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The effects of time pressure on audit fees

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ABSTRACT

This study investigates whether time pressure on the audit increases the cost of professional audit services. From 2003 to 2006, filing deadlines were shortened for accelerated filers (AFs) and large accelerated filers (LAFs) by 15 and 30 days, respectively, under the SEC's accelerated filing regulation. Time-pressure engagements are identified as those whose audit report dates in the year prior to implementation fell after the new deadlines. Comparing time-pressure AFs to control engagements, findings show no significant difference in audit fee adjustments during implementation. Looking at time-pressure LAFs, findings show evidence of fee decreases. Findings counter common criticism of the regulation and suggest available slack, where significant additional audit effort was not required to meet the new deadlines. Evidence points to resource transfers to (from) time-pressure (control) engagements during the first acceleration, and increasing reliance on internal controls of time-pressure LAFs during the second acceleration, as strategies used by auditors. Additional analyses document decreases to audit quality on time-pressure AFs but maintained quality on time-pressure LAFs.

1. Introduction

In September 2002, The Securities and Exchange Commission (SEC) finalized its decision to accelerate the quarterly 10-Q and annual 10-K filing deadlines of large public companies. In doing so, the SEC wished to improve the timeliness of financial reporting so that information provided is more relevant and useful to investors (SEC, 2002b). The SEC stressed the importance of achieving this goal, "…without sacrificing accuracy or completeness or imposing undue burden and expense on registrants" (SEC, 2002b, sec. II.A.1, para. 5). This decision resulted in a lot of push-back from both companies and auditors. The SEC received 302 comment letters on the initial proposal with the large majority (282 commenters) in opposition.[1] Many anticipated significant effort adjustments needed by companies and their auditors, and thus, increased internal costs and audit fees charged to comply with the earlier deadlines. Furthermore, commenters expressed concerns that accelerating the deadlines would diminish the quality of financial reporting by putting time pressure on both the year-end close and audit review process. Finally, given the increased financial reporting and auditing requirements resulting from Section 404 of the Sarbanes-Oxley Act (SOX), also passed in 2002 (U.S. HR, 2002), many worried the concurrent implementation of accelerated filing deadlines would prove detrimental to achieving its end goals. For example, in its May 22, 2002 comment letter, KPMG stated the following:

> Based on a limited survey of current filing practices, we would expect some of the larger companies may be able to meet the proposed accelerated filing deadlines. However, many companies would need to incur substantial effort and costs to comply with the deadlines in the Proposed Rule. Similarly, audit effort and costs would increase commensurate with compressed audit efforts (adjusted audit timing, methodology and approaches) as each company situation warrants. (SEC, 2002a, para. 4).

The SEC's accelerated filing regulation resulted in an exogenous shock to audit report deadlines. This provides a setting in which to test whether the imposition of time pressure results in changes to the cost of the audit. There were two distinct categories of client firms that were subject to the regulation: "accelerated filers" (AFs) and "large accelerated filers" (LAFs).[2] Deadlines for AFs were reduced from 90 to 75 days, whereas deadlines for LAFs were reduced from 90 to 75, and then

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[1] Twenty of the commenters were investors and financial analysts in support of the proposal. The remaining 282 commenters were companies, business associations, law firms, and accounting firms in opposition (SEC, 2002b).

[2] Accelerated filers (AFs) are defined as issuers with public float of $75 million or more, but less than $700 million. Large accelerated filers (LAFs) are defined as issuers with public float of $700 million or more. Non-accelerated filers (NAFs) are defined as issuers with public float of less than $75 million (SEC, 2005).

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ultimately, to 60 days. To execute this study, "time-pressure" engagements are identified as AFs and LAFs whose audit report dates in the year prior to implementation fell after the new deadlines. Time-pressure engagements of each filer-type (AF and LAF) are analyzed separately and matched to a control group of comparable size and other client attributes.

In the first part of this study, I analyze changes in audit fees on time-pressure engagements compared to control engagements during the implementation years (2003–2006). Audit fees are used to proxy for audit effort and/or perceived audit risk. Results are investigated for the period as a whole and in approximately one-year increments surrounding implementation of the 75-day deadline, SOX 404, and the 60-day deadline. Next, I explore the specific effort strategies auditors may have used on engagements to achieve the documented fee outcomes. Finally, to better understand the effectiveness of effort changes made, I perform additional analyses to investigate changes in audit quality.

Comparing time-pressure AFs to control engagements, findings show no significant difference in audit fee adjustments during implementation years. Looking at time-pressure LAFs, findings show evidence of overall fee decreases, particularly in the year following SOX 404 implementation. Findings counter common criticism of the regulation and suggest available slack, where significant additional audit effort was not required to meet the new deadlines (for either AFs or LAFs). Furthermore, findings indicate that time-pressure LAFs may have even benefited from lower audit costs.

Consistent with findings of prior studies (e.g., Dong, Nash, & Xu, 2022; Dong, Tate, & Xu, 2020), subsequent analyses point to significant office-level slack and the reprioritization of resources to (from) time-pressure (control) engagements surrounding the first acceleration to 75 days and SOX 404 implementation. Findings reinforce the nonsignificant fee changes documented on time-pressure AFs. Furthermore, as proposed in Lambert, Jones, Brazel, and Showalter (2017), analyses point towards increasing reliance on internal controls (in the post-SOX period) as a potential strategy used on time-pressure LAFs to help achieve the second acceleration to 60 days. During the sample period, time-pressure LAFs are documented to have stronger control profiles (i.e. lower percentage of material control weaknesses) than their AF counterparts. Furthermore, an integrated audit approach by placing reliance on internal controls was encouraged with Auditing Standard No. 5 (AS5) which was proposed during this period.[3] Findings indicate a benefit of reduced audit fees on engagements with stronger control profiles overall (time-pressure LAFs) and those remediating material control weaknesses.

Additional analyses document short-term decreases to audit quality on time-pressure AFs but maintained quality on time-pressure LAFs during the implementation period. Results for audit quality are consistent with findings from prior studies (e.g., Boland, Bronson, & Hogan, 2015; Bryant-Kutcher, Peng, & Weber, 2013; Doyle & Magilke, 2013; Lambert et al., 2017) and provide further evidence of LAFs handling time pressure differently and possibly more effectively.

To gain a better understanding of the empirical findings, I interviewed several Big 4 audit partners.[4] While all partners acknowledged that there were extensive fee increases during the implementation of SOX, it was noted that the accelerated deadlines likely had "very little if not the opposite effect" on fees. As one partner commented, "Auditors have a tendency to audit to the bell." The partner further explained that if more time is given, auditors will find more to do to fill up that time such as additional testing or documentation; conversely, if the timelines are shortened, auditors will compress the work. In this discussion, it was noted that the audit is for the most part a fixed fee based on a total estimate of time and hours required. Auditors work within that timeframe unless something significant comes up that requires more time. Another partner commented, "Many large companies were already on a shorter than maximum timeline for their filings. At least they certainly were when it came to releasing earnings, and most auditors wanted the work done by the time earnings were released so there weren't any surprises between release and filing." These discussions highlight the theory of available slack presented in this paper. Lastly, in the partner discussions it was noted that, "Clients with a more effective control environment and internal control compliance would generally benefit from a cost/effort perspective." Additionally, it was discussed that a well-documented and thoughtful risk assessment by the auditor results in less work and a more efficient, higher-quality audit. Looking at the empirical findings in this study, the attributes of time-pressure LAFs, such as stronger internal controls, may have ultimately enhanced the fee effects of the compressed timelines for this group.

This study makes several contributions to the literature. First, despite expressed concerns over increased audit effort, I find no prior study that investigates the impact of the accelerated filing regulation on the cost of the audit. By analyzing publicly disclosed audit fee data, this study provides additional insight on whether auditors adjust the amount, timing, or type of resources utilized when faced with deadline pressure.[5] Furthermore, by comparing the fee effects to the quality effects found, this study interprets the effectiveness of effort changes made on these engagements.

Evidence from prior studies is limited regarding the type and extent of effort changes made by auditors to meet the tightened deadlines. Using qualitative survey data from a small sample of 32 retired audit partners, Lambert et al. (2017) provides anecdotal evidence of "best practices" used: including increased hours worked per day/week, interim testing, and rescheduling non-public audits. Additional testing and reliance on internal controls is also cited amongst the top strategies (Lambert et al., 2017). Additionally, two recent archival studies document evidence of office-level slack (Dong et al., 2022) and audit offices reprioritizing resources across engagements of public issuers (e.g., Dong et al., 2020; Dong et al., 2022).

In this study, I use empirical archival methodologies on a sample of 438 affected client firms to expand upon the strategies explored in these prior studies. Findings in this study provide new evidence that the documented resource transfers to time-pressure engagements come with a benefit of no higher fees charged. Furthermore, expanding upon the Lambert et al. (2017) survey, this study provides additional empirical evidence of increased reliance on internal controls as a plausible strategy for time-pressure LAFs, due to stronger control profiles. This study also provides another setting in which to test the effect of material control weakness disclosures on audit fees, and in line with prior findings (e.g., Hogan & Wilkins, 2008; Hoitash, Hoitash, & Bedard, 2008; Krishnan, Krishnan, & Song, 2011), suggests engagements with stronger control profiles, and those remediating control weaknesses, benefited from lower audit fees. Expanding upon prior findings, this study further finds empirical evidence suggesting possible early adoption of AS5 on engagements faced with time pressure.

Finally, unlike prior studies which focus on the impact of each deadline change in isolation (e.g., Boland et al., 2015; Bryant-Kutcher et al., 2013; Doyle & Magilke, 2013; Lambert et al., 2017), in this study, I

[3] Auditing Standard No. 5 (AS5) "An Audit of Internal Control Over Financial Reporting That Is Integrated with An Audit of Financial Statements" (PCAOB, 2007) replaced the earlier Auditing Standard No. 2 (AS 2) "An Audit of Internal Control Over Financial Reporting Performed in Conjunction with An Audit of Financial Statements" (PCAOB, 2004). The first year of required adoption of AS5 was fiscal years ending on or after November 15, 2007 with early adoption encouraged (PCAOB, 2005; PCAOB, 2007).

[4] I spoke with four audit partners from three firms. The partners interviewed were either currently in practice or retired, and all partners were employed at a Big 4 firm during the implementation of accelerated filing.

[5] Audit fees of public companies are required to be disclosed under Rule 14 (a)-101 of the Securities Exchange Act. Reported fee data for public companies is aggregated in the Audit Analytics database from 2000 to present.

identify a constant sample of time-pressure engagements to analyze over the entire period before, during and after implementation of the 75-day and 60-day deadlines. In doing so, I can follow the same group of AFs and LAFs through both rounds of acceleration and see the overall effect of the deadline changes.

Overall, results from this study suggest that deadline pressure may provide the impetus for auditors to implement time-saving strategies through shifting and compressing audit effort rather than resorting to strategies that would have increased client billings. Findings in this study are relevant given the SEC's ongoing reassessment of the definitions and thresholds of filer-status categories. Results should be of interest to both academics and regulators concerned with the unintended consequences of imposing time constraints on the independent audit.

2. Background and hypotheses

2.1. Regulatory background & audit time pressure

In 2002, two significant regulations were passed that impacted time pressure on audits of large public companies. These were the SEC's Amendment to the Exchange Act Rule 12b-2 and Section 404 of SOX enacted by Congress (U.S. HR, 2002; SEC, 2002b). The amendment to the Exchange Act Rule 12b-2, commonly referred to as "accelerated filing", adopted a two-stage approach to reduce the annual 10-K filing deadlines for issuers meeting the "accelerated filer" definition, or those with public float of $75 million or greater.[6] In the first stage, filing deadlines were reduced from 90 to 75 days after fiscal year-end, with implementation beginning for fiscal years ending on or after December 15, 2003. In the second stage, filing deadlines were further reduced from 75 to 60 days after fiscal year-end, with implementation initially set to begin for fiscal years ending on or after December 15, 2004. In 2004, an extension of the 60-day phase-in was adopted pushing the implementation date back one year to December 15, 2005 (SEC, 2004). In 2005, another extension was adopted pushing the implementation date back an additional year to December 15, 2006; along with this second extension, the amendment was further updated to exempt smaller accelerated filers from the final 60-day deadline (SEC, 2005). Filer status was expanded into three mutually exclusive categories, "large accelerated" (LAF), "accelerated" (AF), and "non-accelerated" (NAF), filers with filing deadlines of 60, 75, and 90 days after the fiscal year-end, respectively. Under the final amendment, LAFs are defined as issuers with public float of $700 million or more; AFs are defined as issuers with public float of $75 million or more, but less than $700 million; NAFs are defined as issuers with public float of less than $75 million (SEC, 2005). Rather than increasing overall workload, this amendment instead compressed the normal time window for both clients and their auditors to close the books, complete the audit, and report the financial statements.

While faced with the shortened deadlines for audit completion on AF and LAF engagements, auditors also began implementing the additional reporting requirements under SOX on these same audits. Sections 404 (a) and (b) of SOX require that managers of publicly traded companies assess the effectiveness of internal controls over financial reporting and that independent auditors attest to management's assessment. Section 404(c) provides an exemption under Section 404(b) for NAFs (U.S. HR, 2010; SEC, 2010).[7] Furthermore, NAFs were provided an extension of Section 404(a) implementation until fiscal years ending on or after December 15, 2007 (SEC, 2006).[8] Implementation of SOX 404 for AFs and LAFs began on November 15, 2004 (SEC, 2004). Overall, SOX 404 increased the workload by vastly expanding the responsibilities and reporting requirements for auditors performing annual audits of large public companies. Implementing SOX 404 over the same time period as the accelerated deadlines may have further exacerbated the workload compression initially brought on by the deadline reductions. The implementation of these two regulations provides an opportunity to test the impact of time pressure on the cost of the audit.

2.2. Audit fees as a proxy for audit effort

Simunic (1980) develops a theoretical model in which audit fees in a competitive market are equal to the expected total cost of the audit $E\left(\widetilde{C}\right)$.

$$\text{Audit Fee} = E\left(\widetilde{C}\right) = cq + E\left(\widetilde{d} \mid a,q\right)E\left(\widetilde{\theta}\right) \quad (1)$$

In this model, c is the unit cost of audit resources; q is the quantity of audit resources utilized; $\widetilde{d}$ is the present value of possible future losses which may arise from this period's audited financial statements; a is the quantity of client resources utilized in operating the internal accounting system; and θ is the ex-post fraction of losses born by the auditor where $0 \leq \theta \leq 1$ (Simunic, 1980). This fee model can be related to the Audit Risk Model used in practice (Fig. 1). Audit risk is the risk that the auditor will express an inappropriate audit opinion on financial statements which are materially misstated (PCAOB, 2010). During the planning stages of the audit, auditors assess the risk of material misstatement, which consists of both inherent risk and control risk, to determine the nature, timing and extent of substantive audit procedures. Substantive audit procedures are intended to reduce detection risk and maintain audit risk at an appropriately low level (PCAOB, 2010).

