (weighted by audit fees). The Altman Z-score, with Shumway's (2001) coefficients, is estimated as follows:

$$Z\text{-}SCORE = [1.2(CA-CL)/TA + 0.6(RE/TA) + 10.0(EBITA) + 0.05(MVEQ/TL) + 0.47(SALES/TA)](-1)$$

LR = ratio of audit fees from clients in litigious industries (SIC 2833-2836, 3570-3577, 3600-3674, 5200-5961, and 7370) to total audit fees generated by a local office during a year.

CLIENT_SIZE = mean of logs of audit fees from all clients of each local office.

OFFICE_SIZE = log of total audit fees from all clients of each local office.

LOCL_DT = 1 if local office-year observation pertains to a local office of Deloitte and Touche, 0 otherwise.

LOCL_EY = 1 if local office-year observation pertains to a local office of Ernst and Young, 0 otherwise.

LOCL_KMPG = 1 if local office-year observation pertains to a local office of KPMG, 0 otherwise.

LOCL_PWC = 1 if local office-year observation pertains to a local office of PricewaterhouseCoopers, 0 otherwise.

YEAR = set of year dummies, by signoff year.

Table 2: Sample construction

	Local office-year observations
Total unique local office-year observations available in Audit Analytics for signoff years 2004 through 2007	4,604
Less: local offices not affiliated with a Big-N firm	(3,010)
Less: local offices in cities outside the United States or in the District of Columbia	(392)
Less: local office-year observations missing data in Compustat or Audit Analytics	(129)
Final sample	**1,073**

Table 3: Descriptive statistics

Variable	*Local offices with busy season portfolio changes (n = 614)* Mean	Median	STD	*Local offices without busy season portfolio changes (n = 459)* Mean	Median	STD	*t-test p-value*	*All observations (n = 1,073)* Mean	Median	STD
DEC_WLC	**0.783**	0.821	0.181	**0.754**	0.868	0.258	0.096	**0.776**	0.833	0.217
MISALIGNED	**0.078**	0.032	0.140	**0.074**	0.005	0.163	0.641	**0.076**	0.023	0.150
EMR	**0.062**	0.056	0.037	**0.058**	0.044	0.051	0.148	**0.060**	0.051	0.044
FPR	**-1.321**	-1.463	1.249	**-1.642**	-1.637	1.247	<.001	**-1.458**	-1.546	1.258
LR	**0.155**	0.101	0.177	**0.153**	0.030	0.237	0.866	**0.154**	0.073	0.205
CLIENT_SIZE	**13.828**	13.876	0.802	**13.897**	13.960	0.908	0.192	**13.858**	13.918	0.849
OFFICE_SIZE	**16.844**	16.929	1.330	**15.649**	15.684	1.182	<.001	**16.333**	16.318	1.399
LOCL_DT	**0.223**	0.000	0.417	**0.248**	0.000	0.433	0.337	**0.234**	0.000	0.424
LOCL_EY	**0.290**	0.000	0.454	**0.214**	0.000	0.410	0.004	**0.257**	0.000	0.437
LOCL_KPMG	**0.261**	0.000	0.439	**0.296**	0.000	0.457	0.198	**0.276**	0.000	0.447
LOCL_PWC	**0.226**	0.000	0.419	**0.242**	0.000	0.429	0.556	**0.233**	0.000	0.423

Variables are as defined in Table 1.

Table 4: Correlations

	DEC _WLC	MIS ALIGNED	EMR	FPR	LR	CLIENT _SIZE	OFFICE _SIZE	LOCL _DT	LOCL _EY	LOCL _KPMG	LOCL _PWC
DEC_WLC	**1.000**	-0.039	-0.059	0.075	-0.227	0.186	0.034	-0.023	-0.127	0.082	0.067
		0.202	0.053	0.014	<.0001	<.0001	0.267	0.453	<.0001	0.007	0.027
MISALIGNED	-0.039	**1.000**	0.234	0.203	0.256	-0.192	-0.106	-0.046	0.048	0.089	-0.097
	0.202		<.0001	<.0001	<.0001	<.0001	0.001	0.129	0.117	0.004	0.001
EMR	-0.059	0.234	**1.000**	0.163	0.209	-0.067	0.003	-0.074	0.044	-0.004	0.033
	0.053	<.0001		<.0001	<.0001	0.029	0.915	0.015	0.150	0.896	0.278
FPR	0.075	0.203	0.163	**1.000**	0.074	-0.053	0.021	0.011	-0.001	0.040	-0.051
	0.014	<.0001	<.0001		0.016	0.081	0.487	0.722	0.963	0.193	0.092
LR	-0.227	0.256	0.209	0.074	**1.000**	-0.075	-0.022	-0.133	-0.005	0.118	0.014
	<.0001	<.0001	<.0001	0.016		0.014	0.463	<.0001	0.858	0.000	0.644
CLIENT_SIZE	0.186	-0.192	-0.067	-0.053	-0.075	**1.000**	0.202	-0.014	-0.086	-0.108	0.217
	<.0001	<.0001	0.029	0.081	0.014		<.0001	0.655	0.005	0.000	<.0001
OFFICE_SIZE	0.034	-0.106	0.003	0.021	-0.022	0.202	**1.000**	-0.006	-0.014	-0.098	0.124
	0.267	0.001	0.915	0.487	0.463	<.0001		0.848	0.643	0.001	<.0001
LOCL_DT	-0.023	-0.046	-0.074	0.011	-0.133	-0.014	-0.006	**1.000**	-0.325	-0.341	-0.305
	0.453	0.129	0.015	0.722	<.0001	0.655	0.848		<.0001	<.0001	<.0001
LOCL_EY	-0.127	0.048	0.044	-0.001	-0.005	-0.086	-0.014	-0.325	**1.000**	-0.363	-0.324
	<.0001	0.117	0.150	0.963	0.858	0.005	0.643	<.0001		<.0001	<.0001
LOCL_KPMG	0.082	0.089	-0.004	0.040	0.118	-0.108	-0.098	-0.341	-0.363	**1.000**	-0.340
	0.007	0.004	0.896	0.193	0.000	0.000	0.001	<.0001	<.0001		<.0001
LOCL_PWC	0.067	-0.097	0.033	-0.051	0.014	0.217	0.124	-0.305	-0.324	-0.340	**1.000**
	0.027	0.001	0.278	0.092	0.644	<.0001	<.0001	<.0001	<.0001	<.0001	

