

The Impact of Mandatory Auditor Tenure Disclosures on Tax Services

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Track: Accounting and Auditing

Master thesis in

Accounting, Auditing & Control

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Abstract: The first year of the auditor-client relationship must be disclosed in the audit report because of recent changes to Auditing Standard (AS) 3101. Auditors, clients, and several PCAOB members expressed doubts about the requirement of tenure disclosures throughout the standard's deliberations. They were especially concerned about reporting tenure in the audit report. The intention of this study is to determine if tenure disclosures, which AS 3101 requires, are linked to changes in tax service fees. It is anticipated that following the implementation date, clients with long-tenured auditors will see an increase in recurring tax service fees relative to short-tenured auditors. The relative increase in recurring tax service fees for long-tenured auditors is significant and is according to the expectations, although it is sensitive to extra tests. It is also predicted but rejected that nonrecurring tax service fees do not significantly change following the amendment between long-tenured and short-tenured auditors. Overall, research indicates that the requirement to provide the auditor's tenure in the audit report has a considerable impact on tax service fees. The PCAOB should carefully consider the findings when determining whether AS 3101 is serving the stated purpose.

Keywords: auditor tenure, PCAOB, NAS, recurring tax service fees, nonrecurring tax service fees, mandatory disclosure

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1. Introduction

In 2016, the Public Company Accounting Oversight Board (PCAOB) stated that investors were supportive of disclosing auditor tenure in the audit report since it highlights relevant information of how long the current auditor is in service (PCAOB, 2016). By disclosing the information, search costs can significantly be decreased, the PCAOB reasons. Consequently, the PCAOB changed Auditing Standard (AS) 3101 (*The Auditor's Report on an Audit of Financial Statements When the Auditor Expresses an Unqualified Opinion*). This important amendment of AS 3101 involved the requirement that the audit report indicates the year in which the audit firm started to consecutively serve as the firm's auditor (PCAOB, 2017). However, besides the assumed benefit of decreased searching costs for investors, a negative consequence could be that the disclosure may cause financial statement users to make unfounded conclusions regarding the association between auditor tenure and audit quality, a concern shared by companies, auditors and some regulators (Dunn et al. 2021).

The fear by stakeholders, such as investors, for impaired auditor independence and reduced audit quality is not new. The Sarbanes-Oxley Act (SOX) is another regulation implemented to address these issues. For instance, when concerns arose among regulators regarding auditor independence due to its provision of non-audit services (NAS), SOX prohibited nine categories of NAS provided by audit firms to its audit clients (Ling, 2023). The fact that SOX addresses the potential threat of NAS to auditor independence has its roots in NAS's growth in importance relative to audit services for the major accounting firms (Shi et al., 2021). In contrast, Bell et al. (2015) state that total NAS fees are positively associated, due to knowledge spillovers. Moreover, regarding auditor tenure, Bell et al. states that audit quality decreases as auditor tenure is very long. The connections between NAS purchases, auditor independence, audit quality and auditor tenure are more elaborately explained when NAS is reduced to tax services, as suggested by Paterson et al. (2011) that stated that additional insights could be gained when distinguishing certain types of NAS.¹

Tax services are unique among NAS due to, for instance, the effect it can have on public policy in terms of their potential impact on tax equity (Habib, 2012). SOX is one example of the impact on public policy but the PCAOB also changed its regulations when it comes to auditor-provided tax services (APTS). In 2006, the PCAOB restricted APTS by prohibiting U.S. public accounting firms from (1) performing tax services on a contingent fee basis (Rule 3521); (2) assisting a client with confidential or aggressive tax transactions (Rule 3522); and (3)

¹ NAS purchases and NAS fees are used interchangeably.

providing executives in a financial reporting role with tax services (Rule 3523) (PCAOB, 2005). This change in regulation and the effects of it on auditor independence and audit quality has been the topic of several studies (Ling, 2023; Lennox, 2016; Paterson and Valencia, 2011). For example, Paterson and Valencia (2011) studied the impact of two different types of tax services and other NAS on auditor independence. When firms engage in tax purchases, they engage in either recurring or nonrecurring tax services.² Besides distinguishing NAS in *Tax*, *Assurance*, and *Other* (Shi et al., 2021) as the importance of it is described by Paterson and Valencia (2011), APTS can also be divided in recurring and nonrecurring, as stated before. Recurring tax services mostly consist of tax compliance and nonrecurring tax services mostly consist of tax consulting (Paterson and Valencia, 2011).

Furthermore, NAS increases the financial dependence of the audit firm on the client, since NAS purchases tend to grow (Parkash and Venable, 1993). This phenomenon is called economic bonding. The expenditures that arise from economic bonding is explained by the agency theory since it is part of agency costs, according to Jensen and Meckling (1976). Audit clients have an incentive to cut down on the NAS purchases because of the agency costs imposed when an auditor's monitoring value is decreased (Parkash and Venable, 1993). Since tax services are the largest component of NAS and are the most unique, it will be studied how the agency theory intervenes (Shi et al., 2021; Habib, 2012). Due to the fact, mandatory auditor tenure disclosure can have different effects on the two components (i.e., recurring and nonrecurring) of tax services, the impact will be measured separately for both. Moreover, it is hypothesized that the regulation might have no impact on nonrecurring tax services due to its small contribution to overall NAS, contrasting to recurring tax services which is hypothesized to have an effect (Parkash and Venable, 1993).

The results indicate a significant increase in recurring and nonrecurring tax service fees against long-tenured auditors following mandatory auditor tenure disclosure for a sample selection of over 3,000 client-year observations between 2014 and 2019. In a univariate setting, a decrease of 0.454 and an increase of 0.317 in recurring tax service fees against auditors with short tenure and long tenure respectively. The increase for long-tenured auditors is greater than for short-tenured auditors. More evidently, the multivariate setting shows that the prediscloure period compared to the postdisclosure period the increase in recurring tax service fees is significantly greater for long-tenured auditor-client relationship than for the short-tenured auditor-client relationship. Thus, these findings suggest that auditor tenure disclosure affects

² Tax services, tax fees, and tax purchases are used interchangeably.

recurring tax service fees. With regards to the univariate test conducted for nonrecurring tax service fees, a decrease of 0.262 and an increase of 0.032 against auditors with short tenure and long tenure respectively is found. The increase for long-tenured auditors is greater than for short-tenured auditors. More evidently, the multivariate setting shows that the prediscloure period compared to the postdisclosure period the increase in recurring tax service fees is significantly greater for long-tenured auditor-client relationship than for the short-tenured auditor-client relationship. Thus, contrarily to expectations, these findings suggest that auditor tenure disclosure affects nonrecurring tax service fees. The conclusion is that the auditor tenure disclosure incentivize auditors to increase recurring tax service fees for long-term clients and that these clients assume the costs of finding a new auditor for their tax related matters to be greater than the consequences of the disclosure requirement.

Robustness checks that were conducted provided interesting insights. First, it is tested whether removal of the *Post* variable and replacing industry fixed effects by client and year fixed effects impacts the results. *TaxNon* is not sensitive to the test but *TaxRecurr* is. Thus, it appears that *TaxRecurr* results may be considered ambiguous. The fact that the adjusted R-squared improved for both, indicates that more variation is explained by the factors and fixed effects used in the robustness test. The same conclusion applies to the next robustness test, which excluded financial firms and firms that changed auditors in the analysis. Once again, the R-adjusted squared improved. Nonetheless, the original analyses, according to Dunn et al. (2021), remained significant for both. Only *TaxNon* was even more supported by the extra tests.

The study contributes to the literature examining the relationship between auditor tenure and tax services. The study ought to add to ongoing discussions on the length of an auditor's contract and tax service charges. Tax service fees, both recurring and nonrecurring, are impacted by the compulsory disclosure of auditor tenure. Additionally, it demonstrates that the major component of NAS, the tax service connection, is also impacted by the AS amendment in addition to the audit relationship between the audit firm and client. Given that there was little to no earlier research on the subcomponent of NAS related to auditor tenure, the contribution to nonrecurring tax service fees is thought to be of major importance.

The study also contributes to literature by attempting to answer the question asked by Dunn et al. (2021) whether investors are better off by the disclosure requirement. Since it is a possibility that PCAOB implemented the rule indirectly decrease the number of long-tenured auditor-client relationships, the new amendment will not realize this but rather prolong the already existing relationship. Thus, in the context of tax services, investors are not better off.