Linking Simunic (1980) to the Audit Risk Model, $E(\widetilde{d})$, or the unconditional expected losses, represents overall engagement risk. The client's choice of a, or quantity of client resources utilized in operating the internal accounting system, will influence the level of control risk. The auditor's choice of q, or quantity of audit resources utilized (i.e. audit effort), will influence both assessed control risk and detection risk. $E\left(\widetilde{d} \mid a,q\right)$ represents expected losses resulting from the audit, or engagement risk conditional on the levels of client and auditor resources utilized. Finally, c is the unit cost of audit resources. Therefore, the audit fee charged can be interpreted as the cost of audit effort cq plus a premium for perceived engagement risk born by the auditor $E\left(\widetilde{d} \mid a,q\right)E\left(\widetilde{\theta}\right)$. Relying on this definition, I empirically test the impact of accelerated filing deadlines on audit fees to gain insight into the effects of time pressure on audit effort and/or the auditor's perceived engagement risk.

2.3. Time-pressure literature and audit effort

Time-pressure studies investigating auditor effort commonly rely on experimental or survey methodologies to analyze individual auditor behavior. For example, several studies investigate the impact of time-deadline or time-budget pressure on individual auditor task-time allocations. These studies find time pressure results in fewer budgeted hours (Houston, 1999), decreased extent and depth of testing (Asare, Trompeter, & Wright, 2000; Coram, Ng, & Woodliff, 2004; Kelley & Margheim, 1990), reduced focus on qualitative aspects (Braun, 2000),

[6] Although the focus of this study is the annual 10-K filing deadlines, the quarterly 10-Q filing deadlines were also updated with this amendment.

[7] Prior to Congress adopting Section 404(c) in 2010, implementation of Section 404(b) was extended for NAFs each year beginning with SEC Release No. 33–8238 (SEC, 2003). Extensions were updated and renewed in subsequent releases made each year through 2010 (SEC, 2010) when the Dodd Frank Act (U.S. HR, 2010) was passed providing final exemption.

[8] Implementation of Section 404(a) was extended for NAFs beginning in 2003 with SEC Release No. 33–8238 (SEC, 2003). Extensions were updated and renewed in subsequent releases made each year through 2006 when the final December 15, 2007 implementation date was set (SEC, 2006).

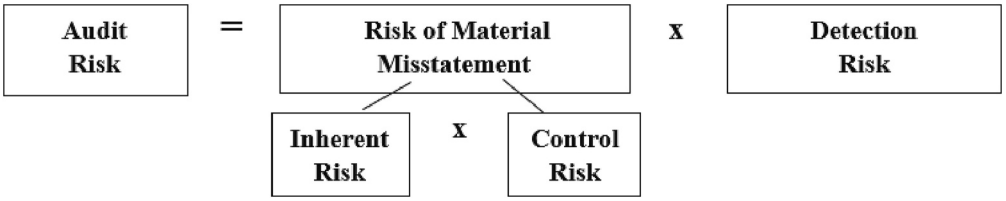

Fig. 1. Audit risk model.

Fig. 1 Depicts the Audit Risk Model used in practice. Audit risk is the risk that the auditor will express an inappropriate audit opinion on financial statements which are materially misstated (PCAOB, 2010). Audit risk is comprised of the risk of material misstatement and detection risk. The risk of material misstatement represents the overall risk that the financial statements are materially misstated. A company's inherent risk and control risk are components of the risk of material misstatement. Inherent risk is the risk of a material misstatement before consideration of any related controls. Control risk is the risk that a material misstatement would not be prevented or detected in a timely manner by the company's internal controls. Detection risk is the risk that the procedures performed by the auditor will fail to detect a material misstatement (PCAOB, 2010).

accepting doubtful evidence (Coram et al., 2004; Kelley & Margheim, 1990), and increased reliance on internal audit's work (Gramling, 1999). Additionally, studies find evidence that time pressure results in premature sign-offs and underreporting of time (Kelley & Margheim, 1990; Kelley, Margheim, & Pattison, 1999; Margheim & Pany, 1986). Overall, these studies document decreased audit effort and/or quality reducing acts in response to time pressure.

More recently, a qualitative survey (Lambert et al., 2017) investigates engagement-level responses to time pressure. Lambert et al. (2017) surveys 32 retired audit partners who worked on either an AF or LAF engagement during accelerated filing; findings document increased hours worked per day/week, interim testing, and rescheduling non-public audits as the primary methods used "to maintain an acceptable level of audit quality." These three strategies all had response means significantly higher than the mean response for the sample across all strategies identified. The next tier of strategies by ranking include: additional testing and reliance on internal controls, assigning senior professionals to engagements, and requesting the client to accelerate their year-end close. Although not statistically significant, these three strategies also had response means higher than the average for the sample (Lambert et al., 2017). Additionally, looking at changes in audit report timeliness, two recent archival studies find evidence that audit offices under greater time pressure rescheduled concurrent audits of NAFs (Dong et al., 2020) as well as AFs and LAFs not under time-pressure to accelerate audit report dates (Dong et al., 2022). In this study, I expand upon recent engagement-level findings by investigating publicly disclosed audit fees as a proxy for audit engagement effort.

2.4. *Implications of fee changes for audit effort*

There are three possible audit fee outcomes that the accelerated deadlines may bring: *Higher, No Change,* or *Lower* audit fees. Below, I discuss each potential outcome and its implications for audit effort.

2.4.1. *Higher fees*

First, we may see higher fees charged as a result of increased audit effort. If firm resources are available, additional audit staff and/or more experienced staff may be assigned to engagements during year-end as explored in Lambert et al. (2017). Resource reallocations may result in more overall and/or experienced hours billed and thus higher audit fees (e.g. Simunic, 1980). However, due to time and resource constraints, it is possible that additional staff are simply not available. If there is a shortage of available audit staff, this may result in less overall hours billed, less productive hours billed, or less experienced hours billed. For example, certain procedures may be omitted to meet the earlier sign-off date (e.g., Asare et al., 2000; Coram et al., 2004; Kelley & Margheim, 1990; Margheim & Pany, 1986); the existing engagement team may work more overtime and late-night hours (e.g., Lambert et al., 2017); or lower-level staff, staff with different industry experience, and/or staff from other departments may be recruited (e.g., Lambert et al., 2017). In such instances, higher fees may also be charged due to increased perceived audit risk (e.g., Simunic, 1980) surrounding the acceleration.

2.4.2. *No change in fees*

Second, we may see no change to fees charged, suggesting no additional audit effort was needed to accelerate reporting due to built-in slack. Here, to meet the new deadlines, auditors may simply reprioritize the timing of procedures and/or sign-offs without the need for increased total hours worked by the engagement team. For example, auditors may be able to shift more testing to interim and/or encourage their clients to accelerate their year-end close to reduce the amount of audit hours needed on the backend (e.g., Lambert et al., 2017). In addition, audit managers and/or partners may be overseeing multiple overlapping engagements with different report deadlines in which the same level of effort can be reprioritized according to the new deadlines. For example, they may be working on a non-public and a public audit concurrently (e.g., Lambert et al., 2017), a non-accelerated and an accelerated filer concurrently (e.g., Dong et al., 2020), or working on a time-pressure accelerated filer and a non-time-pressure accelerated filer concurrently (e.g., Dong et al., 2022). In theory (e.g. Simunic, 1980), if there is no change to the amount of audit effort, then audit fees should remain relatively flat in these instances. Due to lack of publicly available data on audit hours and resource allocations, the impact of audit engagement timing decision on audit fees remains a relatively unexplored area in the literature.

2.4.3. *Lower fees*

Finally, we may see lower fees charged as a result of reduced audit effort on these engagements. The accelerated filing regulation may provide the impetus for auditors to implement time-saving strategies that result in less overall hours billed. These strategies may include reducing idle hours billed and/or unnecessary testing and procedures. Alternatively, auditors may make significant changes to the engagement model by increasing reliance on a client's internal controls, increasing reliance on internal audit, offshoring lower-level tasks, and/or utilizing more technology as discussed in Lambert et al. (2017). In theory (e.g. Simunic, 1980), if these changes result in reduced effort by the external auditor, then we should expect to see lower audit fees. Prior studies find mixed evidence on the relationship between reliance on internal audit and audit fees (e.g., Felix Jr, Gramling, & Maletta, 2001; Goodwin-Stewart & Kent, 2006; Mat Zain, Zaman, & Mohamed, 2015; Mohamed, Mat Zain, Subramaniam, & Wan Yusoff, 2012). The impact of internal control reliance (e.g., Knechel, Rouse, & Schelleman, 2009; Krishnan et al., 2011), offshoring (e.g., Dee, Lulseged, & Zhang, 2015), and technology use (e.g., Knechel et al., 2009; Magablih, 2019) on audit fees remains a relatively unexplored area of the literature.

2.5. *Hypothesis*

Given the ambiguity in audit fee outcomes, I state the following hypothesis in the null form:

> ***H1:*** *During the implementation period, there will be no change in audit fees for time-pressure engagements compared to control engagements.*

For simplicity, I do not distinguish between the individual filer-types (AF vs. LAF) or implementation years (e.g. 75-day vs. 60-day deadline

reductions) as it is not clear ex ante whether auditor effort strategies and changes made will differ across these groups/years. However, these groups/years are analyzed separately in this study.

3. Research methods and sample

3.1. Research design

This study uses the SEC's accelerated filing regulation as an exogenous shock to audit report deadlines. The events surrounding the regulation's implementation are analyzed to investigate the effect of engagement-level time pressure on audit fees.

3.1.1. Events investigated

Overall, the implementation period *IMPALL* spans from fiscal year-end December 15, 2003 to fiscal year-end December 14, 2007 covering approximately one-year increments for each event stated. The following four events are analyzed:

I. *IMP75,* or the first year of implementation of the 75-day deadline for both AFs and LAFs, beginning fiscal year-end December 15, 2003 through fiscal year-end November 14, 2004.
II. *IMPSOX,* or the first year of SOX 404 implementation for both AFs and LAFs, beginning fiscal year-end November 15, 2004 through fiscal year-end November 14, 2005. This period is included to capture any incremental pressure due to the increased workload under Section 404(b).
III. *PRE60,* or the year prior to the first year of implementation of the 60-day deadline for LAFs, beginning fiscal year-end November 15, 2005 through fiscal year-end December 14, 2006. This period is included to capture any changes made in anticipation of the upcoming deadlines.[9]
IV. *IMP60,* or the first year of implementation of the 60-day deadline for LAFs, beginning fiscal year-end December 15, 2006 through fiscal year-end December 14, 2007.

3.1.2. Propensity score matching

In this study, the sample includes only those engagements subject to the regulation, or AFs and LAFs. Using a similar definition as in Lambert et al. (2017), time-pressure engagements (*TP*) are defined as client engagements whose audit report dates were >75 days after the fiscal year-end date in the year prior to the first year of accelerated deadlines.[10] The control group includes client engagements whose audit report dates were less than or equal to 75 days in the same period. I utilize propensity score matching by filer-type, size, value, liquidity, leverage, and profitability to identify observations included in the control group. This is done to ensure a balanced sample in which the treatment and control groups are comparable based on client-specific characteristics and to reduce the bias of confounding factors related to both the treatment (time-pressure) and outcome variable (audit fees).

Using logistic regression, I estimate the following first-stage model on AFs and LAFs separately to determine the propensity scores for a one-to-one, nearest neighbor match, without replacement, with a caliper distance of 0.03. I estimate this model in the year prior to the first year of the implementation, or fiscal year-end dates December 15, 2002 to December 14, 2003:

$$TP_{AFs} = \underset{(-1.25)}{-0.542} - \underset{(-2.69***)}{0.187ASSETS} - \underset{(-0.26)}{0.008BTM} - \underset{(-1.95*)}{0.084CURRENT} + \underset{(0.5)}{0.179LEV} - \underset{(-1.42)}{0.267ROA} \quad (2a)$$

$$TP_{LAFs} = \underset{(-2.88***)}{-1.548} - \underset{(-0.88)}{0.064ASSETS} - \underset{(-1.44)}{0.125BTM} - \underset{(-0.27)}{0.010CURRENT} - \underset{(-0.45)}{0.221LEV} - \underset{(-1.95*)}{0.831ROA} \quad (2b)$$

Control variables include client-specific factors commonly included in audit fee and quality models which may have confounding effects (Shipman, Swanquist, & Whited, 2017). *ASSETS* is the natural logarithm of total client assets and is used to control for client size. *BTM* is the client's book value of common equity divided by market value and is used to control for a client's growth opportunities. *CURRENT* is the client's current ratio, measured as total current assets divided by total current liabilities, and is used to control for a client's liquidity. *LEV* is client leverage, measured as total liabilities divided by total assets, and is used to control for the risk of client insolvency. *ROA,* or return on assets, is measured as the client's net income divided by total assets and is used to control for a client's profitability.

Coefficients are summarized from the first-stage regressions; the numbers in parentheses show the z-statistics and reflect two-tailed significance with *p*-values as follows: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Overall, coefficients have greater statistical significance for AFs compared to LAFs, suggesting greater disparities for the AF group between time-pressure and control engagements. For both AFs and LAFs, coefficients for *ASSETS, BTM, CURRENT,* and *ROA* are negative and indicate that clients with greater size, book-to-market value, liquidity and profitability are less likely to be in the time-pressure group. The sign on the coefficient for *LEV* is inconsistent for AFs compared to LAFs; however, it is not statistically significant in either group. The characteristics of the pre-matched sample and the propensity score matched sample are summarized in Appendix 1. After performing the match, time-pressure and control groups show balanced results across all five factors with no significant difference in means.

3.1.3. Audit fee regression model

To analyze the impact of time pressure on audit fees, I analyze audit fee changes during the implementation period. Using OLS regression, I estimate the following audit fee model on each of the matched samples of AFs and LAFs:

$$\Delta FEE = \alpha + \beta_1 TP + \beta_2 \Delta ASSETS + \beta_3 \Delta BTM + \beta_4 \Delta CURRENT + \beta_5 \Delta LEV + \beta_6 \Delta ROA + \beta_7 \Delta LOSS + \beta_8 \Delta GC + \beta_9 \Delta INVREC + \beta_{10} \Delta SPEC + \beta_{11} \Delta ACQ + \beta_{12} \Delta MW + \beta_{13} \Delta LATE + \beta_{14} \Delta AUDITOR + \beta_{15} \Delta DA + \varepsilon \quad (3)$$

Variable definitions are as follows:

ΔFEE	Natural logarithm of total audit fees charged to client in the current year minus that of the prior year for the same client.
TP	1 for a time-pressure engagement, or client engagement whose audit report date was >75 days after fiscal year-end date in the year prior to the first year of accelerated deadlines, else 0.

(*continued on next page*)

[9] As noted in Section 2 of this paper, the final phase-in date for the 60-day deadline was pushed back twice. Thus, early implementation made on the original scheduled dates is possible.

[10] The 75-day rather than 60-day threshold is used on LAFs to select those engagements with the greatest time pressure to accelerate reporting. Lambert et al. (2017) documents increased time pressure (in days) is associated with greater changes in audit quality. A similar relationship is expected when analyzing audit fees. I considered an alternative definition for time-pressure LAFs by expanding the variable *TP* into *TP75* and *TP60,* for prior audit report dates >75 days, or between 60 and 75 days, respectively. Findings for *TP60* were not statistically significant during any period. It can further be noted that although the time-pressure group *TP* for LAFs is defined in 2002 (four years before the final 60-day deadline reduction), and despite some evidence of early adoption (Table 5), a significant portion of these engagements still had audit report dates of >60 days in the periods leading up to *IMP60* (57% after *IMP75;* 84% after *IMPSOX;* and 69% after *PRE60*).