Variables are as defined in Table 1. Pearson correlation coefficients estimated using all observations in the sample (n = 1,073).

Table 5: Logistic regression of the probability of changes in the busy season client portfolio of a local office

$$\begin{aligned} BS\_PORTF\_CH_{i,t} = {} & \beta_0 + \beta_1 DEC\_WLC_{i,t-1} + \beta_2 MISALIGNED_{i,t-1} + \beta_3 EMR_{i,t-1} + \beta_4 FPR_{i,t-1} \\ & + \beta_5 LR_{i,t-1} + \beta_6 CLIENT\_SIZE_{i,t-1} + \beta_7 OFFICE\_SIZE_{i,t-1} + \beta_8 LOCL\_DT_{i,t} \\ & + \beta_9 LOCL\_EY_{i,t} + \beta_{10} LOCL\_KPMG_{i,t} + \Sigma\, \beta_t YEAR_t + \varepsilon_{i,t} \end{aligned}$$

Variable	*Predicted sign*	*Coefficient estimate*	*P-value*
Intercept	+/-	-5.178	<.0001
DEC_WLC	+	0.938	0.006
MISALIGNED	+	0.708	0.084
EMR	+	2.402	0.093
FPR	+	0.150	0.008
LR	+	-0.013	0.987
CLIENT_SIZE	+/-	-1.214	<.0001
OFFICE_SIZE	+/-	1.322	<.0001
LOCL_DT	+/-	0.134	0.276
LOCL_EY	+/-	0.269	0.109
LOCL_KPMG	+/-	0.244	0.130
YEAR	+/-	(*included*)	

n = 1,073
Pseudo r2 =40.68%
Chi2 = 229.81 (<.001)

Variables are as defined in Table 1. P-values are based on robust standard errors obtained from the asymptotic covariance matrix. One-tailed p-values when signs are reported.

Table 6: Logistic regression of the probability of a net decrease in the size of the busy season client portfolio of a local office – Reduced sample

$$\begin{aligned} BS\_PORTF\_DECR_{i,t} = {} & \beta_0 + \beta_1 DEC\_WLC_{i,t-1} + \beta_2 MISALIGNED_{i,t-1} + \beta_3 EMR_{i,t-1} + \beta_4 FPR_{i,t-1} \\ & + \beta_5 LR_{i,t-1} + \beta_6 CLIENT\_SIZE_{i,t-1} + \beta_7 OFFICE\_SIZE_{i,t-1} + \beta_8 LOCL\_DT_{i,t} \\ & + \beta_9 LOCL\_EY_{i,t} + \beta_{10} LOCL\_KPMG_{i,t} + \Sigma\, \beta_t YEAR_t + \varepsilon_{i,t} \end{aligned}$$

Variable	*Predicted Sign*	*Coefficient Estimate*	*P-value*
Intercept	+/-	-6.767	<.0001
DEC_WLC	+	1.145	0.007
MISALIGNED	+	1.532	0.004
EMR	+	0.241	0.459
FPR	+	0.157	0.018
LR	+	0.355	0.226
CLIENT_SIZE	+/-	-1.401	<.0001
OFFICE_SIZE	+/-	1.547	<.0001
LOCL_DT	+/-	0.069	0.398
LOCL_EY	+/-	-0.141	0.292
LOCL_KPMG	+/-	0.266	0.145
YEAR	+/-	(*included*)	

n = 816
Pseudo r2 =46.53%
Chi2 = 185.58 (<.001)

Variables are as defined in Table 1. P-values are based on robust standard errors obtained from the asymptotic covariance matrix. One-tailed p-values when signs are reported.