The Effect of Audit Failure on SEC Monitoring of Peer Firm's Disclosure

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Abstract

In this paper, I empirically examined the correlation of the SEC monitoring intensity (proxied by SEC filing request through EDGAR database) of a firm and if the firm is audited by a "contaminated" audit office who conduct a audit failure in the same year. My research shows that not only the firm's own characteristic, but also its peer's disclosure, have a impact on the monitoring intensity of SEC. This monitoring actions can exist for a long time. My study provided new insights about the SEC actions about target selection procedure by suggesting that SEC perceive and react to office-level contagion of low audit quality identified by Francis and Michas (2013).

JEL classification: G18; M4

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1. Introduction

This study examines the relationship between audit failures experienced by auditors and SEC monitoring of the quality of (other) audits performed by these same auditors. The term ''audit failure'' is used to refer to audit engagements in which there is a downward restatement of previously audited client earnings. Francis and Michas (2013) found that the earnings quality (abnormal accruals) of clients in offices with audit failures is lower, on average, than clients in those offices with no audit failures. Swanquist and Whited (2015) find that audit offices experience a loss in local market share following client restatements, suggesting that the market for audit clients penalizes auditors following association with low-quality audits. Given that the existence of low-quality audits in an auditor office may indicate a more systematic problem in the audit office's audit work, we examine whether audit failure in one client triggers the SEC to turn its monitoring attention to the other clients who hire the same auditor in this study.

As SEC's mission is to promote full public disclosure and protect investors against fraudulent and manipulative practices in the market, we examine SEC monitoring of financial statement disclosure whose audit work is performed by the "contaminated" audit office. Monitoring is a key area for study because it is the first step necessary to address misconduct and a major channel through which regulators exercise power (Van Loo, 2019). Before the SEC can discipline firms through comment letters or AAERs (Accounting and Auditing Enforcement Release), it must identify noncompliance,

which is accomplished through monitoring. Even infractions identified by whistleblowers must be verified before enforcement can occur. Because the presence of one low-quality audit in an engagement office conveys negative information about the quality of concurrent audits conducted by the office, SEC may increase the monitoring scrutiny on the financial reporting whose audit work is performed by the "contaminated" audit office. Specifically, we measure SEC disclosure monitoring by identifying EDGAR downloads made by SEC IP addresses, using a method derived from Bozanic et al. (2017), who study IRS downloads.

This study makes several important contributions to the existing literature. First, we examine how the regulators respond to the signals of audit failure, which provides evidence on the effect of office-level contagion on SEC monitoring. Our findings extend those of Francis and Michas (2013) by suggesting that SEC perceive and react to office-level contagion of low audit quality. Second, our study examines whether the SEC takes actions to promote fair public disclosure and prevent fraudulent, deceptive, or manipulative firm practices in presence of negative signals of low audit quality. Third, we provide novel evidence on the decision-making process of the SEC. We demonstrate that peer events, not just a firm's own characteristics, can affect a firm's level of regulatory scrutiny. Gunny and Hermis (2020) show that the SEC is resource-constrained and limits comment letters to only the most severe cases during busy periods, while Ege et al. (2020) find that unexpected increases in SEC caseload lead to decreases in the quality of comment letters. This prior evidence might suggest that the

SEC's monitoring of focal firms following negative financial reporting events would consume resources that would result in a *decrease* in the monitoring of `peer firms`. However, we document that the opposite occurs: monitoring *increases* following the negative financial reporting events of peers.

2. Related literature & Hypothesis Development

The SEC is an independent federal agency, established under the Securities Exchange Act of 1934, whose mission is to protect investors, maintain fair, orderly, and efficient markets, and facilitate capital formation. As one of the most important gatekeepers in the capital market (Roychowdhury & Srinivasan, 2019), SEC is responsible for the effective functioning of capital markets.

2.1 The SEC file reviewing process

SEC reviews a company's files in two ways, periodic filing reviews and transactional filing reviews. As mentioned in SOX Section 408 paragraph (b), periodic filing reviews require the SEC to review all of the companies' periodic filings at least once every three years. Transactional filing reviews are mainly related to mergers and acquisitions. After filing reviews, SEC decided either to issue a comment letter. Research dig on SEC filing review process has shown that SEC is resource constraint, (Gunny & Hermis, 2020) shows that busyness like December fiscal year-end leads to fewer comment letters because they need to limited resources on most severe cases of disclosure noncompliance. Other research studies about the spillover effect of SEC monitor

behavior on company and audit office. (Brown et al., 2018) show that when one company receives a comment letter, its industry peer or close rival modified their disclosure based on this comment, indicating an indirect effect of SEC's monitor behavior. (Bills et al., 2020) find that a company's goodwill impairments are likely to be higher when its audit office's other client is exposed to a goodwill comment from SEC. Both these studies suggest SEC's monitor behavior has a signal effect on companies that don't receive a comment letter, but as a peer in a specific dimension (industry peer/audited by the same office/etc.) However, few studies are about the spillover effect of the SEC monitoring behavior itself, which I studied in this research.