(*continued*)

ΔASSETS	Natural logarithm of total client assets in the current year minus that of the prior year.
ΔBTM	Client's book-to-market ratio (total book value of common equity divided by total market value of common equity) in the current year minus that of the prior year.
ΔCURRENT	Client's current ratio (total current assets divided by total current liabilities) in the current year minus that of the prior year.
ΔLEV	Client's leverage (total liabilities divided by total assets) in the current year minus that of the prior year.
ΔROA	Client's return on assets (net income divided by total assets) in the current year minus that of the prior year.
ΔLOSS	1 if the client reported a net loss for the current (prior) year but not the prior (current) year, else 0.
ΔGC	1 if the client's audit opinion includes a going concern qualification in the current (prior) year but not the prior (current) year, else 0.
ΔINVREC	Sum of client's inventory plus receivables divided by total assets in the current year minus that of the prior year.
ΔSPEC	1 if the client reported either an extraordinary item or discontinued operations for the current (prior) year but not the prior (current) year, else 0.
ΔACQ	1 if the client reported an acquisition in the current (prior) year but not the prior (current) year, else 0.
ΔMW	1 if either a SOX 302 or SOX 404 material control weakness is reported for the client in the current (prior) year but not the prior (current) year, else 0.
ΔLATE	1 if the client's 10-K was filed after the SEC deadline for the current (prior) year but not the prior (current) year, else 0.
ΔAUDITOR	1 if there was a change in auditor from the prior year, else 0.
ΔDA	A client's discretionary accruals estimated for the current year minus that of the prior year. Discretionary accruals are measured as the residual from the Modified Jones Model presented in Dechow, Sloan, and Sweeney (1995). Accruals are estimated cross-sectionally by 2-digit SIC industry.

In Model (3), the dependent variable Δ*FEE* captures fee changes and is equal to the natural logarithm of audit fees charged to the client in the current year minus that of the prior year for the same client. Model (3) is estimated over *IMPALL* and each individual event surrounding implementation (*IMP75, IMPSOX, PRE60,* and *IMP60*). In this model, the independent variable of interest is *TP,* or time-pressure engagements. A positive (negative) coefficient on *TP* (β_1) indicates audit fee changes during implementation are higher (lower) on time-pressure engagements compared to control engagements. Model (3) includes control variables from the audit fee literature (e.g., Hay, Knechel, & Wong, 2006; Simunic, 1980) using a fee "changes" model design (e.g., Ghosh & Lustgarten, 2006; Ghosh & Pawlewicz, 2009). A "changes" model is utilized to reduce the bias of omitted correlated variables that are client-specific and time invariant and the bias of time-series trends unrelated to the treatment effect.

Table 1
Sample selection.

	Client Years
1. Merged Compustat and Audit Analytics data for fiscal years ended 12/15/2003 to 12/14/2007	22,498
2. Less: Non-accelerated filers (NAFs)	(10,005)
Foreign issuers	(330)
Financial companies (6000–6999)	(3309)
Obs. where current year file lag falls outside the window: 0 to 180 days	(145)
Obs. where current year audit report lag falls outside the window: 0 to 90 days	(228)
Obs. with 10-KT transition reports	(5)
Duplicate fiscal-year reports	(19)
Obs. with missing variables from regression model	(2319)
3. Pre-matched sample	*6138*
4. Less: Obs. excluded from nearest neighbor propensity score matched sample	(4785)
5. Propensity score matched sample	*1353*
Accelerated filers (AFs)	*736*
Large accelerated filers (LAFs)	*617*

Table 1 shows the sample derivation process and identifies each database used. Sample data is collected for engagements with fiscal years-ended 12/15/2003 to 12/14/2007.

3.2. Sample

3.2.1. Sample selection

Table 1 shows the sample derivation process and identifies each database used. Sample data is collected for engagements with fiscal years-ended December 15, 2003 to December 14, 2007. I start with the Audit Analytics – Audit Opinions database to obtain the audit report dates (signature dates), the auditor assigned to the engagement, and the opinion for each client-year observation. Using Audit Analytics – Audit Fees, I obtain total audit fees charged. Using SOX 302/404, I obtain material weaknesses identified in management's report on disclosure controls or in the auditor's report on internal controls. Using Audit Analytics – Auditor Changes, I identify client years in which there was a change in auditor. I use Compustat to obtain client-specific financial data and merge this data with the Audit Analytics dataset.

NAFs are dropped from the sample as these client engagements are not subject to accelerated filing deadlines. I exclude foreign issuers as these client firms were subject to different reporting regulations. Consistent with prior studies, I exclude financial companies (6000–6999). These companies have significantly different reporting formats which makes comparison of Compustat financial variables difficult. I drop observations where the current year file lag falls outside the window 0 to 180 days and observations where the current year audit report lag falls outside the window 0 to 90 days. These observations may include mismatched data or clients with more serious reporting issues, given they were already missing the old deadline. I drop any duplicate fiscal year reports as well as any 10-KT transition reports. Finally, I drop observations with missing variables from the regression model. There are 6138 unique client years in the pre-matched sample with time-pressure engagements making up approximately 15% of sample observations. From here, I utilize a one-to-one, nearest neighbor, propensity score match without replacement to select a control group for identified time-pressure engagements. The control groups for AFs and LAFs are selected separately as these filer categories were subject to different reporting deadlines under the regulation and are also vastly different in size and other company-specific attributes. This reduces the final sample to 1353 unique client years (with 736 AF observations and 617 LAF observations).[11]

3.2.2. Summary statistics - regression variables

Table 2 reports the summary statistics of the final matched samples of AFs and LAFs. Panel A summarizes continuous variables (means and standard deviations), and Panel B summarizes indicator variables (rate of occurrence).

4. Results

4.1. Time pressure & audit fees

Figure 2 shows audit fee trends in dollars over the period before, during and after implementation comparing time-pressure to control engagements. Trends are plotted by taking the average of total audit fees charged across all client engagements within a particular group for each investigated period.

[11] The final matched sample is an odd rather than even number due to observations with missing regression variables in years subsequent to the year of initial match. See Appendix 1 for sample composition in the year of initial match.

Table 2
Summary statistics. Sample period: 12/15/2003 to 12/14/2007.

	Accelerated Filers (AFs)				Large Accelerated Filers (LAFs)			
	Mean (Standard Dev.)				Mean (Standard Dev.)			
Variable	Overall	TP	Control	P > |t| Dif. in Means	Overall	TP	Control	P > |t| Dif. in Means
Panel A: Continuous Variables								
ΔFEE	0.362	0.350	0.374	0.664	0.293	0.250	0.334	0.123
	(0.752)	(0.780)	(0.724)		(0.676)	(0.632)	(0.716)	
ΔASSETS	0.120	0.112	0.127	0.496	0.119	0.125	0.113	0.516
	(0.304)	(0.314)	(0.295)		(0.221)	(0.215)	(0.228)	
ΔBTM	−0.096	−0.093	−0.100	0.818	−0.076	−0.077	−0.074	0.886
	(0.373)	(0.400)	(0.346)		(0.286)	(0.257)	(0.313)	
ΔCURRENT	0.066	0.013	0.117	0.395	0.044	0.041	0.046	0.962
	(1.652)	(1.731)	(1.573)		(1.307)	(1.311)	(1.306)	
ΔLEV	−0.006	−0.010	−0.003	0.492	0.001	0.000	0.001	0.879
	(0.148)	(0.148)	(0.149)		(0.107)	(0.100)	(0.114)	
ΔROA	0.028	0.026	0.030	0.809	0.021	0.015	0.026	0.300
	(0.221)	(0.238)	(0.203)		(0.126)	(0.112)	(0.138)	
ΔINVREC	−0.000	−0.002	0.002	0.416	0.004	0.002	0.007	0.156
	(0.062)	(0.061)	(0.063)		(0.041)	(0.040)	(0.041)	
ΔDA	0.010	0.017	0.004	0.464	0.003	0.004	0.002	0.908
	(0.249)	(0.258)	(0.240)		(0.211)	(0.216)	(0.207)	
Panel B: Indicator Variables								
ΔLOSS	0.217	0.244	0.192		0.147	0.167	0.129	
ΔGC	0.038	0.055	0.021		0.006	0.007	0.006	
ΔSPEC	0.175	0.172	0.179		0.194	0.203	0.187	
ΔACQ	0.246	0.224	0.267		0.222	0.225	0.219	
ΔMW	0.114	0.130	0.099		0.104	0.085	0.122	
ΔLATE	0.274	0.316	0.235		0.182	0.183	0.180	
ΔAUDITOR	0.082	0.089	0.075		0.070	0.072	0.068	
Observations	736	361	375		617	306	311	
% of Sample		49%	51%			50%	50%	

Table 2 reports summary statistics for Model (3) regression variables comparing time-pressure to control engagements of AFs and LAFs. Time-pressure engagements (*TP*), are client engagements whose audit report date was >75 days after fiscal year-end date in the year prior to the first year of accelerated deadlines. Sample period includes engagements with fiscal year-end 12/15/2003 to 12/14/2007 which spans the implementation period *IMPALL*. Panel A summarizes the mean and standard deviation of continuous variables. Panel B summarizes the rate of occurrence of indicator variables. All continuous variables are winsorized at the 1st and 99th percentiles. For detailed variable definitions see Section 3.

4.1.1. Accelerated filer fee trends

Looking at AFs, a similar trend is seen for both time-pressure and control engagements: average increasing fees with a significant upward pivot during *IMPSOX* and fees plateauing thereafter. Overall, slightly higher average fees (ranging from $40 thousand to $200 thousand higher) are documented on time-pressure compared to control engagements beginning with *IMPSOX* and extending through *IMPALL + 1*. Conversely, fees on control engagements show a subtle tapering in the post-SOX period.

4.1.2. Large accelerated filer fee trends

Looking at LAFs, there is also a trend of average increasing fees with a significant upward pivot during *IMPSOX* for both groups; however, three distinct aberrations are documented. The first is a less significant fee increase on time-pressure versus control engagements during *IMP75* (as documented by the lower positive slope). The second, and most notable, is during *PRE60* in which there is a sharp downward pivot for time-pressure engagements, indicative of fee decreases, and resulting in significantly lower average fees for time-pressure compared to control engagements for the remainder of the sample period (ranging from $650 thousand to $930 thousand lower). Conversely, fees on control engagements show only a slight tapering during *PRE60* and then continue to rise at rates consistent with pre-SOX trends. The third aberration comes during *IMP60* in which time-pressure engagements show a subsequent rebound in fees (as documented by an upward pivot), although not enough to revert to *IMPSOX* fee levels.

4.1.3. Overall period trends

Overall, Fig. 2 trends show a pattern of increasing fees on all engagement groups with steep upward pivots during *IMPSOX,* reflective of the significant start-up costs associated with SOX 404 implementation (e.g., Coates IV, 2007; Coates & Srinivasan, 2014; Ghosh & Pawlewicz, 2009). Furthermore, consistent with findings from prior literature (e.g., Coates IV, 2007; Coates & Srinivasan, 2014), a general pattern of fee reset (from the steep increases during *IMPSOX*) is observed across all engagement groups in *PRE60*, or the period immediately after *IMPSOX.* During *PRE60,* all engagement groups show at least a plateau in fees charged from the prior *IMPSOX* period with time-pressure LAFs being the outlier group and showing significant fee decreases in this period.

4.1.4. Univariate analysis – Audit fee changes

To statistically test the documented trends, Table 3 analyzes average audit fee "changes" (within the same engagement) comparing time-pressure to control engagements.[12] The means, difference in means and related t-statistics are reported for variable *ΔFEE* during the implementation period.

Looking at AFs, there is no statistically significant difference in *ΔFEE* of time-pressure compared to control engagements during any period. Looking at LAFs, however, *ΔFEE* is significantly lower for time-pressure

[12] As noted in Section 3, a fee "changes" model is used for all formal statistical analyses to reduce the bias of client-specific omitted correlated variables (e.g., Ghosh & Lustgarten, 2006; Ghosh & Pawlewicz, 2009). As such, it is acknowledged that there are slight differences between the fee trends depicted in Fig. 2 (which report average fee "levels" across all engagements) and results documented in Table 3 (which report average fee "changes" within the same engagement). Fig. 2 is presented using average fee "levels" to provide a more visually intuitive representation of fee trends, and despite slight discrepancies, the overall trends shown in Fig. 2 are largely consistent with the study's primary findings.

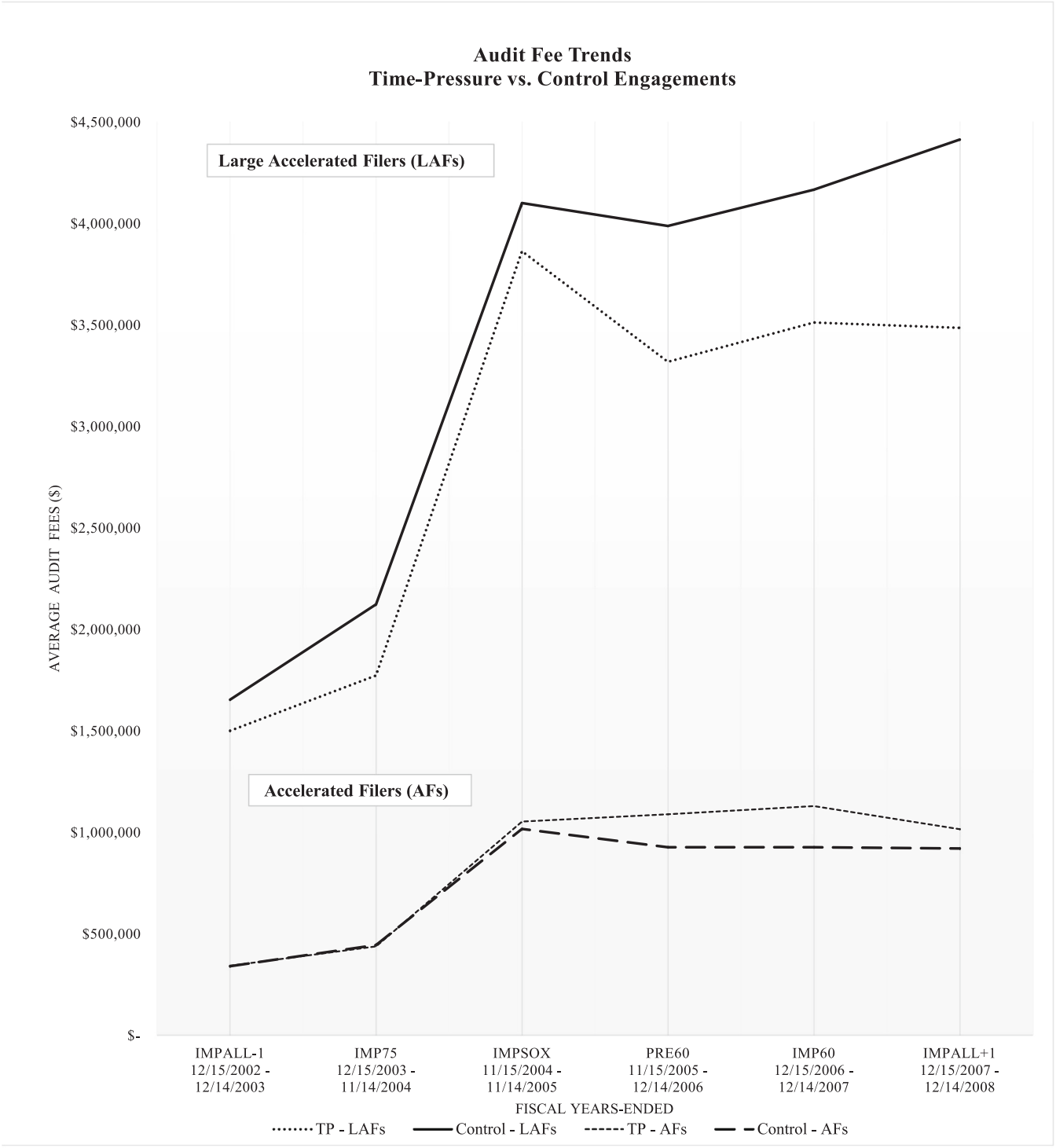

Fig. 2. Audit fee trends. Time-pressure vs. control engagements.