2. Literature Review and Hypothesis Development

2.1. Auditor tenure and the regulatory environment

Investors, regulators, and academics have been debating auditor tenure for decades. The amendment of AS 3101 by the PCAOB is a part of this debate which resulted in positive and negative views regarding the change (Dunn et al., 2022). The main reason for the addition of the disclosure of auditor tenure in the audit report is to minimize the search costs for investors that claim that the information is of added value (PCAOB, 2016). According to Dunn et al., however, an unintended consequence may arise that a relation is implied between auditor tenure and audit quality, since auditor independence might be impaired. The perceived threats to audit quality and auditor independence are related to two long-established issues: (1) social bonding (becoming personally friendly with the client management or having more faith in them) and (2) economic bonding (becoming financially dependent on the client) (Bell et al., 2015). These concerns and its relations to audit quality and auditor independence might only reinforce uncertainties about the PCAOB's intentions for the amendment (Dunn et al., 2022).

Actions by the PCAOB in the past show that the Board has implemented rules before to ensure auditor independence and a high level of audit quality. For example, on July 25, 2005, PCAOB indicated that they would not ban auditors from performing all tax services for their clients, but to only exclude certain tax services that are more likely to be problematic (Omer et al., 2006). PCAOB (2005) stated it was done to encourage the ethics and independence of registered public accounting firms. Regarding audit quality, it is the PCAOB's primary mission to ensure that auditors of public companies provide high-quality audit reports, which are, amongst other factors, independent. It is, therefore, a justified assumption that the PCAOB might have other intentions than only decreasing search costs for investors.

Besides PCAOB's decisions causing a change in regulations and consequently auditor tenure, the Securities and Exchange Commission (SEC) indirectly participated in change in aforementioned regulations. In 2002, SOX was introduced, to increase audit quality after a series of financial scandals (Omer et al. 2006). The authors explain that SOX caused a period of change in the regulatory climate for NAS and for tax services. Auditor tenure is affected by means of the decrease in association between audit and tax service fees which is caused by new and relatively short-tenure clients discontinuing tax services, services conducted by longer-tenure auditors, on the other hand, were continued despite growing pressure by regulators to purchase tax services elsewhere (Omer et al., 2006).

Although there is a decrease in association between audit and tax service fees, Dunn et al. conclude that there are predisclosure (i.e., before the amendment) relationships between

auditor tenure and audit fees, but these associations are mostly found for long-term engagements. Tax services could have an effect on the finding by Omer et al., especially since the research of Dunn et al. did not separately control for tax fees, but for total NAS. Dunn et al. controlled for NAS due to economic bonding which leads to a loss of audit quality. However, Bell et al. (2015) found no evidence that NAS results in a loss of audit quality (for SEC registrants). Contrarily, they find some evidence that NAS are positively related to audit quality for (SEC registrants). In light of potential audit quality decrease and auditor independence impairment, Dunn et al. discovered that mandatory tenure disclosure has a negative effect for long-term relationships relative to short-term relationships.

2.2. Tax services within the NAS context

Well before the implementation of SOX, provision of both audit and NAS by audit firms to the same client were a hot topic. In the 1970s members of Congress raised the issue (DeBerg et al., 1991). The impact SOX had on the provision of NAS is shown by research conducted by Shi et al. (2021). They conclude that before and after the introduction of SOX audit committee (AC) interlocked firms (when a director on a firm's AC also holds a directorship on the board of any other firm) have similar NAS purchasing behaviors. Therefore, concerns about impaired auditor independence may have merit. The importance of the AC and its influence on NAS purchases lies in the fact that the AC has to approve it in advance, which shows the relevance of investigating the effect of AC interlocks (Cook et al., 2020). Moreover, AC members could be aware that potential knowledge spillovers from NAS can improve audit effectiveness and consequently decrease audit fees (Shi et al., 2021).

Nine types of NAS are prohibited by SOX, such as bookkeeping and actuarial services (SEC, 2003). Certain types of NAS remain allowed. In spite of these prohibitions, NAS has grown in relevance when compared to audit services for the large accounting firms (Shi et al., 2022). SEC (2003) explicitly mentions in Section 201 of SOX that tax services are allowed, if approved by the firm's AC. Out of three types of NAS (fees), categorized by Shi et al. as *Tax*, *Assurance*, and *Other*, *Tax* has been the largest component of NAS fees throughout 2000 to 2016, with *Assurance* being a close second (Shi et al., 2021). Bell et al. (2015) agree by saying that the proportion of tax fees to total NAS fees is the largest. They used, however, other categorizations when splitting the total NAS in different components, such as management advisory services and client mergers and acquisitions, which might be categorized in *Assurance* and *Other* for Shi et al.. Nonetheless, categorizing tax (fees) separate shows its importance

within NAS (e.g., Shi et al., 2021; DeBerg et al., 1991; Bell et al., 2015; Habib, 2012; Beardsley et al., 2021; Parkash and Venable, 1993).

The evident relevance of partitioning NAS fees is mainly caused due to the mandate by the SEC requiring it to be disclosed, suggesting that it is informative to know (Paterson and Valencia, 2011). The usefulness of knowing the amount of tax services fees is apparent from the number of studies done on tax services and audit quality, earnings quality, tax avoidance, auditor independence, and knowledge sharing (Lennox, 2016; Omer et al., 2006; Ling, 2023; Cook et al., 2020; Hux et al., 2023). More importantly, Habib (2012) says that tax services are unique among NAS due to (1) a need for consistent application of detailed tax laws; (2) the discretion tax authorities have to audit any tax return; (3) a direct and immediate effect tax services have on client income and cash flows through tax rate reduction; (4) the effect tax services can have on public policy by means of their potential effect on tax equity; and (5) a broad range of tax services that have been historically provided to their audit clients by accounting firms.

Regarding the importance of the AC, Ling (2023) state that AC effectiveness plays an essential role in mitigating the negative effect of tax services on earnings quality and it decreases aggressive tax planning. Nonetheless, auditor independence remains an important concept in aforementioned studies and shows that tax services as part of NAS affects auditor independence and ultimately audit quality (Cook et al., 2020).

2.3. Hypotheses development

The importance of splitting NAS into different types, such as *Tax*, *Assurance*, and *Other*, is stated by Kinney et al. (2004). Schneider et al. (2006) adds that when conducting research, recurring and nonrecurring engagements should be distinguished to see how each separately interacts with, for example, auditor independence. Parkash and Venable (1993) say it is important to distinguish between recurring and nonrecurring NAS because the frequency of NAS is expected to show knowledge spillovers from joint engagements and the magnitude of economic bonding between the auditor and the client.³ With regards to auditor tenure, DeBerg et al. (1991) conclude, based on the total of recurring and nonrecurring NAS purchased by firms changing auditors versus non-changing firms, that they could not lend support to the claim that audit firms will be more likely to retain NAS purchasers as clients, which would be in support of a longer auditor tenure. Moreover, following the change of auditors the level of NAS

³ Parkash and Venable (1993) only recognize recurring tax and not nonrecurring tax in NAS, due to its small contribution to total tax services.

performed by the auditor decreased. Beck et al. (1988) state that higher NAS fees are associated with longer tenure for some types of service.⁴

By making the auditor's tenure and any conflicts of interest more transparent, the mandatory auditor tenure disclosure regulation hopes to improve shareholders' understanding of the auditor's independence and objectivity. The quality and effectiveness of financial reporting may be impacted if auditors are less eager to offer non-audit services to their audit clients as a result of this disclosure requirement, which may have unforeseen effects. Therefore, by examining the potential conflicts of interest and incentives faced by auditors and their clients, as well as how these factors can affect the quality of financial reporting, agency theory is applied to analyze the impact of mandatory auditor tenure disclosure on non-audit services. According to Parkash and Venable (1993), agency theory suggests that auditees have an incentive to decrease NAS purchases since agency costs are imposed when an audit's monitoring value is minimized. Furthermore, the theory explains that agency incentives are expected to significantly affect the client's decision to purchase recurring NAS due to the fact that the auditor's income from a recurring service can be seen as an annuity. A nonrecurring service, on the other hand, provides future knowledge spillovers and incremental economic bonding, which is minimal.