Fig. 2 Shows audit fee trends in dollars for AFs and LAFs comparing time-pressure to control engagements. Time-pressure engagements (*TP*), are client engagements whose audit report date was >75 days after fiscal year-end date in the year prior to the first year of accelerated deadlines. The y-axis reflects average audit fees (in dollars) charged on client engagements. The x-axis reflects approximately one-year increments before, during and after regulatory implementation. *IMPALL-1* is the year prior to implementation, or fiscal years-ended 12/15/2002 to 12/14/2003. *IMP75, IMPSOX,* and *IMP60* are the first years of implementation of the 75-day deadline, SOX 404, and the 60-day deadline, respectively. *PRE60* is the year prior to *IMP60*. Overall, *IMP75, IMPSOX, PRE60,* and *IMP60* span fiscal years-ended 12/15/2003 to 12/14/2007. *IMPALL + 1* is the year after the implementation period ends, or fiscal years-ended 12/15/2007 to 12/14/2008. Sample data reflects the final matched client sample shown in Table 1 extended one year before and one year after the implementation period *IMPALL*. For detailed variable definitions see Section 3.

Table 3
Univariate analysis – Audit fee changes.

Variable: *ΔFEE*		Accelerated Filers (AFs)					Large Accelerated Filers (LAFs)				
		TP Mean	Control Mean	Dif	T-Stat		TP Mean	Control Mean	Dif		T-Stat
Period	Obs.	(1)	(2)	(1)–(2)	(1)–(2)	Obs.	(1)	(2)	(1)–(2)		(1)–(2)
IMPALL	736	0.350	0.374	−0.024	−0.43	617	0.250	0.334	−0.084		−1.55
IMP75	256	0.310	0.390	−0.080	−0.90	166	0.239	0.484	−0.245	**	−2.12
IMPSOX	184	0.779	0.732	0.046	0.44	151	0.762	0.674	0.088		0.93
PRE60	155	0.155	0.195	−0.040	−0.33	151	−0.127	0.189	−0.316	***	−3.20
IMP60	141	0.072	0.073	−0.001	−0.01	149	0.123	−0.033	0.156	**	2.08

Table 3 reports the univariate analysis of audit fee changes comparing the partitioned sample of time-pressure to control engagements for AFs and LAFs. Time-pressure engagements (*TP*), are client engagements whose audit report date was >75 days after fiscal year-end date in the year prior to the first year of accelerated deadlines. *ΔFEE* is measured as the natural logarithm of total audit fees charged to a client firm in the current year minus that of the prior year. Sample period includes engagements with fiscal year-end 12/15/2003 to 12/14/2007 which spans the implementation period *IMPALL*. *IMP75, IMPSOX,* and *IMP60* are the first years of implementation of the 75-day deadline, SOX 404, and the 60-day deadline, respectively. *PRE60* is the year prior to *IMP60*. Continuous variables are winsorized at the 1st and 99th percentiles. T-statistics reflect two-tailed significance. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. For detailed variable definitions see Section 3.

engagements during *IMP75* by −0.245 ($p < 0.05$) and during *PRE60* by −0.316 ($p < 0.01$) when compared to control engagements. The effect is most pronounced during *PRE60* in which fees actually decrease for these engagements as reflected by the negative mean of −0.127 for *ΔFEE*. Conversely, during *IMP60* there is a subsequent rebound in fees on time-pressure LAFs, resulting in a significantly higher *ΔFEE* by 0.156 ($p < 0.05$) when compared to control engagements. Finally, for both AFs and LAFs, a large increase in fees is documented during *IMPSOX* across both time-pressure and control groups with no statistically significant difference between the two. Overall, findings are consistent with the fee trends shown in Fig. 2.

4.1.5. Regression results audit fee changes

Table 4 shows regression results for Model (3), which analyzes audit fee changes during the implementation period (*IMPALL*) and each event surrounding the implementation (*IMP75, IMPSOX, PRE60,* and *IMP60*).

Looking at Panel A, which reports results for AFs, the coefficient on *TP,* or time-pressure engagements, is not statistically significant during any period. Findings are in line with univariate tests in Table 3. Looking at Panel B, which reports results for LAFs, the coefficient on *TP* is negative and statistically significant during *IMP75,* –0.209 ($p < 0.10$), and *PRE60,* –0.278 ($p < 0.01$). Conversely, there is a positive and statistically significant coefficient on *TP* during *IMP60,* 0.173 ($p < 0.05$). During the sample period as a whole (*IMPALL*), the coefficient on *TP* is negative and statistically significant, −0.083 ($p < 0.10$). Findings indicate that the negative fee changes documented during *IMP75* and *PRE60* outweighed the positive fee change during *IMP60.* Overall, results are consistent with univariate tests in Table 3.

5. Discussion

In this section, I explore the possible changes made on engagements that would result in the documented audit fee outcomes. Looking at time-pressure AFs, results show *No Change* in audit fees. Findings suggest built-in slack, allowing auditors to reprioritize the timing of procedures and sign-offs. Looking at time-pressure LAFs, results show *Lower* audit fees (particularly during *PRE60*); these findings suggest effort reductions.

5.1. Slack and reprioritized timing

As previously discussed, timing changes may be achieved through adjusting audit procedures (e.g. interim testing), accelerating the client's year-end close, or reprioritizing audit resources on overlapping engagements (e.g. engagements without time pressure lending resources to time-pressure engagements of the same audit office). While it is difficult to measure internal changes made on engagements, such as the extent and use of interim testing or the timing of client deliverables, it is possible to measure effort changes made between engagements by looking at publicly available audit report dates (e.g., Dong et al., 2020; Dong et al., 2022).

5.1.1. Analyzing time-pressure (slack) in days

Table 5 shows univariate results for time pressure (slack) in days comparing the partitioned sample of time-pressure (*TP*) to control engagements. The means, difference in means and related t-statistics are reported for variables *TPDAYS_ENGAGE* (Panel A) and *TPDAYS_OFFICE* (Panel B). *TPDAYS_ENGAGE* measures time pressure (slack) in days at the client engagement level, calculated as the difference in days between the audit report date in the current year and the overall anticipated filing deadline for the given client firm (75 days for AFs and 60 days for LAFs). *TPDAYS_OFFICE* measures time pressure (slack) in days at the audit office level and is measured as the average time pressure in days (*TPDAYS_ENGAGE*) on all public-company client engagements (including NAFs) of a given audit office at the end of the current year.

Panel A summarizes results for *TPDAYS_ENGAGE.* In the year prior to acceleration (*IMPALL-1*), we see average engagement-level time pressure of approximately 8 days on TP-AFs compared to slack (negative pressure) of 31 days on Control-AFs. During *IMP75*, results show TP-AFs accelerated reporting by an average of 19 days, resulting in ending slack of approximately 11 days.[13] Conversely, results show an increase in time pressure by approximately 6 days for Control-AFs during the same period. A similar pattern is also documented for LAFs; in the year prior to acceleration (*IMPALL-1*), we see average engagement-level time pressure (to meet the 60-day deadline) of approximately 23 days on TP-LAFs compared to slack of 21 days on Control-LAFs. During *IMP75*, results show TP-LAFs accelerated reporting by an average of 24 days, resulting in ending slack of approximately 1 day to meet the final 60-day deadline.[14] Conversely, results show an increase in audit report lag by approximately 8 days for Control-LAFs during the same period. The

[13] As noted in Section 2, initially both AFs and LAFs were included in the second deadline reduction to 60 days (SEC, 2002b). This was changed in 2005, when filer-status was updated to three categories with only the LAF category to be required to make the second reduction to 60 days (SEC, 2005). Thus, the additional 11 days reduction (beyond what was required) on AFs during *IMP75* may have been driven by anticipation of the upcoming 60-day deadline before the rule was changed.

[14] Results of no ending time pressure on TP-LAFs at the end of *IMP75* suggest early implementation of the 60-day deadline.

Table 4
Regression results – Audit fee changes.

Panel A: Accelerated Filers (AFs)

Dep. Var. *ΔFEE*		*IMPALL*		*IMP75*		*IMPSOX*		*PRE60*		*IMP60*	
		(1)		(2)		(3)		(4)		(5)	
Indep. Var.	Pred. Sign	Coeff.	(t-stat)	Coeff.	(t-stat)	Coeff.	(t-stat)	Coeff.	(t-stat)	Coeff.	(t-stat)
TP	?	−0.025	(−0.49)	−0.103	(−1.15)	0.037	(0.35)	0.014	(0.12)	−0.035	(−0.32)
ΔASSETS	+	0.272***	(2.97)	0.220	(1.27)	0.289	(1.39)	0.123	(0.64)	0.302	(1.46)
ΔBTM	−	0.032	(0.42)	−0.044	(−0.44)	0.224	(1.48)	−0.118	(−0.40)	0.071	(0.24)
ΔCURRENT	−	−0.021	(−1.07)	0.002	(0.08)	−0.052	(−1.57)	−0.035	(−0.49)	−0.016	(−0.60)
ΔLEV	+	0.042	(0.21)	0.122	(0.33)	−0.072	(−0.21)	0.139	(0.29)	−0.156	(−0.25)
ΔROA	−	−0.322**	(−2.04)	−0.612***	(−3.24)	0.736**	(2.09)	−0.760*	(−1.76)	−0.363	(−0.88)
ΔLOSS	?	0.022	(0.35)	0.181	(1.41)	−0.014	(−0.13)	−0.270*	(−1.76)	−0.007	(−0.07)
ΔGC	?	−0.019	(−0.18)	−0.083	(−0.59)	0.020	(0.13)	0.039	(0.11)	0.166	(0.52)
ΔINVREC	+	−0.052	(−0.12)	−0.227	(−0.31)	0.989	(0.93)	−0.586	(−0.53)	−0.500	(−0.64)
ΔSPEC	?	−0.041	(−0.64)	−0.121	(−1.24)	0.006	(0.05)	0.154	(0.74)	−0.099	(−1.00)
ΔACQ	?	−0.034	(−0.58)	−0.124	(−1.43)	−0.227*	(−1.72)	0.286*	(1.90)	−0.160	(−1.52)
ΔMW	?	0.020	(0.20)	−0.344***	(−2.87)	0.280*	(1.73)	−0.010	(−0.05)	0.080	(0.36)
ΔLATE	?	0.085	(1.39)	0.052	(0.51)	0.026	(0.25)	0.013	(0.08)	0.213	(1.44)
ΔAUDITOR	−	−0.794***	(−5.36)	−0.536**	(−2.04)	−1.074***	(−3.39)	−0.556*	(−1.74)	−1.113***	(−3.81)
ΔDA	?	0.140	(1.21)	0.275	(1.53)	−0.001	(−0.01)	0.480	(1.61)	0.058	(0.42)
CONSTANT	?	0.415***	(6.99)	0.462***	(5.84)	0.796***	(8.79)	0.169*	(1.69)	0.146**	(2.47)
Year Controls		Incl.		Not Incl.		Not Incl.		Not Incl.		Not Incl.	
Observations		736		256		184		155		141	
Adj. R-squared		0.195		0.049		0.162		0.074		0.248	

Panel B: Large Accelerated Filers (LAFs)

Dep. Var. *ΔFEE*		*IMPALL*		*IMP75*		*IMPSOX*		*PRE60*		*IMP60*	
		(1)		(2)		(3)		(4)		(5)	
Indep. Var.	Pred. Sign	Coeff.	(t-stat)	Coeff.	(t-stat)	Coeff.	(t-stat)	Coeff.	(t-stat)	Coeff.	(t-stat)
TP	?	−0.083*	(−1.79)	−0.209*	(−1.81)	0.073	(0.83)	−0.278***	(−3.35)	0.173**	(2.48)
ΔASSETS	+	0.386***	(3.76)	−0.025	(−0.12)	0.636*	(1.79)	0.356*	(1.76)	0.514***	(2.71)
ΔBTM	−	0.033	(0.32)	0.097	(0.62)	−0.092	(−0.33)	−0.215	(−0.81)	0.098	(0.43)
ΔCURRENT	−	−0.012	(−0.73)	0.017	(0.48)	−0.016	(−0.44)	−0.054	(−0.98)	−0.010	(−0.59)
ΔLEV	+	−0.068	(−0.25)	0.663*	(1.84)	−0.159	(−0.35)	−0.742	(−0.88)	−0.532	(−1.52)
ΔROA	−	−0.393**	(−2.36)	−0.409	(−1.23)	−0.366	(−0.87)	−0.352	(−0.88)	−0.241	(−0.71)
ΔLOSS	?	0.041	(0.51)	0.172	(0.83)	−0.007	(−0.06)	0.043	(0.26)	−0.184*	(−1.96)
ΔGC	?	0.201	(1.12)	−0.258	(−1.45)	0.091	(0.17)	0.580**	(2.04)	0.000	(.)
ΔINVREC	+	1.061**	(2.03)	−0.650	(−0.57)	0.702	(0.70)	3.288**	(2.02)	1.941***	(2.67)
ΔSPEC	?	0.034	(0.47)	0.043	(0.35)	−0.121	(−1.09)	0.225	(1.12)	0.113	(1.20)
ΔACQ	?	−0.020	(−0.32)	−0.074	(−0.42)	−0.011	(−0.11)	−0.005	(−0.04)	0.001	(0.00)
ΔMW	?	0.075	(0.86)	−0.472***	(−3.66)	0.079	(0.65)	0.288*	(1.85)	−0.138	(−1.16)
ΔLATE	?	−0.051	(−0.72)	−0.075	(−0.55)	−0.082	(−0.46)	0.031	(0.15)	−0.062	(−0.64)
ΔAUDITOR	−	−0.867***	(−5.94)	−0.789***	(−3.53)	−1.004***	(−2.94)	−0.967***	(−3.12)	−0.675***	(−3.29)
ΔDA	?	0.139	(1.20)	0.016	(0.04)	−0.028	(−0.09)	0.074	(0.31)	0.190	(1.61)
CONSTANT	?	0.425***	(5.69)	0.534***	(4.75)	0.723***	(11.23)	0.090	(1.28)	−0.008	(−0.18)
Year Controls		Incl.		Not Incl.		Not Incl.		Not Incl.		Not Incl.	
Observations		617		166		151		151		149	
Adj. R-squared		0.278		0.033		0.214		0.245		0.210	

Table 4 shows regression results for Model (3) during the implementation period *IMPALL* (12/15/2003–12/14/2007) and each individual implementation year. *IMP75, IMPSOX,* and *IMP60* are the first years of implementation of the 75-day deadline, SOX 404, and the 60-day deadline, respectively. *PRE60* is the year prior to *IMP60*. Panel A reports results for AFs, and Panel B reports results for LAFs. Dependent variable *ΔFEE* is the natural logarithm of total audit fees charged to a client firm in the current year minus that of the prior year. Independent variable of interest is *TP,* or a time-pressure engagement, defined as a client engagement whose audit report date was >75 days after fiscal year-end date in the year prior to the first year of accelerated deadlines. All continuous variables are winsorized at the 1st and 99th percentiles. T-statistics reflect two-tailed significance and are calculated using heteroscedasticity-robust standard errors. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. For detailed variable definitions see Section 3.

decrease (increase) in *TPDAYS_ENGAGE* on time-pressure (control) engagements during *IMP75* lends support to audit timing changes by means of resource reallocations across client engagements (for both AFs and LAFs) during the first acceleration to 75 days.

Moving into *IMPSOX,* it can be noted that *TPDAYS_ENGAGE* increased across *both* time-pressure and control engagements: increase by 9 days for TP-AFs and 11 days for TP-LAFs compared to 17 days for Control-AFs and 19 days for Control-LAFs. The across the board increase in time pressure emphasizes the additional strains brought on by SOX for all audit engagements; however, increases are significantly larger for the control group, suggesting continued resource reallocations towards time-pressure engagements in order to maintain accelerated reporting. Subsequent to SOX, there is no additional evidence of resource reallocations away from the control group, and the means for *TPDAYS_ENGAGE* remain relatively constant and/or decrease.

To confirm the feasibility of resource transfers occurring across client engagements within the same audit office, Panel B summarizes results for *TPDAYS_OFFICE*. In the year prior to acceleration (*IMPALL-1*), overall there is ample office-level slack in the audit offices of TP-AFs and TP-LAFs of approximately 18 and 16 days, respectively, despite these clients having time-pressure at the individual engagement level. These findings provide evidence that resources from other client engagements were available within the respective audit offices time-pressure clients. Furthermore, slack within offices of both TP-AFs and TP-LAFs decreases

Table 5
Analysis of time pressure (slack) in days.

Variable (See Below)	Accelerated Filers (AFs)						Large Accelerated Filers (LAFs)					
		TP Mean	Control Mean	Dif		T-Stat		TP Mean	Control Mean	Dif		T-Stat
Period	Obs.	(1)	(2)	(1)–(2)		(1)–(2)	Obs.	(1)	(2)	(1)–(2)		(1)–(2)
Panel A: Engagement-Level Time Pressure (Slack) in Days (*TPDAYS_ENGAGE*)												
IMPALL-1	266	8	−31	39	***	28.71	172	23	−21	44	***	27.44
IMP75	256	−11	−25	14	***	6.14	166	−1	−13	12	***	4.64
IMPSOX	184	−2	−8	6	***	3.36	151	10	6	4	**	2.21
PRE60	155	−4	−10	6	***	3.38	151	5	4	1		0.47
IMP60	141	−4	−7	3	**	1.99	149	1	1	0		0.29
Panel B: Office-Level Time Pressure (Slack) in Days (*TPDAYS_OFFICE*)												
IMPALL-1	266	−18	−23	5	***	3.92	172	−16	−24	8	***	5.11
IMP75	256	−13	−17	4	**	2.17	166	−14	−19	5	***	2.91
IMPSOX	184	1	−2	3		1.51	151	1	−2	3	**	2.04
PRE60	155	−1	−2	1		0.70	151	0	−2	2		1.36
IMP60	141	−1	−1	0		0.28	149	−1	−2	1		1.08

Table 5 reports the univariate analysis of time pressure (slack) in days comparing the partitioned sample of time-pressure to control engagements for AFs and LAFs. Time-pressure engagements (*TP*), are client engagements whose audit report date was >75 days after fiscal year-end date in the year prior to the first year of accelerated deadlines. Panel A analyzes *TPDAYS_ENGAGE,* or time pressure (slack) in days at the client engagement level, calculated as the difference in days between the audit report date in the current year and the overall anticipated filing deadline for the given client firm (75 days for all AFs and 60 days for all LAFs). Panel B analyzes *TPDAYS_OFFICE,* or time pressure (slack) in days at the audit office level, measured as the average time pressure in days on all public company client engagements of a given audit office at the end of the current year. *IMPALL-1* is the year prior to implementation of the first deadline change. *IMP75, IMPSOX,* and *IMP60* are the first years of implementation of the 75-day deadline, SOX 404, and the 60-day deadline, respectively. *PRE60* is the year prior to *IMP60*. All continuous variables are winsorized at the 1st and 99th percentiles. T-statistics reflect two-tailed significance. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. For detailed variable definitions see Section 3.

each period (*IMP75, IMPSOX*) until it is completely absorbed at the end of *IMPSOX*, suggesting that the available resources were used.

Overall, the findings in Table 5 provide evidence of resource reallocations within the audit offices of both TP-AFs and TP-LAFs (particularly during *IMP75* and *IMPSOX*), in line with prior studies (Dong et al., 2020; Dong et al., 2022). This strategy, however, does not appear to be used in periods subsequent to *IMPSOX* when office slack is used up. How then, do time-pressure LAFs handle the second acceleration to 60 days? Furthermore, how do they do so while also achieving lower audit fees?

5.2. Effort reductions

I therefore consider effort reduction strategies that may have been used to aid in the final acceleration to 60 days. As previously discussed, auditors may reduce idle hours billed and/or unnecessary testing or procedures, place more reliance on a client's internal controls or internal audit, outsource audit work, and/or increase the use of technology. Due to lack of publicly available data, it is difficult to measure the use and impact, if any, of such engagement methodology choices on the observed lower fees. Preliminary evidence, however, points to reliance on internal controls as a strategy used. Referring to the Lambert et al. (2017) survey, increasing reliance on internal controls had a higher than average response mean as a strategy used by auditors to "maintain an acceptable level of audit quality" when accelerating reporting. The other strategies mentioned all had lower than average response means. Furthermore, 87% of partners surveyed said LAFs were better able to handle accelerations, citing "stronger internal controls" as one of the reasons (Lambert et al., 2017, p.63). I therefore explore whether increasing reliance on internal controls was feasible in this study's sample.

5.2.1. Analyzing material control weaknesses

The documented fee decreases on time-pressure LAFs are most significant during *PRE60* (Table 4), which begins in fiscal year 2005, the year immediately after SOX 404 implementation, when testing of internal controls was now fully incorporated into the audit (U.S. HR, 2002). As early as 2005, the PCAOB also began discussions of better integration of the internal control audit with the financial statement audit and encouraged auditors to place more reliance on internal controls in order to improve efficienies (PCAOB, 2005). These discussions ultimately resulted in the PCAOB formally adopting Auditing Standard No. 5 (AS5) with early implementation supported (PCAOB, 2007). Thus, increasing reliance on internal controls would have been feasible and even encouraged during the post-SOX period. In line with the audit risk model (Fig. 1), auditors would be able to place more reliance on a client's internal controls if assessments point to low control risk. To proxy for control risk, in Table 6, I look at material control weakness reporting.

In Panel A, the means, difference in means and related t-statistics are reported for material control weaknesses *(MW)* comparing time-pressure to control engagements. *MW* is equal to 1 if either a SOX 302 or SOX 404 material control weakness is reported for the client in the current year, else 0. Consistent with the Lambert et al. (2017) survey, during *IMPSOX,* results show greater *MW* on time-pressure AFs (17.6%) compared to time-pressure LAFs (12.0%). In the post-SOX period, results show an overall trend of *MW* remediation consistent with prior literature (e.g., Krishnan et al., 2011), with remediations more pronounced for LAFs compared to AFs. Looking at the sample of AFs, there is no significant difference in the percentage of engagements reporting *MW's* for time-pressure compared to control in any period; however, looking at LAFs, the occurrence of *MW's* during the first year of SOX 404 reporting (*IMPSOX*) was significantly lower ($p < 0.10$) on time-pressure LAFs (12.0%) compared to control LAFs (22.4%). Given the time pressure to accelerate, this group may have been incentivized to start remediations of control weaknesses earlier (before they were required to report); thus, increasing reliance on internal controls may have been feasible.

In Panel B, regression results for the fee changes Model (3) are reported after including a control for the remediation of material control weaknesses (*MWREM*) and then looking at the interaction effect with a time-pressure engagement (*TP*). *MWREM* is equal to 1 if either a SOX 302 or SOX 404 material control weakness is reported for the client in the prior year but not in the current year, else 0. Prior studies find that

Table 6
Analysis of material control weaknesses.

Panel A: Univariate Results - Percentage of Engagements Reporting Material Control Weaknesses

Variable: *MW*	Accelerated Filers (AFs)					Large Accelerated Filers (LAFs)					
		TP Mean	Control Mean	Dif	T-Stat		TP Mean	Control Mean	Dif		T-Stat
Period	Obs.	(1)	(2)	(1)–(2)	(1)–(2)	Obs.	(1)	(2)	(1)–(2)		(1)–(2)
IMPSOX	184	0.176	0.140	0.036	0.67	151	0.120	0.224	−0.104	*	−1.69
PRE60	155	0.130	0.103	0.027	0.53	151	0.108	0.104	0.004		0.08
IMP60	141	0.087	0.139	−0.052	−0.97	149	0.013	0.027	−0.014		−0.59
IMPALL + 1	152	0.093	0.052	0.041	0.98	144	0.029	0.053	−0.023		−0.69

Panel B: Regression Results - Audit Fee Changes on Clients Remediating Material Control Weaknesses

Dep. Var. *ΔFEE*	Accelerated Filers (AFs)						Large Accelerated Filers (LAFs)					
	PRE60		*IMP60*		*IMPALL + 1*		*PRE60*		*IMP60*		*IMPALL + 1*	
	(1)		(2)		(3)		(1)		(2)		(3)	
Indep. Var.	Coeff.	(t-stat)	Coeff.	(t-stat)	Coeff.	(t-stat)	Coeff.	(t-stat)	Coeff.	(t-stat)	Coeff.	(t-stat)
Remediation of Material Control Weaknesses												
TP	0.010	(0.09)	−0.069	(−0.71)	0.002	(0.02)	−0.277***	(−3.25)	0.169**	(2.53)	−0.078	(−1.59)
MWREM	0.150	(0.58)	0.271	(0.68)	0.025	(0.21)	0.171	(0.90)	−0.133	(−1.12)	−0.376***	(−3.08)
Control Variables	Incl.		Incl.		Incl.		Incl.		Incl.		Incl.	
Observations	155		141		152		151		149		144	
Adj. R-squared	0.075		0.265		0.017		0.239		0.231		0.249	
Remediation of Material Control Weaknesses Interaction Effect												
TP	0.072	(0.63)	−0.077	(−0.81)	0.002	(0.02)	−0.205**	(−2.31)	0.160**	(2.25)	−0.076	(−1.52)
MWREM	0.406	(1.14)	0.094	(0.18)	0.026	(0.21)	0.434*	(1.89)	−0.191	(−0.80)	−0.328**	(−2.31)
*TP*MWREM*	−0.479	(−0.91)	0.209	(0.36)	−0.002	(−0.01)	−0.706*	(−1.94)	0.105	(0.38)	−0.149	(−0.84)
Control Variables	Incl.		Incl.		Incl.		Incl.		Incl.		Incl.	
Observations	155		141		152		151		149		144	
Adj. R-squared	0.080		0.260		0.010		0.265		0.227		0.244	

Table 6 reports analyses of material control weaknesses comparing time-pressure (*TP*) to control engagements. Sample period begins with *IMPSOX,* or the first year that testing of internal controls was required. Sample period ends with *IMPALL + 1,* or the first year of AS5 implementation with an integrated audit approach. Panel A reports the univariate analysis with *MW*, equal to 1 if either a SOX 302 or SOX 404 material control weakness is reported for the client in the current year, else 0. Panel B reports regression results for Model (3) analyzing the effect of material control weakness remediation on audit fees in the post-SOX period. Dependent variable *ΔFEE* is the natural logarithm of total audit fees charged to a client firm in the current year minus that of the prior year. Independent variable *MWREM* is equal to 1 if there was a *MW* in the prior year but not in the current year, else 0. *TP*MWREM,* captures the interaction effect with time-pressure (*TP*) engagements. For brevity, control variables are not displayed. All continuous variables are winsorized at the 1st and 99th percentiles. T-statistics reflect two-tailed significance and are calculated using heteroscedasticity-robust standard errors. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. For detailed variable definitions see Section 3.

material control weaknesses are associated with higher audit fees (e.g., Hogan & Wilkins, 2008; Hoitash et al., 2008; Krishnan et al., 2011; Raghunandan & Rama, 2006) and their subsequent remediation associated with significant fee decreases, particularly after AS5 adoption (Krishnan et al., 2011). Looking at the results after including a control for remediation of material control weaknesses, the coefficient on *MWREM* is not statistically significant for AFs during any period; however, consistent with prior literature (Krishnan et al., 2011), the coefficient is negative and statistically significant, −0.376 ($p < 0.01$), for LAFs beginning with the first full year of required AS5 adoption in 2007 (PCAOB, 2007) which coincides with *IMPALL+1* (12/15/2007–12/14/2008). Furthermore, there is some evidence of early AS5 adoption in the prior year *IMP60* (12/15/2006–12/14/2007) as evidenced by the negative coefficient −0.133 (n.s.) for LAFs. Looking at the interaction effect *TP*MWREM* in the second set of regressions, there is a significant and negative interaction of −0.706 ($p < 0.10$) for LAFs during *PRE60* (11/15/2005–12/14/2006), providing evidence of possibly even earlier AS5 adoption for time-pressure LAFs with a benefit of reduced audit fees.

5.3. Alternative explanations for fee decreases on LAFs

In Table 7, I explore alternative explanations for the fee decrease seen on time-pressure LAFs including: auditor changes, loss years, restatements, and client bargaining power.[15]

5.3.1. Auditor changes

Auditor changes were prevalent during the sample period (Ettredge, Scholz, & Li, 2007), and prior studies find evidence of fee discounting on first year engagements (Ghosh & Lustgarten, 2006). I therefore explore the possibility that the negative fee changes on time-pressure LAFs may be driven by auditor changes. First, looking at descriptive statistics in Table 2, auditor changes are only slightly more frequent on time-pressure LAFs (7.2%) compared to the control group (6.8%). If results were driven by auditor changes, this difference would presumably be higher. Furthermore, after controlling for auditor changes (*ΔAUDITOR*) in the main sample regressions in Table 4, univariate results from

[15] In addition to the characteristics investigated in Table 7, I also explore changes to the inventory-to-receivables ratio (*ΔINVREC)* across time-pressure and control LAFs. Looking at Table 2, over the sample period as a whole, the difference in means of *ΔINVREC* is not statistically significant; however, the *p*-value (0.156) is low. I therefore investigate the difference in means during *PRE60*, the period of significant fee decline; in this period, the *p*-values for both the levels and change variables (*INVREC* and *ΔINVREC*) remain non-significant (p-values of 0.795 and 0.580).