Since tax services are part of NAS, the reasoning regarding the application of the agency theory is applicable to recurring and nonrecurring tax services as well. Paterson and Valencia (2011) say that recurring tax services are more likely to consist of tax compliance while nonrecurring tax services are more likely to consist of tax consulting. The authors also mention that the distinction between recurring and nonrecurring tax services is important for empirical research, as stated as well by Paterson and Valencia (2011). Beck et al. (1988), for example, assumed that all tax services were considered recurring services and not nonrecurring. Although it is true that most tax services are recurring in nature and other NAS has a more balanced recurring and nonrecurring ratio (Parkash and Venable, 1993). This claim is supported by the fact that recurring taxes consists of annual taxes a firm has to pay and nonrecurring taxes are based on occasional events such as the sale of assets or mergers and acquisitions. The nature of the occurrence of these tax events results in the possibly needed tax services: recurring (tax compliance) and nonrecurring (tax consulting).

DeBerg et al. (1991) state that high consumers of NAS, disregarding whether NAS is recurring or nonrecurring, are less likely to change auditors and consequently decreasing

⁴ Beck et al. (1988) management advisory services (MAS) instead of NAS. MAS and NAS are used interchangeably.

auditor tenure. For recurring NAS, on the other hand, firms are more likely to reduce the use of it when they change auditors and consequently decreasing tenure. Omer et al. (2006) suggest that tax services provided by auditors were reduced among new or short-tenure clients. Discrediting that, according to Beck et al. (1988), tax services have no association with auditor tenure. The different conclusion by Beck et al. could be explained by the fact that they assumed that NAS fee types are synonymous with either recurring or nonrecurring engagements.

Recurring NAS services are associated with higher tenure and increased bonding (Beck et al., 1988). Moreover, DeBerg et al. (1991) claim that firms' recurring nonaudit services consumption are reduced following the change in auditors. By the support that Omer et al. (2006) find, that tax services provided by auditors are reduced among new or short-tenure clients, it is derived that the mandatory auditor tenure disclosure will result in higher recurring tax service fees. This claim is justified since Dunn et al. (2021) conclude that long-tenured auditors are more likely to be dismissed. Consequently, audit firms increase recurring tax service fees to show the value of the service and to profit the most before potential termination. The prediction leads to the following hypothesis in alternative form:

H1: *Recurring tax services fees will increase for long-tenured auditors relative to short-tenured following the mandatory tenure disclosure requirement.*

Nonrecurring tax services are the smaller component of tax services in general, due to occasional usage of the service compared to, for example, annual income taxes. Parkash and Venable (1993) say that agency costs do not explain the number of nonrecurring services purchased from the auditor. Paterson and Valencia (2011) say that nonrecurring tax services have a negative effect on auditor independence. Thus, the importance of the nature of nonrecurring tax services is relatively small compared to recurring tax services but it can have an impact on auditor independence. Moreover, the lack of evidence of confirmed relationships between auditor tenure and NAS is of influence as well. Therefore, the following hypothesis is composed in null form:

H2: *Nonrecurring tax services fees will have no effect for long-tenured auditors relative to short-tenured auditors following the mandatory tenure disclosure requirement.*

Auditor independence and audit quality remain important concepts during this study regarding tax services which is part of NAS. The hypotheses could, therefore, show how the amendment of the AS impacts not only the audit services provided by audit firms but also the NAS component. After all, Cook et al. (2020) state that an external shock (SOX) could increase

the auditor independence, since auditors are dismissed in providing tax services, not taking into account recurring and nonrecurring tax services. By conducting this research, testing the hypotheses will tell whether the external shock, mandatory auditor tenure disclosure, has an effect on tax services as well.

3. Research Design

To investigate tax services reactions to mandatory auditor tenure disclosure, the following ordinary least squares regression model is estimated, adapted from Dunn et al. (2021):⁵

$$APTS = \beta_0 + \beta_1 LongTenure * Post + \beta_2 LongTenure + \beta_3 Post + Controls + IndustryFE + \varepsilon, \quad (1)$$

where *APTS* represents a substitute for the two dependent variables. First, tax services reactions are examined utilizing *TaxRecurr*, which is defined as the natural log of tax NAS fees provided by the auditor if the auditor provides tax NAS to the client in the current and consecutive year, and zero otherwise. Next, *TaxNon* is investigated, which is the natural log of tax NAS fees provided by the auditor if the auditor provides tax NAS to the client in the current year but not in the consecutive year, and zero otherwise.⁶ To decide whether the tax services recur decreases the loss of data and minimizes survivorship bias, a two-year window is used.⁷ The two-year window starts in the financial year being investigated using that year's tax services fee and the consecutive year's tax services fee to decide whether fees for a given financial year recur. Clients that pay their auditor for tax services during the given investigation year and for the same tax services during the next consecutive financial year are marked as having a recurring fee for tax services. A nonrecurring engagement for that service exists for clients that pay a fee in the current year but do not retain their auditor for the same tax services in the next year. If a client does not pay its auditor for tax services in the current year, it is marked as zero for both the recurring and nonrecurring variables and has neither a recurring nor nonrecurring relationship in the given year.

A single Indicator, *LongTenure*, which takes the value of one, if auditor tenure exceeds the median value in year *t*. *Post* is equal to one if the client's financial year-end is on or after the 15th of December, 2017, and zero otherwise. The primary coefficient of interest is β_1 . H1

⁵ Dunn et al. (2021) uses three equations to study the relationship between mandatory auditor disclosure and stakeholder response. For this particular research question, the third equation is chosen due to its effectiveness in differentiating between short tenure and long tenure, with long tenure being more addressed in prior research.

⁶ Variables from Paterson and Valencia (2011).

⁷ Consistent with Beck et al. (1988) and Paterson et al. (2011).

predicts that the coefficient on the variable of interest will be positive with longer tenure when the dependent variable measures recurring tax fees, while H2 predicts that the coefficient on the variable of interest will have no significant effect with longer tenure when the dependent variable measures nonrecurring tax fees.

In the equation, *Controls* represent a vector according to Dunn et al. (2021). For client characteristics is broadly controlled because it includes the log of total assets (*Size*), the ratio of liabilities to assets (*Debt*), profitability (*ROA*, *Loss*), change in stock price (*StockReturn*), and sales growth (*Growth*). Next, there will be controlled for the quality and size of the auditor (*Tier 2*, *Big4*). Material weakness disclosures (*Weak*, (*3 year*), going concern opinions (*Going Concern*), and restatements (*Restate (3 year)*) may all be related to auditor and tax service fee changes, thus for these effects is also controlled. The ownership of institutional investors (*InstOwn*) and the volatility of sales and cash flow (*SalesVol* and *CFOVol*) are control variables that are taken into consideration as well when accounting for ownership and operating complexity. The number of auditor options in the city (*LocAuditorCount*), the percentage of the audit office's portfolio that experienced a restatement announcement in year *t* (*AuditorRestatePct*), and whether the auditor is the industry specialist in the city (*IndustrySpecialist*), are controlled for.⁸ Finally, liquidity (*QuickRatio*) and a dummy variable for clients with December financial year-ends (*DecYE*) are added.⁹ Moreover, two other control variables, that are directly related to taxes, are obtained from Omer et al. (2006) being *DefTax* and *NOL*. *DefTax* measures the relative amount of deferred taxes to total income tax expense. *NOL* controls for the presence of an operating loss carryforward and the absence of pretax income. In addition, *MergerAcq* indicates if the firm engages in a merger or acquisition, *Foreign* indicates if the firm has foreign operations, and *BusSeg* indicates the number of business segments in which the firm engages.¹⁰

Industry fixed effects (2-digit SIC) and robust standard errors are used in the regression estimate.¹¹ All continuous variables are winsorized at the 1% and the 99% level prior to the regression analyses. All variables are defined in Appendix 1.

⁸ Dunn et al. make use of metropolitan statistical area (MSA) but due to limited resources, city is used as location.

⁹ Dunn et al. (2021) state that *Quickratio* and *DecYE* are included due to its common use in fee models.

¹⁰ Dunn et al. and Omer et al. have some overlapping control variables (*MergerAcq*, *Foreign*, and *BusSeg*), but the control variables from Omer et al. are used due to the fact that their research is focused on tax services and therefore more relevant for this study.