Table 7
Regression results - Alternative explanations for fee decreasess on large accelerated filers (LAFs).

Dep. Var. *ΔFEE*	*IMPALL*		*IMP75*		*IMPSOX*		*PRE60*		*IMP60*	
	(1)		(2)		(3)		(4)		(5)	
Indep. Var.	Coeff.	(t-stat)	Coeff.	(t-stat)	Coeff.	(t-stat)	Coeff.	(t-stat)	Coeff.	(t-stat)
Large Accelerated Filers (LAFs)										
Excluding Auditor Changes										
TP	−0.095**	(−2.06)	−0.207*	(−1.71)	−0.016	(−0.25)	−0.195**	(−2.55)	0.164**	(2.37)
Control Variables	Incl.		Incl.		Incl.		Incl.		Incl.	
Observations	574		158		138		140		138	
Adj. R-squared	0.244		−0.012		0.021		0.181		0.105	
Excluding Loss Years										
TP	−0.061	(−1.15)	−0.204	(−1.38)	0.089	(0.89)	−0.238**	(−2.60)	0.181**	(2.40)
Control Variables	Incl.		Incl.		Incl.		Incl.		Incl.	
Observations	479		112		122		119		126	
Adj. R-squared	0.281		0.042		0.139		0.322		0.199	
Excluding Restatements										
TP	−0.092*	(−1.94)	−0.239*	(−1.95)	0.073	(0.81)	−0.281***	(−3.30)	0.168**	(2.37)
Control Variables	Incl.		Incl.		Incl.		Incl.		Incl.	
Observations	596		157		144		149		146	
Adj. R-squared	0.263		0.025		0.152		0.244		0.184	
Bargaining Power										
TP	−0.082**	(−2.04)	−0.199*	(−1.72)	0.046	(0.53)	−0.279***	(−3.39)	0.169**	(2.44)
ΔPOWER	−0.807**	(−2.50)	−1.175**	(−2.09)	−1.592***	(−2.66)	0.026	(0.03)	−0.451	(−1.51)
Control Variables	Incl.		Incl.		Incl.		Incl.		Incl.	
Observations	617		166		151		151		149	
Adj. R-squared	0.285		0.032		0.251		0.240		0.210	
Bargaining Power Interaction Effect										
TP	−0.082**	(−2.01)	−0.197*	(−1.70)	0.049	(0.57)	−0.286***	(−3.28)	0.178**	(2.50)
ΔPOWER	−0.821**	(−2.45)	−1.448**	(−2.20)	−1.428**	(−2.05)	−0.499	(−0.34)	−0.361	(−1.29)
*TP*ΔPOWER*	0.038	(0.05)	1.117	(0.62)	−0.420	(−0.48)	0.708	(0.40)	−0.876	(−0.91)
Control Variables	Incl.		Incl.		Incl.		Incl.		Incl.	
Observations	617		166		151		151		149	
Adj. R-squared	0.283		0.027		0.247		0.236		0.207	

Table 7 explores alternative explanations for the fee decreases on time-pressure LAFs. Regression results are shown for Model (3) after [1] excluding client years with an auditor change (*ΔAUDITOR*), [2] excluding client years in which a loss is reported (*LOSS*), [3] excluding client years that were later restated (*RESTATE*), and [4] controlling for changes in client bargaining power (*ΔPOWER). ΔPOWER* is measured as the change (current minus prior year) in the natural log of client sales divided by the sum of logged sales for all public company clients in the same industry audited by the same audit firm (Casterella et al., 2004). For brevity, control variables are not displayed. All continuous variables are winsorized at the 1st and 99th percentiles. T-statistics reflect two-tailed significance and are calculated using heteroscedasticity-robust standard errors. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. For detailed variable definitions see Section 3.

Table 3 remain unchanged. To further address this possible confounding factor, in Table 7, I re-estimate the fee models for LAFs after excluding client years with auditor changes.[16] Results are consistent with those shown in the main sample regressions.

5.3.2. Loss years

I also explore the possibility that the negative fee changes on time-pressure LAFs may be driven by loss years. Looking at Table 2, there is more variability in client profit versus loss years (*ΔLOSS*) for time-pressure LAFs (16.7%) compared to the control group (12.9%). Loss years also have a negative and statistically significant ($p < 0.01$) relationship with audit fees (untabulated for brevity). Therefore, in Table 7, I re-estimate the fee models for LAFs after dropping observations with loss years.[17] Statistical significance is lost during *IMPALL* and *IMP75;* however, the magnitude and direction of the coefficients for *TP* remain consistent with those shown in the main sample regressions.[18] Furthermore, in the period with the greatest fee decline (*PRE60*) the coefficient for *TP* remains both negative and statistically significant at the 5% level.

5.3.3. Restatements

The sample period under investigation (2003–2006) includes the peak year for restatements (2006) according to Audit Analytics (Coleman, Conley, & Hallas, 2021). Moreover, prior studies find evidence that restatements reflect lower audit effort as measured by lower audit fees (Blankley, Hurtt, & MacGregor, 2012; Lobo & Zhao, 2013). Therefore, it is possible that the documented lower fees on time-pressure LAFs are due to quality reducing acts rather than timing and methodology improvements. In analyzing descriptive statistics (untabulated for brevity), LAF client years that were later restated represent only 3% of all LAF sample observations. Furthermore, there are fewer restatement years for time-pressure LAFs (2.3%) compared to the control group (4.5%). Finally, in Table 7, I re-estimate the fee models for LAFs after excluding

[16] The fee models were also re-estimated for AFs after dropping observations with auditor changes. The finding of "no significant change" to audit fees on time-pressure AFs is consistent after dropping these observations.

[17] The fee models were also re-estimated for AFs after dropping observations with loss years; results are consistent with the main sample regressions.

[18] The loss in statistical significance on time-pressure LAFs during *IMPALL* and *IMP75* may be due to the reduced sample size after dropping observations with loss years. This test was also run on the pre-matched sample in which statistical significance was maintained consistent with the study's main findings.

client years that were later restated.[19] Findings are consistent with those shown in the main sample regressions.

5.3.4. Bargaining power

As documented in Casterella, Francis, Lewis, and Walker (2004) and later in Huang, Liu, Raghunandan, and Rama (2007), client bargaining power is associated with lower audit fees. Therefore, it is possible that the negative fee changes seen on time-pressure LAFs are driven by changes in client bargaining power during the implementation period. First, looking at descriptive statistics (untabulated for brevity), I find no statistically significant difference in the means for client bargaining (*POWER* or *ΔPOWER*) when comparing time-pressure LAFs to the control group. *POWER* is measured as the natural log of client sales divided by the sum of logged sales for all public-company clients in the same industry audited by the same audit firm (Casterella et al., 2004). *ΔPOWER* captures the change in *POWER*, current minus prior year. To further control for any changes to bargaining power, in Table 7, I include *ΔPOWER* as an additional independent variable in the fee regression model. During the implementation period *IMPALL*, there is a significant negative relationship between *ΔPOWER* and audit fees as documented in prior studies (Casterella et al., 2004; Huang et al., 2007). After controlling for *ΔPOWER,* results for the independent variable of interest *TP* are consistent with the main findings; overall, the coefficient on *TP* is negative and statistically significant for LAFs during the implementation period, particularly in *PRE60,* –0.279 ($p < 0.01$). Looking at the interaction between *TP* *Δ*POWER*, findings show no incremental effect of bargaining power on time-pressure engagements, further suggesting that bargaining power is not the driver of the lower fees documented in the main findings

5.4. Subsequent fee increases on LAFs

In Table 8, I analyze the subsequent fee increases documented on time-pressure LAFs during *IMP60.*

5.4.1. Early vs. later implementation

First, I split the LAF time-pressure group into two sub-groups: early adopters (*TP_EARLYIMP*) and later adopters (*TP_REMAINING*) of the 60-day deadline. For *IMP75, IMPSOX,* and *PRE60, TP_EARLYIMP* is equal to 1 if the identified time-pressure engagement's *current year* audit report date is less than or equal to 60 days after fiscal year-end date, else 0. For *IMP60, TP_EARLYIMP* is equal to 1 if the identified time-pressure engagement's *prior year* audit report date is less than or equal to 60 days after fiscal year-end date, else 0. For each sample period, *TPREMAINING* is equal to 1 for the remaining time-pressure LAFs not identified as early adopters, else 0. In Table 8, I re-estimate the fee models for LAFs using these two time-pressure groups. During both *IMP75* and *PRE60,* the negative fee results on time-pressure engagements are stronger for *TP_EARLYIMP* (i.e. coefficients have greater magnitude and/or statistical significance) compared to *TP_REMAINING.* During *IMP75,* the coefficient on *TP_EARLYIMP* is −0.236 ($p < 0.05$) compared to −0.190 (n.s.) for *TP_REMAINING*. During *PRE60,* the coefficient on *TP_EARLYIMP* is −0.329 ($p < 0.01$) compared to −0.257 ($p < 0.01$) for *TP_REMAINING*. Findings suggest that those accelerating their deadlines earlier saw the greatest fee benefits. Finally, looking at *IMP60*, the positive fee results on time-pressure engagements are stronger for *TP_REMAINING* compared to *TP_EARLYIMP,* with coefficients of 0.193 ($p < 0.05$) compared to 0.125 ($p < 0.10$), suggesting that those accelerating their deadlines later saw the greatest strains.

5.4.2. Late audit reports

I also consider client engagements on which the audit report is late. Time-pressure LAFs who initially struggled to meet the first new deadline may be unable to make substantive changes in subsequent acceleration periods. In analyzing descriptive statistics, untabulated results show approximately 95% of both time-pressure and control LAFs meeting the 75-day deadline during the first year of implementation.[20] These findings support time-pressure LAFs having ample slack surrounding the first acceleration to meet the 75-day deadline and to begin making substantial changes to prepare for the second deadline reduction. In Table 8, I re-estimate the fee models for LAFs after dropping observations with late audit reports in each period.[21] The negative fee results hold during *IMP75* and *PRE60* after dropping clients who did not meet the new 75-day deadline. Furthermore, looking at *IMP60*, the positive coefficient 0.094 (n.s.) loses its statistical significance after dropping those engagements that did not meet the current period's new 60-day deadline. Findings are consistent with those analyzing early versus later implementation and suggest that the significant fee increases during *IMP60* were driven primarily by the smaller subsample of time-pressure LAFs (approximately 31% of observations) that were unable to accelerate their reporting.

5.4.3. Continuous measure - days reduced

Lastly, I consider a continuous measure of time-pressure *TPDAYSREDUCED,* or the number of days by which the audit report was reduced on time-pressure LAFs during each period.[22] When re-estimating the fee model in Table 8, I document a negative and statistically significant coefficient on *TPDAYSREDUCED* during the implementation period as a whole (*IMPALL*) consistent with results under the binary *TP* measure. Furthermore, I document negative coefficients on *IMP75*, –0.004 (n.s.), and *PRE60*, –0.017 ($p < 0.01$). Findings suggest that LAF clients accelerating their reporting by a greater number of days have more negative fee effects (particularly during *PRE60*). Furthermore, looking at the final period *IMP60* under this continuous measure, the positive coefficient loses statistical significance, 0.002 (n.s.), providing additional evidence that the fee increases documented during *IMP60* under the binary *TP* measure are driven by the subsample of time-pressure LAFs that struggled with accelerating their reporting.

6. Additional analyses

6.1. Time pressure & audit quality

Next, I investigate changes in audit quality to interpret the effectiveness of effort changes made on engagements. Several prior studies analyze measures of audit quality (e.g., restatements or accruals) surrounding accelerated filing. Overall, findings from prior literature indicate that the new deadlines resulted in decreases to audit quality, particularly for AFs and surrounding the first deadline reduction to 75 days (Boland et al., 2015; Bryant-Kutcher et al., 2013; Doyle & Magilke, 2013; Lambert et al., 2017). To verify these results in my sample, I estimate the following model:

$$\Delta AUDIT\_QUALITY = \alpha + \beta_1 TP + CONTROLS + \varepsilon \quad (4)$$

In Model (4), the dependent variable *ΔAUDIT_QUALITY* is a measure of audit quality change, either changes in discretionary accruals (*ΔDA*)

[19] The fee models were also re-estimated for AFs after dropping client years that were later restated; results are consistent with the main sample regressions.

[20] In comparison, only 77% of time-pressure AFs vs. 94% of control AFs met the 75-day deadline during the first year of implementation consistent with greater overall strains on AFs to accelerate reporting and in line with the negative short-term quality effects documented in Table 9.

[21] The fee models were also re-estimated for AFs after dropping observations with late audit reports. The finding of "no significant change" to audit fees on time-pressure AFs is consistent after dropping these observations.

[22] Continuous measures of time pressure were also investigated for AFs. The finding of "no significant change" to audit fees on time-pressure AFs was robust to these alternative measures.

Table 8
Regression results - Analyzing the subsequent fee increases on large accelerated filers (LAFs).

Dep. Var. *ΔFEE*	*IMPALL*		*IMP75*		*IMPSOX*		*PRE60*		*IMP60*	
	(1)		(2)		(3)		(4)		(5)	
Indep. Var.	Coeff.	(t-stat)	Coeff.	(t-stat)	Coeff.	(t-stat)	Coeff.	(t-stat)	Coeff.	(t-stat)
Large Accelerated Filers (LAFs)										
Early Implementation										
TP_EARLYIMP	−0.197***	(−3.29)	−0.236**	(−2.02)	−0.122	(−0.77)	−0.329***	(−3.31)	0.125*	(1.88)
TP_REMAINING	−0.041	(−0.68)	−0.190	(−1.33)	0.107	(1.15)	−0.257***	(−2.73)	0.193**	(2.20)
Control Variables	Incl.		Incl.		Incl.		Incl.		Incl.	
Observations	617		166		151		151		149	
Adj. R-squared	0.125		0.027		0.213		0.241		0.206	
Excluding Late Audit Reports										
TP	−0.107**	(−2.56)	−0.205*	(−1.68)	0.005	(0.06)	−0.182**	(−2.10)	0.094	(1.31)
Control Variables	Incl.		Incl.		Incl.		Incl.		Incl.	
Observations	511		158		128		128		97	
Adj. R-squared	0.257		0.018		−0.008		0.224		0.224	
Days Audit Report Was Reduced										
TPDAYSREDUCED	−0.004***	(−2.62)	−0.004	(−1.41)	−0.002	(−0.92)	−0.017***	(−2.64)	0.002	(0.82)
Control Variables	Incl.		Incl.		Incl.		Incl.		Incl.	
Observations	617		166		151		151		149	
Adj. R-squared	0.281		0.020		0.207		0.243		0.177	

Table 8 explores alternative explanations for the subsequent fee increases on time-pressure LAFs during *IMP60*. First, regression results are reported for Model (3) after splitting the time-pressure group (*TP*) into two sub-groups: early adopters (*TP_EARLYIMP*) and later adopters (*TP_REMAINING*) of the 60-day deadline. For *IMP75, IMPSOX,* and *PRE60, TP_EARLYIMP* is equal to 1 if the identified time-pressure engagement's *current year* audit report date is less than or equal to 60 days after fiscal year-end date, else 0. For *IMP60, TP_EARLYIMP* is equal to 1 if the identified time-pressure engagement's *prior year* audit report date is less than or equal to 60 days after fiscal year-end date, else 0. For each sample period, *TPREMAINING* is equal to 1 for the remaining time-pressure LAFs not identified as early adopters, else 0. Next, results for Model (3) are reported after excluding client years with late audit reports. Finally, results for Model (3) are reported using a continuous measure for time pressure (*TPDAYSREDUCED*), measured as the number of days by which the audit report date is reduced (increased) on time-pressure engagements in the current year compared to the prior year. For brevity, control variables are not displayed. All continuous variables are winsorized at the 1st and 99th percentiles. T-statistics reflect two-tailed significance and are calculated using heteroscedasticity-robust standard errors. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. For detailed variable definitions see Section 3.

or the likelihood to just meet or beat the analyst consensus forecast (*MOB*).[23] Δ*DA* is equal to the client's estimated discretionary accruals in the current year minus that of the prior year for the same client. Discretionary accruals are measured as the residual from the Modified Jones Model (Dechow et al., 1995).[24] *MOB* is equal to 1 if there is a 0¢ difference between actual EPS and the closest mean analyst consensus forecast from I/B/E/S. To better capture "changes" in the meet or beat measure, the lagged variable *LMOB*, is used as a control.[25] Model (4) includes remaining control variables as defined in the audit fee Model (3) regressions (see Section 3).[26] Here, a positive (negative) coefficient on *TP* (β_1) indicates audit quality has decreased (improved) on time-pressure engagements compared to control engagements.