¹¹ Dunn et al. state that due to high correlation between fixed year effects and *Post*, fixed year effects are not included. Therefore, fixed year effects are not included in the model as well.

4. Sample Selection

Companies with financial year ends after December 15, 2017, are required by AS 3101 to disclose the auditor tenure (Dunn et al., 2021). Data for company-years between 2014 and 2019 is gathered to support the analysis of predisclosure versus postdisclosure periods. The sample period is truncated to the year in which the COVID-19 pandemic affected the USA.¹²¹³ The sample initially includes 11,772 company-years with legitimate identifiers from Compustat, Audit Analytics, and Thomson/Refinitiv. 4,563 observations with incomplete data are removed. Moreover, companies that drop out of the sample before 2018 as well as companies that begin operations after 2014 are removed to create a balanced panel of 3,378 company-years for the tests of H1 and H2.

[Insert Table 1 here]

Table 1 shows the selection process and the distributional characteristics of the sample. Panel A summarizes the sample selection process and shows how many observations are removed due to incomplete data and firms starting or stopping during the sample period. Panel B displays that there are 563 observations per year in the full sample. The sample has 1,802 predisclosure and 1,576 postdisclosure observations. The postdisclosure sample includes all client years in 2018, 2019 and client years ending on December 31, 2017. This is because the amendments to AS 3101 require disclosure of auditor tenure for fiscal years ending after December 15, 2017. In contrast, the predisclosure sample consists of client years that do not have a calendar year-end in 2017, as well as client years ending on December 31, 2017. Sample distribution by industry is presented in Panel C. Due to simplicity, industry information is presented by 1-digit classification, following Dunn et al. (2021). Nonetheless, industry fixed effects are estimated in the empirical model at the 2-digit level. Consistent with prior research (e.g., Bell et al., 2015; Dunn et al., 2021), manufacturing, construction, and services are the most common industry groupings, with manufacturing being the most prominent. Panel D presents the temporal industry distribution. It provides more evidence that the sample is indeed balanced, not only for firm-year observations but also for industry and its distribution over the sample period.

¹² According to Sadiq and Krever, US tax policies were adjusted due to the COVID-19 pandemic. Consequently, adding years after 2019 would affect the study.

¹³ Dunn et al. truncated their sample period prior to the effective date of CAM disclosures (2019), assuming that it would have an effect on their dependent variables. It is disregarded for tax services fees and therefore 2019 is included in this study.

5. Empirical Results

5.1. Descriptive information

[Insert table 2 here]

Table 2 shows descriptive statistics for the variables used in the analysis. Regarding the dependent variables, the findings show that *TaxRecurr* has a mean value of 8.675 and *TaxNon* has a mean value of 0.470.¹⁴ When looking at the independent variables, a mean value of 0.497 is reported for *LongTenure*, which indicates that more than half of the firm-year observations have an auditor tenure of below the median value for the given year. Consequently, more than half is considered to be short-tenured. Summary statistics for most of the control variables are consistent with Dunn et al. (2011) and Omer et al. (2006).¹⁵

[Insert table 3 here]

Table 3, Panel A, shows correlations between the variables used in the main analysis. The correlation analysis reports that larger firms and firms with Big 4 auditors pay more recurring tax service fees, while regarding nonrecurring tax service fees, larger firms pay less. Moreover, firms that have a net operating loss carryforward and no pretax income and firms that have a larger sales volume pay respectively more and less nonrecurring tax service fees. Even though many of the correlations between control variables are significant at the 0.05 level, the variance inflation factors in the two models are 1.03 (*TaxRecurr*) and 1.37 (*NonTax*), which are not considered to be strongly indicative of multicollinearity (Hair et al., 1995).

Table 3, panel B, shows univariate tests of the two hypotheses. Since the aim of this study is to find out whether firms with long-tenured auditor relationships affect more profoundly tax service fees than firms with short-tenured auditor relationship, it is tested whether auditor-client relationships that are considered long (*LongTenure* = 1) are associated with more recurring tax service fees than auditor-client relationships that are considered short (*LongTenure* = 0). The changes are presented from the predisclosure period to the postdisclosure period for short-tenured and long-tenured auditors. The changes are highlighted in the gray boxes.¹⁶ Panel B shows that the increase in recurring tax service fees (*TaxRecurr*) is larger for long-tenured

¹⁴ This is not comparable to findings of Paterson and Valencia (2011) due to the fact that they did not tabulate descriptive statistics of the log of recurring tax fees and non-recurring tax fees but rather the initial values.

¹⁵ Except for *CFOVol*, *SalesVol*, *DefTax*, *StockReturn*, *Growth*, *MergerAcq*, *AuditorRestatePct*, and *IndustrySpecialist*.

¹⁶ The statistical significance of the change from predisclosure to postdisclosure is presented. The difference is shown in the gray boxes. The gray box numbers represent the differential response to the disclosure for long-tenured versus short-tenured auditors.

auditors relative to short-tenured auditors. Moreover, Panel B presents that the change in non-recurring tax service fees is higher for long-tenured auditors relative to short-tenured auditors. Overall, the univariate tests provide initial support of H1 but not for H2.

5.2. Multivariate analyses

[Insert Table 4 here]

Table 4 shows results from multivariate tests of H1 and H2. In this table, the first regression includes recurring tax services fees (*TaxRecurr*) and the second regression includes nonrecurring tax service fees (*TaxNon*). The indicator *LongTenure* identifies engagements with auditor tenure in excess of the median value in year *t*. The variable of interest for both regressions is the interaction between *LongTenure* and *Post*. The overall fit of *TaxRecurr* is 0.252 and for *TaxNon* it is 0.003. Consistent with H1, the *LongTenure* × *Post* for model 1 is significantly different from zero. The interaction variable has a significant positive coefficient, indicating a positive effect on recurring tax service fees for long-term engagements relative to short-term engagements following mandatory auditor tenure disclosure. Regarding model 2, *LongTenure* × *Post* is statistically significant. This finding does not support H2 and would rather suggest that nonrecurring tax service fees, in fact, do have an effect for long-tenured auditors relative to short-tenured auditors following the mandatory auditor tenure disclosure. Consistent with prior research, a change in the regulatory environment impacts tax service fees (Omer et al., 2006). Among the control variables, *Big4*, *Tier2*, *Foreign*, *NOL*, *Size*, *AuditorRestatePct*, *LocAuditorCount* are statistically significant for *TaxRecurr*. For *TaxNon* the control variables *NOL* and *SalesVol* are statistically significant.

Although the regression results present empirical evidence that the mandatory disclosure of auditor tenure is associated with the occurrence of recurring and nonrecurring tax service fees, it is unclear whether the effect on both is explained very well. The adjusted R-squared for *TaxRecurr* is relatively high (0.252) compared to the adjusted R-squared of *TaxNon* (0.003). This low number indicates that the overall variability in the data is very little explained, although the interaction variable is statistically significant on the 0.05 level. It means that the independent variables in the regression have limited explanatory power, indicating that the relationship is very weak. Missing important independent variables could be the cause of this weak relationship. Moreover, the sample size in the study conducted by Dunn et al. (2021) is larger and has a substantially higher R-squared of 0.904 for audit fees, for example. While other related studies, such as Omer et al. (2006) and Paterson et al. (2011), have a higher sample

population as well but have a comparable low adjusted R-squared of around the 0.1 or lower. However, the fact remains that *TaxRecurr* and *TaxNon* have statistically significant interaction variables. Robustness checks could help shed a light on the matter.

5.3. Robustness checks

[Insert Table 5 here]

Several additional analyses will be performed to check the stability of the results obtained in this study in order to gain confidence in the reliability and generalization of the findings. First, the effect of the removal of the variable *Post* together with addition of client and year fixed effects instead of only industry fixed effects. According to Dunn et al. (2021), there is a high correlation between some of the year fixed effects and the variable *Post*. They do say, however, that results remain consistent when year fixed effects are included. Moreover, results remain persistent when year and client fixed effects are included instead of industry effects. To see whether *Post* and industry fixed effects removal and the addition of client and year fixed effects affect the results, the regressions will be adjusted accordingly. Table 5 presents the results. The findings are comparable for *TaxNon* but not for *TaxRecurr*. After the adjustments, there is no statistically significant effect for *TaxRecurr* but there is for *TaxNon* with the same level of statistical significance. For both adjusted R-squared improved, with *TaxRecurr* increasing a lot. The coefficients of *LongTenure* × *Post* are still positive but the coefficient for *TaxRecurr* decreased compared to the first model. In short, this robustness test shows that the changes did not affect the conclusion about *TaxNon* and that *TaxRecurr* is sensitive to the changes.

Dunn et al. (2021) state that fee model determinants differ a lot in the financial industry (financial-service firms) compared to other industries. Therefore, they exclude those companies adhering to that industry in their audit fee model. Due to the changing nature of the fee model determinants across firms within the financial industry, these will be removed from the sample. Furthermore, Dunn et al. mention as well that they removed firms that had an auditor change during the sample period. Paterson and Valencia (2011) state that excluding those firms is necessary to avoid improperly measuring of recurring and nonrecurring tax service fees. In addition, auditor change is related to tax service fees (Omer et al., 2005). Consequently, to see whether the results are robust considering these circumstances, financial-service firms and firms that experience an auditor change are removed from the sample. Untabulated results show that *TaxRecurr* does not have a statistically significant effect for *LongTenure* × *Post* but *TaxNon*

does. Moreover, the adjusted R-squared decreased for both.¹⁷ Thus, for both robustness tests the findings change for *TaxRecurr* but not for *TaxNon* and shows that *TaxRecurr* is sensitive to these changes but *TaxNon* is not.

6. Conclusion

The PCAOB's decision to include auditor tenure in the audit report was meant to decrease search costs for stakeholders who claim that the information is important (PCAOB, 2017). The introduced standard for this (AS 3101) was a controversial topic at the time since several stakeholders and PCAOB members shared their concern that disclosing auditor tenure in the audit report could result in inferring a relationship between auditor tenure and audit quality by users of financial statements. With SOX recognizing the potential threat of NAS to auditor independence, PCAOB took it a step further by restricting audit firms' APTS business. Investigating the relationship between mandatory auditor tenure disclosure and recurring and nonrecurring tax service fees is important in understanding the implications for auditor independence, audit quality, and public policy. Although this study cannot directly address auditor independence and audit quality, evidence is documented that is consistent with the notion that the length of auditor-client relationship is associated with significant increases in recurring and nonrecurring tax service fees.

The first test shows that recurring tax service fees increase for long-tenured auditors relative to short-tenured auditors in the postdisclosure period, which is consistent with the expectation. The positive recurring tax service fees effect could reflect the perceived expertise and stability the current auditor provides. The client perceived the auditor to be known with the tax and business needs of their firm. The mandatory auditor tenure disclosure does not heavily affect the relationship in a way that it must be terminated. Moreover, searching costs for another auditor might be higher than the increased fees. Contrary to another expectation, nonrecurring tax service fees increase as well for long-tenured auditor relative to short-tenured auditors. The positive nonrecurring tax service fees effect could reflect the importance tax consulting has within overall tax service fees. Especially since it was argued that nonrecurring tax service fees has a small importance relative to recurring tax service fees.

¹⁷ Untabulated results show that, when the treatment of the first robustness test is applied to the second one, the statistical significance for *TaxNon* decreases but is still significant at the 0.10 level. Furthermore, the adjusted R-squared improved as well.

The study should contribute to ongoing discussions about auditor tenure and tax service fees. The external shock of mandated disclosure of auditor tenure has an effect on, both recurring and nonrecurring, tax service fees. Moreover, it shows that the AS amendment does not only affect the audit relationship between audit firm and client but also the tax service relationship, which is the largest component of NAS. The contribution to nonrecurring tax service fees is considered to be of substantial importance due to the fact that there was little to no prior research, with regards to auditor tenure, conducted about the subcomponent of NAS. Most importantly, this study should make regulators, such as the PCAOB, aware of the matter that long-tenured auditor-client relationships might be continued due to emphasized importance of this relationship by means of increasing fees to show their expertise of the client's tax environment. Thus, if the PCAOB indeed wanted to achieve termination of long-tenured relationships with the help of investors' responses, by implementing the standard, then it might not result in the desired effect. On the contrary, it might work against the PCAOB.

Future research could use the findings for nonrecurring tax service as a starting point to other auditor tenure related matters. Moreover, future research could deeper explore this relationship by examining the other components of NAS (*Assurance* and *Other*) and their relationship with auditor tenure disclosure. This in order to provide a more general conclusion for NAS and AS 3101. In addition, other variables that define auditor tenure, as constructed by Dunn et al. (2021), could be used to provide more support for the results or to counter it.

The study is subject to several limitations. The study done by Dunn et al. (2021) could not exactly be imitated due to data restrictions. For example, MSA was used while this study uses city to calculate the number of audit firms within the specific city instead of MSA which entails larger geographical areas in the USA. Other data limitations resulted in the omission of several control variables which are used in related studies. Although many control variables are still present, the impact of the missing ones could be substantial to the overall results and following conclusion. Furthermore, the low adjusted R-squared for both regression (*TaxNon* in particular) could indicate that other relevant factors are missing in the model that explain a large part of the variance. The robustness checks do also not provide additional support for H1 while they do for H2. Therefore, it should be noted that other factors might be of influence for the relationship between recurring tax service fees and mandatory auditor tenure disclosure. Nonetheless, the current results suggest that disclosure requirements should be considered by regulators, with special regards to tax services.

References

- Beardsley, E. L., Imdieke, A., & Omer, T. C. (2021). The distraction effect of non-audit services on audit quality. *Journal of Accounting and Economics*, 71(2–3), 101380. <https://doi.org/10.1016/j.jacceco.2020.101380>
- Beck, P. J., Frecka, T. J., & Solomon, I. (n.d.). An Empirical Analysis of the relationship between MAS involvement and auditor tenure: implications for auditor independence. *Journal of Accounting Literature*, 7, 65–84.
- Bell, T. A., Causholli, M., & Knechel, W. R. (2015). Audit Firm Tenure, Non-Audit Services, and Internal Assessments of Audit Quality. *Journal of Accounting Research*, 53(3), 461–509. <https://doi.org/10.1111/1475-679x.12078>
- Cook, K. A., Kim, K. B., & Omer, T. C. (2020). The Cost of Independence: Evidence from Companies' Decisions to Dismiss Audit Firms as Tax-Service Providers. *Accounting Horizons*, 34(2), 83–107. <https://doi.org/10.2308/horizons-18-009>
- DeBerg, C. L., Kaplan, S. E., & Pany, K. (1991). An Examination of Some Relationships Between Non-Audit Services and Auditor Change. *Accounting Horizons*, 17–28(5).
- Dunn, R. J. K., Lundstrom, N. G., & Wilkins, M. J. (2021). The Impact of Mandatory Auditor Tenure Disclosures on Ratification Voting, Auditor Dismissal, and Audit Pricing*. *Contemporary Accounting Research*, 38(4), 2871–2917. <https://doi.org/10.1111/1911-3846.12708>
- Habib, A. (2012). Non-Audit Service Fees and Financial Reporting Quality: A Meta-Analysis. *Abacus*, 48(2), 214–248. <https://doi.org/10.1111/j.1467-6281.2012.00363.x>
- Hair, J. F., Anderson, R.E., Tatham, R.L., and Black, W.C. 1995. *Multivariate Data Analysis*, 3rd ed. New York: Macmillan.
- Hux, C., Bedard, J. C., & Noga, T. (2022). Knowledge Sharing in Auditor-Provided Tax Services: Experiences of Audit and Tax Personnel. *Journal of the American Taxation Association*. <https://doi.org/10.2308/jata-19-031>
- Jensen, M. C., & Meckling, W. H. 1976. Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3, 305-360.
- Kinney, W., Palmrose, Z.V., & Scholz, S. 2004. Auditor independence, non-audit services, and restatements: Was the U.S. government right? *Journal of Accounting Research*, 42(3), 561-588.
- Lennox, C. S. (2016). Did the PCAOB's Restrictions on Auditors' Tax Services Improve Audit Quality? *The Accounting Review*, 91(5), 1493–1512. <https://doi.org/10.2308/accr-51356>
- Ling, R. (2023). The Effect of PCAOB's Restrictions on Auditor-Provided Tax Services on Audit Quality, Earnings Quality and Tax Avoidance. *Journal of Accounting and Finance*, 23(1), 82–102.
- Omer, T. C., Bedard, J. C., & Falsetta, D. (2006a). Auditor-Provided Tax Services: The Effects of a Changing Regulatory Environment. *The Accounting Review*, 81(5), 1095–1117. <https://doi.org/10.2308/accr.2006.81.5.1095>
- Omer, T. C., Bedard, J. C., & Falsetta, D. (2006b). Auditor-Provided Tax Services: The Effects of a Changing Regulatory Environment. *The Accounting Review*, 81(5), 1095–1117. <https://doi.org/10.2308/accr.2006.81.5.1095>
- Parkash, M., & Venable, C. F. (1993). Auditee Incentives for Auditor Independence: The Case of Nonaudit Services. *Accounting Review: A Quarterly Journal of the American Accounting Association*, 68(1), 113–133. <https://www.jstor.org/stable/pdfplus/248369.pdf>
- Paterson, J. S., & Valencia, A. (2011). The Effects of Recurring and Nonrecurring Tax, Audit-Related, and Other Nonaudit Services on Auditor Independence*. *Contemporary Accounting Research*, 28(5), 1510–1536. <https://doi.org/10.1111/j.1911-3846.2010.01060.x>
- PCAOB. (2005). *Ethics and Independence Rules Concerning Independence, Tax Services, and Contingent Fees*. Release. 2005-014. Washington, DC: PCAOB.
- PCAOB. (2016). Proposed Auditing Standards-The Auditor's Report on an Audit of Financial Statements When the Auditor Expresses an Unqualified Opinion. Release 2016-003. Washington, DC: PCAOB
- PCAOB. (2017). AS 3101. *The Auditor's Report on an Audit of Financial Statements when the Auditor Expresses an Unqualified Opinion*. Release 2017-001. Washington, DC: PCAOB.
- Sadiq, K., & Krever, R. (2021). Does tax policy fit in the portfolio of COVID-19 responses? *Pacific Accounting Review*, 33(2), 212–220. <https://doi.org/10.1108/par-08-2020-0119>
- Shi, L., Teoh, S. H., & Zhou, J. (2021). Non-Audit Services in Audit Committee Interlocked Firms, Financial Reporting Quality, and Future Performance. *Journal of Accounting, Auditing & Finance*, 0148558X2110155. <https://doi.org/10.1177/0148558x211015552>
- Schneider, A., Church, B.K., & Ely, K. M. 2006. Non-audit services and auditor independence; A review of the literature. *Journal of Accounting Literature*, 12, 169-211.