6.1.1. Regression results – Audit quality changes

OLS regression is used to estimate Model (4) for the discretionary accruals measure and logistic regression is used for the meet or beat measure. Table 9 summarizes regression results during the implementation period (*IMPALL*) and each event surrounding the implementation (*IMP75, IMPSOX, PRE60,* and *IMP60*).

In Panel A, which reports results for AFs, the coefficient on *TP,* or time-pressure engagements, is positive during the sample period as a whole (*IMPALL*) with significant spikes observed during *IMP75* for Δ*DA*, 0.042 ($p < 0.10$), and *IMPSOX* for *MOB*, 1.172 ($p < 0.10$).[27] In Panel B,

[23] Testing restatements as an audit quality measure was not feasible due to the small percentage of restatements (only approximately 4% - 5% of the total sample) combined with the small sample size used in this study (150–250 observations per period). This is a noted limitation in DeFond and Zhang (2014). This study's small sample size is primarily due to the research design, in which propensity score matching was implemented in order to reduce the bias of confounding factors. This was particularly important when testing the main audit fee hypothesis due to the high correlation of client size with both time-pressure (Appendix 1) and audit fees (e.g., Hay et al., 2006; Simunic, 1980). As an alternative measure of audit quality, I investigate the likelihood to just meet or beat the analyst consensus forecast. When a firm just meets or beats an earnings benchmark by a small margin, this may reflect earnings manipulation and thus lower audit quality (e.g., Burgstahler & Dichev, 1997; DeFond & Zhang, 2014; Frankel, Johnson, & Nelson, 2002).

[24] Modified Jones Model from Dechow et al. (1995): $TA_t = \alpha_1(1/A_{t-1}) + \alpha_2(\Delta REV_t - \Delta REC_t) + \alpha_3(PPE_t) + \varepsilon_t$, where TA_t is total accruals in year t; A_{t-1} is total assets in year t-1; ΔREV_t is revenues in year t less revenues in year t-1 scaled by total assets in year t-1; ΔREC_t is net receivables in year t less net receivables in year t-1 scaled by total assets in year t-1; PPE_t is gross property plant and equipment in year t scaled by total assets in year t-1; $\alpha_1, \alpha_2, \alpha_3$ are client-specific parameters; ε_t is the estimated discretionary accruals in year t. Following Becker, DeFond, Jiambalvo, and Subramanyam (1998) and Jones, Krishnan, & Melendrez, 2008, total accruals TA_t is calculated as income before extraordinary items in year t less operating cash flows in year t scaled by total assets in year t-1. To avoid loss in sample size, accruals are estimated cross-sectionally by two-digit SIC industry with a minimum of 10 observations required for each two-digit industry (Becker et al., 1998; Jones, Krishnan, & Melendrez, 2008).

[25] *LMOB* is equal to 1 if a client just meets or beats earnings in the prior year, else 0.

[26] Based on prior literature (e.g., Ashbaugh, LaFond, & Mayhew, 2003; Becker et al., 1998; Frankel et al., 2002; Teoh, Welch, & Wong, 1998), two additional controls (Δ*OCF* and Δ*FINANCE*) are included in the audit quality model. Δ*OCF* is a client's cash flows from operations divided by total assets in the current year minus that of the prior year. Δ*FINANCE* is equal to 1 if the number of outstanding shares increased by at least 10% or long-term debt increased by at least 20% during the current year, else 0.

[27] The absolute value of changes in discretionary accruals was also investigated. Untabulated results document no significant change in quality for AFs under the absolute measure suggesting that findings are driven by income-increasing accruals. The findings of a positive and statistically significant coefficient on the meet-or-beat measure further support this result.

Table 9
Regression results – Audit quality changes.

Dep. Var. (See Below)	*IMPALL*		*IMP75*		*IMPSOX*		*PRE60*		*IMP60*	
	(1)		(2)		(3)		(4)		(5)	
Indep. Var.	Coeff.	(t-stat)	Coeff.	(t-stat)	Coeff.	(t-stat)	Coeff.	(t-stat)	Coeff.	(t-stat)
Panel A: Accelerated Filers (AFs)										
Changes in Discretionary Accruals (ΔDA)										
TP	0.012	(0.73)	0.042*	(1.76)	−0.047	(−1.39)	0.039	(1.12)	−0.011	(−0.31)
Control Variables	Incl.		Incl.		Incl.		Incl.		Incl.	
Observations	736		256		184		155		141	
Adj. R-squared	0.239		0.319		0.212		0.152		0.296	
Just Meet or Beat (MOB)										
TP	0.561*	(1.90)	0.693	(1.06)	1.172*	(1.89)	0.187	(0.24)	−0.841	(−0.99)
Control Variables	Incl.		Incl.		Incl.		Incl.		Incl.	
Observations	534		130		133		87		93	
Pseudo R-squared	0.102		0.193		0.276		0.314		0.237	
Panel B: Large Accelerated Filers (LAFs)										
Changes in Discretionary Accruals (ΔDA)										
TP	0.004	(0.29)	−0.032	(−1.28)	0.015	(0.60)	−0.005	(−0.14)	0.043	(0.98)
Control Variables	Incl.		Incl.		Incl.		Incl.		Incl.	
Observations	617		166		151		151		149	
Adj. R-squared	0.231		0.340		0.161		0.247		0.205	
Just Meet or Beat (MOB)										
TP	−0.503	(−1.43)	0.260	(0.35)	−0.481	(−0.48)	−0.651	(−0.86)	−0.715	(−0.84)
Control Variables	Incl.		Incl.		Incl.		Incl.		Incl.	
Observations	526		136		108		129		117	
Pseudo R-squared	0.118		0.405		0.219		0.266		0.365	

Table 9 shows regression results for Model (4) during the implementation period. Panel A reports results for AFs, and Panel B reports results for LAFs. Dependent variable *ΔDA* is equal to a client's discretionary accruals estimated for the current year minus that of the prior year. Discretionary accruals are estimated using the Modified Jones Model from Dechow et al. (1995). Dependent variable *MOB* is equal to 1 if the difference between actual EPS and the closest mean analyst consensus forecast from I/B/E/S is equal to 0¢, else 0. Independent variable of interest is *TP,* or a time-pressure engagement, defined as a client engagement whose audit report date was >75 days after fiscal year-end date in the year prior to the first year of accelerated deadlines. For brevity, control variables are not displayed. All continuous variables are winsorized at the 1st and 99th percentiles. T-statistics reflect two-tailed significance and are calculated using heteroscedasticity-robust standard errors. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. For detailed variable definitions see Section 3.

which reports results for LAFs, the coefficient on *TP* is not statistically significant during any period. Overall, the documented quality outcomes are consistent with the general theme from prior literature, which suggests that AFs were more negatively affected than LAFs (e.g., Boland et al., 2015; Bryant-Kutcher et al., 2013; Doyle & Magilke, 2013; Lambert et al., 2017). When interpreted in conjunction with the fee results, the short-term quality strains observed on time-pressure AFs suggest that resource reprioritizations may not be completely free of cost. It is possible that reassigned auditors to time-pressure AFs were less experienced staff, unfamiliar with the client, and/or not specialized in the client's particular industry as explored in Lambert et al. (2017). Conversely, findings suggest that the strategies implemented on time-pressure LAFs were effective in maintaining audit quality.

7. Other robustness tests

Appendices 2 to 5 report results for additional robustness tests.

7.1. Pre-matched sample & entropy balancing

Due to propensity score matching, the sample size in this study is relatively small. To verify results using a larger sample, in Appendices 2 to 3, I re-estimate the audit fee and quality models in the pre-matched sample. Additionally, I utilize entropy balancing on the larger sample using the weights identified on the same covariates (*ASSETS, BTM, CURRENT, LEV,* and *ROA*) used in the propensity score matching analysis. Looking at AFs, results for audit fees in Appendix 2 are largely consistent with the matched sample findings in Table 4; overall, no significant change in fees on time-pressure engagements (*TP*) when compared to control engagements.[28] Looking at LAFs, results for audit fees in Appendix 2 are consistent with the matched sample findings in Table 4; overall, lower fees on time-pressure engagements, particularly during *PRE60*.[29] In Appendix 3, results for audit quality are consistent with the matched sample findings in Table 9 for both AFs and LAFs.

7.2. NAFs

In Appendix 4, I re-estimate the audit fee and quality regressions for NAFs (whose report deadlines were not changed) to control for macro trends unrelated to the treatment. To do so, using the same criteria, I create a propensity score matched sample of NAFs and identify the time-

[28] In the pre-matched sample regressions for AFs, during *PRE60,* there is a positive and statistically significant coefficient of 0.125 ($p < 0.10$) for *TP*. Rather than being reflective of fee *increases* on time-pressure engagements, this result reflects fee *decreases* on remaining sample engagements in the post-Sox period. Although not picked up as statistically significant in the matched sample regressions (Table 4), these decreases do show up in the fee trend analysis (Fig. 2). Given the significant imbalance across covariates (*ASSETS, BTM, CURRENT, LEV, ROA*) when comparing time-pressure to control in the pre-matched sample (Appendix 1), it is possible that this result is enhanced by variables correlated to the treatment rather than attributed solely to differences in time-pressure. This result loses its significance after applying entropy balancing to the larger sample, further supporting the non-result.

[29] In certain periods some statistical significance is lost on the regression coefficients in the full sample regressions; however, the directions of the coefficients remain largely consistent with the study's main findings (Table 4). Furthermore, in the period for which there is the greatest fee decline (*PRE60*) the coefficient remains both negative and statistically significant at the 5% level or less across all regression samples.

pressure group (*TP*) as those engagements whose audit report dates in the year prior to the first year of accelerated deadlines were more than (1) an arbitrary 75-day deadline and (2) the current 90-day deadline. Given NAFs were not subject to accelerations, we should not expect any difference between fees/quality on identified time-pressure compared to control engagements. Consistent with predictions, results document no statistically significant difference for changes in audit fees (*ΔFEE*) and/or discretionary accruals (*ΔDA*) during any of the periods investigated.[30]

7.3. Pre-period analysis

I also extend the sample to analyze fee changes (*ΔFEE*) in the year prior to the implementation (*IMPALL-1*), or fiscal years ending December 15, 2002 to December 14, 2003 (results are untabulated for brevity). Looking at LAFs, findings show *ΔFEE* was greater by 0.284 ($p < 0.05$) for time-pressure engagements during *IMPALL-1*. This finding may explain the subsequent leveling shown in *IMP75*, in which *ΔFEE* was greater by 0.245 ($p < 0.05$) for the control group (Table 3). A similar pre/post fee pattern is observed for AFs, although not statistically significant. The preemptive increase on time-pressure engagements in *IMPALL-1* coincides with the passage of both accelerated filing and SOX regulations (U.S. HR, 2002; SEC, 2002b) and may reflect the initial concerns of increased effort/costs expressed in the comment letters (SEC, 2002b). However, the subsequent rebalancing in *IMP75* reflects the documented slack (Table 5) during actual implementation. Overall, the pre-period increase on time-pressure LAFs is rebalanced in the immediate subsequent period (*IMP75*) and not large enough to offset the documented fee decreases three periods later (during *PRE60*). Furthermore, when analyzing fee changes on LAFs in dollars, statistical significance is lost in the pre/post-period *IMPALL-1/IMP75* whereas during *PRE60* the fee decreases in dollars are statistically significant at the 5% level.

7.4. Percentage change in fees

In Appendix 5, I use percentage change in audit fees as an alternative measure of the dependent variable. Looking at AFs, the non-significant result for time-pressure engagements remains unchanged across all periods. Looking at LAFs, the main result of lower fees on time-pressure engagements holds for *IMP75,* whereas some statistical significance is lost for *PRE60*, and *IMP60* is no longer significant.

7.5. Earnings announcement lags

Lastly, I analyze the earnings announcement lags of time-pressure compared to control engagements (untabulated for brevity). Earnings announcement lag is measured as the number of days between the fiscal year-end date and the earnings announcement date for each client firm. In the year prior to implementation (*IMPALL-1*), the average earnings announcement lag was well before the new accelerated deadlines for all sample firms (TP-AFs 60 days; Control-AFs 49 days; TP-LAFs 47 days; Control-LAFs 38 days). Furthermore, during the implementation period (*IMPALL*), average announcement lags were relatively unchanged for all categories, with time-pressure firms showing signs of improvement (approximately 3 days shorter lags). These findings align with the audit partner discussions regarding slack when looking at earnings announcement dates rather than audit report dates and/or filing dates.[31]

8. Conclusion

This study uses the events surrounding the accelerated filing regulation to investigate the impact of time pressure on the cost of the audit. Comparing time-pressure accelerated filers to control engagements, findings show no significant difference in audit fee adjustments during implementation years. Looking at time-pressure large accelerated filers, findings show evidence of overall fee decreases, particularly in the year following SOX 404 implementation. Findings counter common criticism of the regulation and suggest available slack, where significant additional audit effort (proxied by fees) was not required to meet the deadlines (for either accelerated filers or large accelerated filers). Furthermore, findings indicate that time-pressure large accelerated filers may have even benefited from lower audit costs.