U.S. Securities and Exchange Commission (SEC). 2003. Strengthening the Commission's requirements regarding auditor independence. *Financial Release No. 68*. Washington, DC: SEC.

Appendix 1: Variable Definitions

<i>Variable</i>	<i>Description</i>
<i>TaxRecurr</i>	the natural log of tax NAS fees provided by the auditor if the auditor provides tax NAS to the client in the current and following year, and 0 otherwise;
<i>TaxNon</i>	the natural log of tax NAS fees provided by the auditor if the auditor provides tax NAS to the client in the current year but not in the following year, and zero otherwise;
<i>LongTenure</i>	dummy variable equal to one if auditor tenure in year t is over the median value, and zero otherwise;
<i>Post</i>	dummy variable equal to one if the financial year-end date is on or after December 15, 2017, and zero otherwise;
<i>AuditorRestatePct</i>	percentage of the audit office's portfolio of clients that year with restatement announcements;
<i>Big4</i>	dummy variable equal to one if the auditor that year is one of the following auditing firms: PwC, Deloitte, Ernst and Young (EY), or KPMG, and zero otherwise;
<i>BusSeg</i>	the count of number of business segments for the client that year;
<i>CFOVol</i>	standard deviation of cash flows from operations. A rolling window is used and require three years of data to estimate. The variable has a winsorized value of ten;
<i>Debt</i>	total liabilities divided by total assets;
<i>DecYE</i>	dummy variable equal to one if the client's fiscal year-ends December 31, and zero otherwise;
<i>DefTax</i>	the relative amount of deferred taxes to total income tax expense;
<i>Foreign</i>	dummy variable equal to one if the client had income from foreign operations, and zero otherwise;
<i>GoingConcern</i>	dummy variable equal to one if the client got a going concern modification to the audit opinion that year, and zero otherwise;
<i>Growth</i>	percentage change in total sales from $t - 1$ to t ;
<i>IndustrySpecialist</i>	dummy variable equal to one if the client's auditor is the market leader in terms of tax fees for the client's two-digit SIC in the city that year;
<i>InstOwn</i>	dummy variable equal to one if the client has institutional investors, and zero otherwise;
<i>LocAuditorCount</i>	the log of the number of auditors in the client's city + 1;
<i>Loss</i>	dummy variable equal to one if income before extraordinary items is below zero, and zero otherwise;
<i>MergerAcq</i>	dummy variable equal to one if merger and acquisition expenses that year or the previous exceed 1% of total assets, and zero otherwise;
<i>NOL</i>	dummy variable equal to one if there is an operating loss carryforward and no pretax income, and zero otherwise;
<i>QuickRatio</i>	ratio of the sum of cash, inventory, and receivables to current liabilities;
<i>Restate</i> (3 year)	dummy variable equal to one if there were restatement announcements during year t , $t - 1$, $t - 2$, and zero otherwise;

<i>ROA</i>	income before extraordinary items divided by total assets;
<i>SalesVol</i>	standard deviation of sales revenue. A rolling window is used and require three years of data to estimate. The variable has a winsorized value of ten;
<i>Size</i>	the log of total assets;
<i>StockReturn</i>	annual percent change in stock price;
<i>Tier2</i>	dummy variable equal to one if the auditor in year t is one of the following auditing firms: RSM, BDO, Crowe, or Grant Thornton, and zero otherwise;
<i>Weak (3 year)</i>	dummy variable equal to one if the client reported at least one material weakness in year t , $t - 1$ or, $t - 2$.

Table 1**Sample selection and distribution information**

Panel A: Sample selection process						
Initial sample						11,772
Less: Missing data						(4,563)
Less: Firms that drop out or begin operations during the sample period						(3,831)
Full sample						3,378
Panel B: Temporal distribution						
Year	Full sample		<i>Post = 0</i>		<i>Post = 1</i>	
	Count	%	Count	%	Count	%
2014	563	16.7%	563	31.2%	0	0%
2015	563	16.7%	563	31.2%	0	0%
2016	563	16.7%	563	31.2%	0	0%
2017	563	16.7%	113	6.3%	450	28.6%
2018	563	16.7%	0	0%	563	35.7%
2019	563	16.7%	0	0%	563	35.7%
	<u>3,378</u>		<u>1,802</u>		<u>1,576</u>	
Panel C: Industry distribution						
SIC1 ^a	Description	Count		%		
1	Agriculture	198		5.7%		
2	Construction	648		19.2%		
3	Manufacturing	1,014		30.0%		
4	Transportation	282		8.3%		
5	Retail	252		7.5%		
6	Financial	216		6.4%		
7	Services	582		17.2%		
8	Public Admin	174		5.2%		
9	Nonclassifiable	12		0.4%		
		<u>3,378</u>				
Panel D: Industry temporal distribution						
Year / SIC1	2014	2015	2016	2017	2018	2019
1	33	33	33	33	33	33
2	108	108	108	108	108	108
3	169	169	169	169	169	169
4	47	47	47	47	47	47
5	42	42	42	42	42	42
6	36	36	36	36	36	36
7	97	97	97	97	97	97
8	29	29	29	29	29	29
9	2	2	2	2	2	2

Notes: ^aWhile 1-digit SIC classifications are displayed here, all regression analyses use 2-digit SIC fixed effect.