My analyses provide additional evidence in support of within-office resource reallocations as a strategy used by auditors to respond to time pressure (e.g., Dong et al., 2020; Dong et al., 2022; Lambert et al., 2017) with a benefit of no higher fees charged. Furthermore, in line with prior studies (e.g., Hogan & Wilkins, 2008; Hoitash et al., 2008; Krishnan et al., 2011; Lambert et al., 2017), findings also emphasize the benefits of strong internal controls on reducing audit effort and/or fees. Analyses of audit quality document decreases in quality on time-pressure accelerated filers but maintained quality on time-pressure large accelerated filers. Results provide additional evidence of large accelerated filers handling time pressure differently and possibly more effectively (e.g., Boland et al., 2015; Bryant-Kutcher et al., 2013; Doyle & Magilke, 2013; Lambert et al., 2017). Overall, results from this study suggest that deadline pressure may have provided the impetus for auditors to implement time-saving strategies through shifting and compressing audit effort rather than resorting to strategies that would have increased client billings.

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Declaration of Competing Interest

None.

Data availability

Data will be made available on request.

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[30] Given NAFs are generally smaller client's, the sample of those followed by analysts in I/B/E/S was too small to analyze the meet or beat measure *MOB*.

[31] I spoke with four audit partners from three firms. The partners interviewed were either currently in practice or retired, and all partners were employed at a Big 4 firm during the implementation of accelerated filing.

Appendix 1. Sample composition in the year prior to implementation (pre vs. post-match)

	Accelerated Filers (AFs)				Large Accelerated Filers (LAFs)			
Variable	Overall Mean	TP Mean	Control Mean	P > |t| Dif. in Means	Overall Mean	TP Mean	Control Mean	P > |t| Dif. in Means
Panel A: Pre-Matched Sample in the Year Prior to Implementation								
ASSETS	5.131	4.788	5.200	0.002	6.962	6.708	6.991	0.152
BTM	0.717	0.584	0.743	0.027	0.556	0.597	0.551	0.477
CURRENT	3.392	2.752	3.522	0.017	2.664	2.827	2.645	0.552
LEV	0.448	0.511	0.435	0.003	0.527	0.514	0.528	0.615
ROA	−0.128	−0.217	−0.110	0.000	−0.018	−0.060	−0.013	0.037
Observations	815	137	678		849	88	761	
% of Sample		17%	83%			10%	90%	
Panel B: Propensity Score Matched Sample in the Year Prior to Implementation								
ASSETS	4.827	4.837	4.816	0.909	6.710	6.661	6.759	0.742
BTM	0.672	0.629	0.715	0.359	0.625	0.668	0.582	0.374
CURRENT	2.766	2.790	2.743	0.885	2.865	2.866	2.864	0.997
LEV	0.488	0.498	0.478	0.561	0.505	0.496	0.513	0.682
ROA	−0.171	−0.186	−0.156	0.496	−0.050	−0.043	−0.058	0.623
Observations	266	133	133		172	86	86	
% of Sample		50%	50%			50%	50%	

Appendix 1 summarizes the pre-matched sample (Panel A) and the propensity score matched sample (Panel B) for accelerated filers (AFs) and large accelerated filers (LAFs) in the year prior to implementation (12/15/2002–12/14/2003). *TP*, or a time-pressure engagement, is defined as a client engagement whose audit report date was >75 days after fiscal year-end date. *P*-values are shown for the difference in means of the five variables included in the matching criteria (*ASSETS, BTM, CURRENT, LEV, ROA*). *ASSETS* is the natural logarithm of total client assets. *BTM* is the client's book value of common equity divided by market value. *CURRENT* is the client's current ratio measured as total current assets divided by total current liabilities. *LEV* is client leverage measured as total liabilities divided by total assets. *ROA,* or return on assets, is measured as the client's net income divided by total assets. Variables are winsorized at the 1st and 99th percentiles.

Appendix 2. Regression results - Audit fee changes (pre-matched sample)

Dep. Var. *ΔFEE*	*IMPALL*		*IMP75*		*IMPSOX*		*PRE60*		*IMP60*	
	(1)		(2)		(3)		(4)		(5)	
Indep. Var.	Coeff.	(t-stat)	Coeff.	(t-stat)	Coeff.	(t-stat)	Coeff.	(t-stat)	Coeff.	(t-stat)
Panel A: Accelerated Filers (AFs)										
Pre-Matched Sample										
TP	−0.005	(−0.16)	−0.010	(−0.15)	−0.076	(−1.06)	0.125*	(1.74)	−0.044	(−0.66)
Control Variables	Incl.		Incl.		Incl.		Incl.		Incl.	
Observations	2614		892		644		565		513	
Adj. R-squared	0.233		0.046		0.170		0.148		0.115	
Using Entropy Balancing										
TP	−0.094	(−1.31)	−0.068	(−0.82)	−0.064	(−0.83)	0.082	(0.90)	−0.082	(−0.87)
Control Variables	Incl.		Incl.		Incl.		Incl.		Incl.	
Observations	2296		786		577		490		443	
R-squared	0.2907		0.455		0.200		0.189		0.242	
Panel B: Large Accelerated Filers (LAFs)										
Pre-Matched Sample										
TP	−0.067**	(−2.28)	−0.171**	(−2.51)	−0.031	(−0.55)	−0.128**	(−2.43)	0.068	(1.18)
Control Variables	Incl.		Incl.		Incl.		Incl.		Incl.	
Observations	3524		908		882		884		850	
Adj. R-squared	0.279		0.040		0.133		0.142		0.085	
Using Entropy Balancing										
TP	−0.039	(−1.35)	−0.071	(−1.02)	0.041	(0.71)	−0.152***	(−3.62)	0.042	(0.77)
Control Variables	Incl.		Incl.		Incl.		Incl.		Incl.	
Observations	3111		821		781		769		740	
R-squared	0.321		0.121		0.108		0.290		0.112	

Appendix 2 shows regression results for Model (3) using the pre-matched sample without adjustment and after applying entropy balancing. Panel A reports results for AFs, and Panel B reports results for LAFs. Dependent variable *ΔFEE* is the natural logarithm of total audit fees charged to a client firm in the current year minus that of the prior year. Independent variable of interest is *TP,* or a time-pressure engagement, defined as a client engagement whose audit report date was >75 days after fiscal year-end date in the year prior to the first year of accelerated deadlines. For brevity, control variables are not displayed. All continuous variables are winsorized at the 1st and 99th percentiles. T-statistics reflect two-tailed significance and are calculated using heteroscedasticity-robust standard errors. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. For detailed variable definitions see Section 3.

Appendix 3. Regression results - Audit quality changes (pre-matched sample)

Panel A: Accelerated Filers (AFs)

Dep. Var. (See Below)	*IMPALL*		*IMP75*		*IMPSOX*		*PRE60*		*IMP60*	
	(1)		(2)		(3)		(4)		(5)	
Indep. Var.	Coeff.	(t-stat)	Coeff.	(t-stat)	Coeff.	(t-stat)	Coeff.	(t-stat)	Coeff.	(t-stat)
Pre-Matched Sample (ΔDA)										
TP	0.011	(0.93)	0.046**	(2.33)	−0.003	(−0.13)	−0.011	(−0.37)	0.006	(0.25)
Control Variables	Incl.		Incl.		Incl.		Incl.		Incl.	
Observations	2614		892		644		565		513	
Adj. R-squared	0.219		0.274		0.223		0.109		0.234	
Using Entropy Balancing (ΔDA)										
TP	0.029*	(1.76)	0.057**	(2.37)	−0.017	(−0.59)	0.055*	(1.78)	−0.024	(−0.97)
Control Variables	Incl.		Incl.		Incl.		Incl.		Incl.	
Observations	2296		786		577		490		443	
R-squared	0.237		0.265		0.210		0.372		0.428	
Pre-Matched Sample (MOB)										
TP	0.437**	(2.13)	0.548	(1.37)	1.009***	(2.80)	0.475	(1.08)	−0.311	(−0.53)
Control Variables	Incl.		Incl.		Incl.		Incl.		Incl.	
Observations	1898		558		522		417		367	
Pseudo R-squared	0.038		0.079		0.088		0.091		0.106	
Using Entropy Balancing (MOB)										
TP	0.508**	(2.11)	0.185	(0.44)	1.333***	(2.89)	0.795	(1.49)	−0.108	(−0.16)
Control Variables	Incl.		Incl.		Incl.		Incl.		Incl.	
Observations	1698		512		476		366		316	

Panel B: Large Accelerated Filers (LAFs)

Dep. Var. (See Below)	*IMPALL*		*IMP75*		*IMPSOX*		*PRE60*		*IMP60*	
	(1)		(2)		(3)		(4)		(5)	
Indep. Var.	Coeff.	(t-stat)	Coeff.	(t-stat)	Coeff.	(t-stat)	Coeff.	(t-stat)	Coeff.	(t-stat)
Pre-Matched Sample (ΔDA)										
TP	0.003	(0.33)	−0.011	(−0.60)	0.003	(0.18)	−0.005	(−0.23)	0.026	(1.26)
Control Variables	Incl.		Incl.		Incl.		Incl.		Incl.	
Observations	3524		908		882		884		850	
Adj. R-squared	0.194		0.295		0.183		0.131		0.217	
Using Entropy Balancing (ΔDA)										
TP	0.008	(0.71)	−0.005	(−0.26)	0.006	(0.32)	0.010	(0.41)	0.010	(0.43)
Control Variables	Incl.		Incl.		Incl.		Incl.		Incl.	
Observations	3111		821		781		769		740	
R-squared	0.237		0.378		0.296		0.221		0.266	
Pre-Matched Sample (MOB)										
TP	−0.227	(−0.95)	−0.204	(−0.51)	−0.032	(−0.07)	−0.243	(−0.48)	−0.531	(−0.91)
Control Variables	Incl.		Incl.		Incl.		Incl.		Incl.	
Observations	2858		727		717		722		684	
Pseudo R-squared	0.046		0.067		0.073		0.07		0.057	
Using Entropy Balancing (MOB)										
TP	−0.232	(−0.85)	−0.175	(−0.43)	−0.058	(−0.10)	−0.202	(−0.35)	−0.611	(−0.99)
Control Variables	Incl.		Incl.		Incl.		Incl.		Incl.	
Observations	2594		680		647		646		615	

Appendix 3 shows regression results for Model (4) using the pre-matched sample without adjustment and after applying entropy balancing. Panel A reports results for AFs, and Panel B reports results for LAFs. Dependent variables are a client's change in discretionary accruals (*ΔDA*) and the likelihood to just meet or beat the analyst consensus forecast (*MOB*). Independent variable of interest is a time-pressure engagement *(TP)*. For brevity, control variables are not displayed. All continuous variables are winsorized at the 1st and 99th percentiles. T-statistics reflect two-tailed significance and are calculated using heteroscedasticity-robust standard errors. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. For detailed variable definitions see Section 3.

Appendix 4. Regression results - Audit fee & quality changes (non-accelerated filers)

Dep. Var. (See Below)	*IMPALL*		*IMP75*		*IMPSOX*		*PRE60*		*IMP60*	
	(1)		(2)		(3)		(4)		(5)	
Indep. Var.	Coeff.	(t-stat)	Coeff.	(t-stat)	Coeff.	(t-stat)	Coeff.	(t-stat)	Coeff.	(t-stat)
Panel A: Audit Fee Changes NAFs (ΔFEE)										
TP Using Arbitrary 75-Day Deadline										
TP75	−0.015	(−0.45)	0.017	(0.23)	−0.063	(−0.66)	0.031	(0.30)	−0.083	(−0.72)
Control Variables	Incl.		Incl.		Incl.		Incl.		Incl.	
Observations	1183		400		311		279		193	
Adj. R-squared	0.160		0.174		0.244		0.104		0.163	
TP Using Current 90-Day Deadline										
TP90	−0.011	(−0.20)	−0.134	(−1.09)	0.197	(1.35)	−0.185	(−1.07)	−0.114	(−0.63)
Control Variables	Incl.		Incl.		Incl.		Incl.		Incl.	
Observations	533		189		145		119		80	
Adj. R-squared	0.084		0.110		−0.001		0.036		0.228	
Panel B: Audit Quality Changes NAFs (ΔDA)										
TP Using Arbitrary 75-Day Deadline										
TP75	0.007	(0.43)	0.029	(0.73)	−0.029	(−0.70)	0.021	(0.43)	−0.004	(−0.08)
Control Variables	Incl.		Incl.		Incl.		Incl.		Incl.	
Observations	1183		400		311		279		193	
Adj. R-squared	0.151		0.164		0.299		0.064		0.173	
TP Using Current 90-Day Deadline										
TP90	−0.028	(−0.45)	0.007	(0.05)	−0.068	(−0.44)	−0.044	(−0.32)	0.115	(0.90)
Control Variables	Incl.		Incl.		Incl.		Incl.		Incl.	
Observations	533		189		145		119		80	
Adj. R-squared	0.210		0.279		0.101		0.195		0.480	

Appendix 4 shows regression results for Models (3) and (4) looking at NAFs, or those clients whose reporting deadlines of 90 days were unaffected by the regulatory changes. Panel A analyzes audit fee changes (*ΔFEE*) and Panel B analyzes discretionary accruals changes (*ΔDA*). *TP75* uses an arbitrary 75-day deadline for time-pressure, defined as a client engagement whose audit report date was >75 days after fiscal year-end date in the year prior to the first year of accelerated deadlines, else 0. *TP90* uses the current 90-day deadline for time-pressure, defined as a client engagement whose audit report date was >90 days after fiscal year-end date in the year prior to the first year of accelerated deadlines, else 0. For brevity, control variables are not displayed. All continuous variables are winsorized at the 1st and 99th percentiles. T-statistics reflect two-tailed significance and are calculated using heteroscedasticity-robust standard errors. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. For detailed variable definitions see Section 3.

Appendix 5. Regression results - Audit fee changes (using percentage change)

Dep. Var. *PCTΔFEE*	*IMPALL*		*IMP75*		*IMPSOX*		*PRE60*		*IMP60*	
	(1)		(2)		(3)		(4)		(5)	
Indep. Var.	Coeff.	(t-stat)	Coeff.	(t-stat)	Coeff.	(t-stat)	Coeff.	(t-stat)	Coeff.	(t-stat)
Panel A: Accelerated Filers (AFs)										
TP	−0.081	(−0.35)	−0.473	(−0.98)	0.308	(1.13)	−0.168	(−0.33)	0.437	(0.93)
Control Variables	Incl.		Incl.		Incl.		Incl.		Incl.	
Observations	736		256		184		155		141	
Adj. R-squared	0.017		0.010		0.093		−0.016		0.016	
Panel B: Large Accelerated Filers (LAFs)										
TP	−0.469*	(−1.89)	−1.450*	(−1.96)	0.193	(0.73)	−0.726*	(−1.97)	0.493	(1.55)
Control Variables	Incl.		Incl.		Incl.		Incl.		Incl.	
Observations	617		166		151		151		149	
Adj. R-squared	0.028		−0.033		0.055		0.149		−0.022	

Appendix 5 shows regression results for Model (3) using percentage change in audit fees (*PCTΔFEE*) as the dependent variable. *PCTΔFEE* is measured for each client as the difference in total audit fees charged (current minus prior year) divided by total audit fees charged in the prior year. Panel A reports results for AFs, and Panel B reports results for LAFs. For brevity, control variables are not displayed. All continuous variables are winsorized at the 1st and 99th percentiles. T-statistics reflect two-tailed significance and are calculated using heteroscedasticity-robust standard errors. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. For detailed variable definitions see Section 3.

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