Table 2
Variable descriptive information ($n = 3,378$)

Panel A: Full sample descriptives					
Variable	Mean	Std	First quartile	Median	Third quartile
<i>TaxRecurr</i>	8.675	5.737	0.000	11.421	12.965
<i>TaxNon</i>	0.470	2.150	0.000	0.000	0.000
<i>LongTenure</i>	0.497	0.500	0.000	0.000	1.000
<i>Post</i>	0.467	0.499	0.000	0.000	1.000
<i>AuditorRestatePct</i>	20.71	9.515	15.96	18.75	25.84
<i>Big4</i>	0.806	0.396	1.000	1.000	1.000
<i>BusSeg</i>	6.877	5.078	3.000	6.000	11.000
<i>CFOVol</i>	100.264	127.092	12.395	40.862	126.974
<i>Debt</i>	0.550	0.247	0.384	0.551	0.694
<i>DecYE</i>	0.770	0.421	1.000	1.000	1.000
<i>DefTax</i>	1.329	8.078	0.000	0.3586	2.0502
<i>Foreign</i>	0.416	0.493	0.000	0.000	1.000
<i>GoingConcern</i>	0.008	0.091	0.000	0.000	0.000
<i>Growth</i>	7.293	20.901	-1.632	5.195	12.882
<i>IndustrySpecialist</i>	0.835	0.371	1.000	1.000	1.000
<i>InstOwn</i>	0.788	0.409	1.000	1.000	1.000
<i>LocAuditorCount</i>	2.016	1.116	1.000	1.792	2.773
<i>Loss</i>	0.216	0.412	0.000	0.000	0.000
<i>MergerAcq</i>	0.024	0.154	0.000	0.000	0.000
<i>NOL</i>	0.200	0.400	0.000	0.000	0.000
<i>QuickRatio</i>	1.998	1.584	1.006	1.602	2.461
<i>Restate (3 year)</i>	0.198	0.399	0.000	0.000	0.000
<i>ROA</i>	0.032	0.113	0.009	0.044	0.081
<i>SalesVol</i>	322.473	426.940	32.936	117.898	408.364
<i>Size</i>	7.417	1.968	6.240	7.518	8.733
<i>StockReturn</i>	9.008	38.970	-15.726	6.369	28.874
<i>Tier2</i>	0.100	0.300	0.000	0.000	0.000
<i>Weak (3 year)</i>	0.089	0.285	0.000	0.000	0.000

Table 3
Univariate correlation analysis

Panel A: Correlations										
Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) <i>TaxRecurr</i>										
(2) <i>TaxNon</i>	-0.33									
(3) <i>LongTenure</i>	0.24	-0.05								
(4) <i>Post</i>	-0.01	-0.03	-0.01							
(5) <i>AuditorRestatePct</i>	0.16	-0.02	0.17	-0.27						
(6) <i>Big4</i>	0.37	-0.02	0.44	-0.01	0.25					
(7) <i>BusSeg</i>	0.09	-0.02	0.16	-0.01	0.11	0.12				
(8) <i>CFOVol</i>	0.27	-0.04	0.23	0.08	0.11	0.30	0.11			
(9) <i>Debt</i>	0.14	0.00	0.12	0.04	0.05	0.24	0.07	0.24		
(10) <i>DecYE</i>	0.00	0.02	-0.03	0.13	0.05	-0.01	-0.04	0.05	0.09	
(11) <i>DefTax</i>	0.02	0.02	0.05	-0.04	-0.01	0.03	0.01	0.01	0.05	0.01
(12) <i>Foreign</i>	0.17	-0.01	0.01	0.00	0.02	0.12	0.02	0.05	-0.02	-0.05
(13) <i>GoingConcern</i>	-0.04	0.02	-0.07	0.02	-0.03	-0.10	-0.06	-0.06	0.06	0.04
(14) <i>Growth</i>	-0.02	-0.01	-0.06	0.08	0.00	-0.01	-0.03	0.03	0.00	0.00
(15) <i>IndustrySpecialist</i>	0.06	-0.01	0.10	0.00	-0.01	0.18	0.05	0.01	0.08	0.01
(16) <i>InstOwn</i>	0.04	-0.01	0.12	0.14	-0.04	0.00	0.02	0.06	-0.05	-0.05
(17) <i>LocAuditorCount</i>	0.05	-0.02	-0.01	0.02	0.08	0.06	-0.05	0.19	0.06	0.08
(18) <i>Loss</i>	-0.11	0.05	-0.15	0.00	-0.03	-0.14	-0.09	-0.11	0.02	0.06
(19) <i>MergerAcq</i>	-0.01	0.01	-0.01	0.00	-0.01	-0.03	-0.02	0.04	0.00	-0.03
(20) <i>NOL</i>	-0.12	0.06	-0.15	0.00	-0.03	-0.13	-0.08	-0.12	0.03	0.05
(21) <i>QuickRatio</i>	-0.15	0.02	-0.21	-0.04	-0.10	-0.27	-0.08	-0.27	-0.56	-0.06
(22) <i>Restate (3 year)</i>	0.01	0.02	0.02	-0.09	0.20	0.10	0.02	-0.03	0.07	0.01
(23) <i>ROA</i>	0.10	-0.04	0.15	-0.01	0.04	0.11	0.09	0.13	-0.07	-0.10
(24) <i>SalesVol</i>	0.28	-0.06	0.22	0.04	0.10	0.29	0.15	0.78	0.26	0.00
(25) <i>Size</i>	0.38	-0.05	0.37	0.06	0.22	0.58	0.20	0.72	0.38	0.05
(26) <i>StockReturn</i>	0.01	-0.01	0.01	0.02	-0.01	0.02	0.00	0.01	-0.01	-0.03
(27) <i>Tier2</i>	-0.25	0.02	-0.28	0.03	-0.01	-0.68	-0.06	-0.17	-0.12	0.05
(28) <i>Weak (3 year)</i>	-0.05	0.03	-0.06	0.04	0.03	-0.04	0.00	-0.09	0.01	-0.02

(The table is continued on the next page.)

Variable	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
(1) <i>TaxRecurr</i>										
(2) <i>TaxNon</i>										
(3) <i>LongTenure</i>										
(4) <i>Post</i>										
(5) <i>AuditorRestatePct</i>										
(6) <i>Big4</i>										
(7) <i>BusSeg</i>										
(8) <i>CFOVol</i>										
(9) <i>Debt</i>										
(10) <i>DecYE</i>										
(11) <i>DefTax</i>										
(12) <i>Foreign</i>	0.00									
(13) <i>GoingConcern</i>	-0.01	-0.01								
(14) <i>Growth</i>	0.02	-0.06	0.03							
(15) <i>IndustrySpecialist</i>	0.04	-0.08	-0.07	-0.02						
(16) <i>InstOwn</i>	0.00	0.03	0.01	-0.06	0.08					
(17) <i>LocAuditorCount</i>	-0.04	0.02	-0.03	0.02	-0.38	-0.05				
(18) <i>Loss</i>	-0.09	0.02	0.16	-0.08	-0.09	-0.13	0.09			
(19) <i>MergerAcq</i>	0.00	-0.05	0.03	0.05	-0.04	-0.01	0.02	0.01		
(20) <i>NOL</i>	-0.11	0.00	0.17	-0.05	-0.08	-0.14	0.07	0.90	0.02	
(21) <i>QuickRatio</i>	-0.03	0.06	0.00	-0.04	-0.04	0.04	-0.07	0.02	-0.03	0.01
(22) <i>Restate (3 year)</i>	-0.02	0.01	0.00	-0.04	0.06	0.01	-0.01	0.04	0.01	0.05
(23) <i>ROA</i>	0.01	0.00	-0.31	0.08	0.04	0.13	-0.05	-0.69	-0.02	-0.67
(24) <i>SalesVol</i>	0.03	0.03	-0.06	0.08	0.03	0.06	0.12	-0.13	0.05	-0.13
(25) <i>Size</i>	0.07	0.08	-0.16	0.03	0.11	0.08	0.14	-0.26	-0.01	-0.26
(26) <i>StockReturn</i>	0.01	0.01	-0.02	0.14	-0.01	0.01	-0.02	-0.13	0.01	-0.11
(27) <i>Tier2</i>	-0.04	-0.09	0.11	0.05	-0.08	0.00	-0.02	0.08	0.02	0.07
(28) <i>Weak (3 year)</i>	-0.01	0.06	0.05	-0.01	0.02	0.02	0.00	0.10	0.01	0.10

(The table is continued on the next page.)

Variable	(21)	(22)	(23)	(24)	(25)	(26)	(27)
(1) <i>TaxRecurr</i>							
(2) <i>TaxNon</i>							
(3) <i>LongTenure</i>							
(4) <i>Post</i>							
(5) <i>AuditorRestatePct</i>							
(6) <i>Big4</i>							
(7) <i>BusSeg</i>							
(8) <i>CFOVol</i>							
(9) <i>Debt</i>							
(10) <i>DecYE</i>							
(11) <i>DefTax</i>							
(12) <i>Foreign</i>							
(13) <i>GoingConcern</i>							
(14) <i>Growth</i>							
(15) <i>IndustrySpecialist</i>							
(16) <i>InstOwn</i>							
(17) <i>LocAuditorCount</i>							
(18) <i>Loss</i>							
(19) <i>MergerAcq</i>							
(20) <i>NOL</i>							
(21) <i>QuickRatio</i>							
(22) <i>Restate (3 year)</i>	-0.04						
(23) <i>ROA</i>	0.02	-0.05					
(24) <i>SalesVol</i>	-0.26	-0.05	0.12				
(25) <i>Size</i>	-0.41	0.03	0.25	0.69			
(26) <i>StockReturn</i>	0.02	0.00	0.16	-0.01	0.00		
(27) <i>Tier2</i>	0.07	-0.03	-0.06	-0.16	-0.25	0.00	
(28) <i>Weak (3 year)</i>	0.01	0.24	-0.09	-0.09	-0.11	-0.02	0.08

Panel B: Univariate results

		<i>LongTenure</i> = 0	<i>LongTenure</i> = 1
Dependent variable: <i>TaxRecurr</i>			
<i>Post</i>	0	7.499	9.932
	1	7.045	10.249
		-0.454	0.317
<i>Diff from LongTenure</i> = 0			0.771
Dependent variable: <i>TaxNon</i>			
<i>Post</i>	0	0.692	0.355
	1	0.430	0.387
		-0.262	0.032
<i>Diff from LongTenure</i> = 0			0.294

Notes: In panel A, univariate Pearson correlation statistics are shown for all variables in the analysis. Bold correlations are significant at the 0.05 level. In Panel B, it is tested whether, at the univariate level, firms with long-tenured auditor relationships affect more profoundly tax service fees than firms with short-tenured auditor relationships. All continuous variables are winsorized at 1% and 99%. For variable definitions, see Appendix 1.

Table 4

Auditor tenure disclosure and tax service fees

Panel A: Full sample analysis				
Variables	<i>TaxRecurr</i>		<i>TaxNon</i>	
	Coeff.	<i>t</i> -stat	Coeff.	<i>t</i> -stat
<i>LongTenure</i> × <i>Post</i>	0.761**	(2.20)	0.301**	(2.01)
<i>LongTenure</i>	0.252	(0.95)	-0.277**	(-2.41)
<i>Post</i>	-0.434	(-1.74)	-0.293***	(-2.71)
<i>AuditorRestatePct</i>	0.042**	(3.82)	-0.004	(-0.80)
<i>Big4</i>	1.647***	(3.86)	0.189	(1.02)
<i>BusSeg</i>	-0.001	(-0.05)	0.001	(0.13)
<i>CFOVol</i>	0.000	(0.30)	0.001	(0.50)
<i>Debt</i>	-0.004	(-0.01)	0.318	(1.57)
<i>DecYE</i>	0.232	(1.02)	0.115	(1.17)
<i>DefTax</i>	0.001	(0.09)	0.007	(1.40)
<i>Foreign</i>	1.051	(5.36)	-0.031	(-0.36)
<i>GoingConcern</i>	1.676	(1.62)	0.169	(0.38)
<i>Growth</i>	-0.002	(-0.50)	-0.001	(-0.50)
<i>IndustrySpecialist</i>	0.454	(1.63)	-0.153	(-1.28)
<i>InstOwn</i>	0.145	(0.63)	0.038	(0.38)
<i>LocAuditorCount</i>	0.207**	(2.18)	-0.044	(-1.07)
<i>Loss</i>	0.537	(1.06)	-0.331	(-1.51)
<i>MergerAcq</i>	-0.276	(-0.48)	0.210	(0.85)
<i>NOL</i>	-1.037**	(-2.04)	0.629***	(2.86)
<i>QuickRatio</i>	-0.106	(-1.43)	0.047	(1.47)
<i>Restate (3 year)</i>	-0.374	(-1.59)	0.037	(0.36)
<i>ROA</i>	-0.491	(-0.43)	0.112	(0.23)
<i>SalesVol</i>	0.001	(2.50)	-0.000*	(-1.50)
<i>Size</i>	0.661***	(6.68)	-0.021	(-0.49)
<i>StockReturn</i>	0.001	(0.50)	-0.001	(-0.50)
<i>Tier2</i>	-1.384***	(-3.15)	0.164	(0.86)
<i>Weak (3 year)</i>	-0.234	(-0.72)	0.178	(1.27)
Fixed effects	Industry		Industry	
<i>N</i>	3,378		3,378	
Adjusted R ²	0.252		0.003	

Notes: In this table, it is tested whether tax service fees increased after mandatory disclosure of auditor tenure in the audit report for clients with long-tenured auditors relative to clients with short-tenured auditors. Results are robust to the use of client, industry, and year, and client and year fixed effects in place of industry fixed effects. For both models, *t*-statistics in parentheses using robust standard errors are reported. ***, **, and * indicates two-tailed significance at the 1%, 5%, and 10% levels. Both regressions include industry fixed effects. Industry fixed effects are realized at the 2-digit SIC level. All variables are defined in Appendix 1 and are winsorized at the 1% and 99% level.

Table 5

Adjusted auditor tenure disclosure and tax service fees

Variables	<i>TaxRecurr</i>		<i>TaxNon</i>	
	Coeff.	<i>t</i> -stat	Coeff.	<i>t</i> -stat
<i>LongTenure</i> × <i>Post</i>	0.165	(0.91)	0.378**	(2.52)
<i>LongTenure</i>	1.730***	(4.89)	-0.543*	(-1.85)
<i>AuditorRestatePct</i>	0.026**	(2.17)	0.000	(0.03)
<i>Big4</i>	0.997	(1.44)	-0.726	(-1.26)
<i>BusSeg</i>	0.043	(1.23)	0.023	(0.79)
<i>CFOVol</i>	0.001	(0.50)	0.000	(0.30)
<i>Debt</i>	0.178	(0.30)	0.581	(1.18)
<i>DecYE</i>	0.131	(0.31)	-0.308	(-0.89)
<i>DefTax</i>	0.002	(0.33)	0.006	(1.20)
<i>Foreign</i>	0.171	(0.62)	0.127	(0.55)
<i>GoingConcern</i>	-0.630	(0.88)	0.752	(1.27)
<i>Growth</i>	0.001	(0.33)	-0.001	(-0.50)
<i>IndustrySpecialist</i>	-0.171	(-0.63)	-0.238	(-1.07)
<i>InstOwn</i>	-0.481**	(-2.06)	0.219	(1.14)
<i>LocAuditorCount</i>	0.944***	(-2.90)	-0.102	(-0.38)
<i>Loss</i>	0.363	(1.24)	-0.331	(-1.55)
<i>MergerAcq</i>	-0.231	(-0.64)	-0.375	(-0.40)
<i>NOL</i>	-0.323	(-1.06)	0.629**	(2.51)
<i>QuickRatio</i>	-0.121*	(-1.81)	-0.012	(-0.22)
<i>Restate (3 year)</i>	-0.140	(-0.86)	0.084	(0.63)
<i>ROA</i>	-0.578	(-0.67)	0.698	(0.98)
<i>SalesVol</i>	0.000	(0.67)	-0.000	(-0.50)
<i>Size</i>	0.635***	(3.00)	-0.211	(-1.20)
<i>StockReturn</i>	-0.000	(-0.40)	-0.001	(-1.00)
<i>Tier2</i>	0.075	(0.13)	-0.314	(-0.68)
<i>Weak (3 year)</i>	0.282	(1.24)	-0.065	(-0.35)
Fixed effects	Client and year		Client and year	
<i>N</i>	3,378		3,378	
Adjusted R ²	0.798		0.015	

Notes: In this table, it is tested whether tax service fees increased after mandatory disclosure of auditor tenure in the audit report for clients with long-tenured auditors relative to clients with short-tenured auditors. Results are robust to the use of client, industry, and year, and client and year fixed effects in place of industry fixed effects. For both models, *t*-statistics in parentheses using robust standard errors are reported. ***, **, and * indicates two-tailed significance at the 1%, 5%, and 10% levels. Both regressions include client and year fixed effects. All variables are defined in Appendix 1 and are winsorized at the 1% and 99% level.