2.2 The output of the SEC

However, compared to the decisive role of the SEC in capital markets, the literature related to the SEC enforcement process is hard to understand its working mechanism because of its opacity. Most recently, emerging literature mainly studied the SEC from the output perspective, focusing on the enforcement outcome of the SEC. For example, there are some proxies used to describe SEC's regulatory actions. Bens et al. (2016); Cassell et al. (2013); Correia (2014) use the issuance of SEC comment letters to proxy the SEC monitoring process. Cheng et al. (2014) studied SEC Division of Corporation Finance monitoring using misstatements prompted by regulatory monitors (the DCF). Correia (2014) uses SEC enforcement actions for financial misrepresentation to study the effect of political connections on SEC enforcement. These proxies have weaknesses because it only represents the SEC's enforcement outcomes.

However, not every company monitored by SEC leads to enforcement action. We still know little about the inside mechanism about how SEC targets the company, what are the determinants when the SEC selects target companies, and how SEC allocates time among so many entities.

In our study, we use the EDGAR logfile data searched by SEC to proxy SEC monitoring intensity. This is a relatively direct proxy of SEC monitoring from the input perspective. So it makes me able to investigate how the SEC monitor firms and how SEC react to exogenous shocks (such as an audit failure by the audit office or media attention by the Press). More details will be described in section 3.

2.3 The role of the SEC in the presence of low audit quality contagion within audit office - Hypothesis

Although many determinants have an impact on SEC monitoring, we focus our study on the effect of audit failure on the monitoring of peer firms. After a series of scandals in the early 2000s, as a part of SOX, the self-regulation regime was changed to the government regulation regime in the audit market (Ormazábal, 2018). It's crucial to assess how SEC reacts to the audit failure of peer firms and take action on the regulatory process.

From the perspective that the specific path of audit failure on SEC monitoring of peer firm. There are two ways an audit failure at the office level may affect the SEC monitoring behavior.

On the one hand, prior literature has shown that audit failure in an audit office may indicate a systematic problem about audit quality among the audit office (Francis & Michas, 2013). Based on the fact that the mission of SEC is to protect investors maintain a fair orderly and efficient market. SEC may take actions to deal with this systematic low audit quality when facing an audit failure. This may lead to more intensive monitoring of peer firms because of the awareness of potential audit quality connections between the audit failure firm and the other firms audited by the same office.

On the other hand, Kedia and Rajgopal (2011) find that, because the SEC is resource-constrained. It seems that it's difficult for SEC to handle multitasking at the same time. In their study, they find that the SEC is more likely to investigate firms located closer to its offices. SEC's error detection rate is also correlated to the review team size (Kubic, 2021) and there are lots of tradeoffs between multiple tasks for the SEC to allocate the resource (Ege et al., 2020). Gunny and Hermis (2020) find that the SEC issues fewer comment letters when busy, focuses its limited resources on the most severe cases of disclosure noncompliance, and extends the amount of time between receiving a firm's filing and issuing a comment letter. This may lead to less monitoring of peer firms because of the effect of changes in the "relative price" between two potential monitoring target firms.

Therefore, it's not clear the effect of audit failure on SEC monitoring of peer firms. The ultimate monitoring intensity on peer firm increase or not depending on the effect of two opposite effects. Formally I predict:

H1: ***The occurrence of an audit failure in an audit office will drive SEC to monitor firms which audited by the same audit office during restatement time more intensively.***

3. Sample and research design

3.1 Sample and data

3.1.1 SEC Monitoring

"EDGAR", known as the abbreviation for "The Electronic Data Gathering, Analysis, and Retrieval system", is the primary system for companies and other submitting documents, which contains millions of company and individual filings. Everyone can research public company's financial information through EDGAR. Using a dataset contains information in CSV format extracted from Apache log files that record and store user access statistics for the SEC.gov website provided by DERA (The division of Economic and Risk Analysis) and a method derived from Bozanic et al. (2017), we identify the IP address that SEC used. The original data can be found at EDGAR Logfiles. For more details about this dataset, see (Ryans, 2017).

Our sample focuses on the company listed in the EDGAR with at least one search record in the EDGAR log file data. I obtain SEC downloads and IRS downloads daily weekly and quarterly by identifying the IP address of SEC and IRS. I follow (Lorien

Stice-Lawrence, 2020) to exclude the index file downloads. For SEC and IRS's IP addresses, see appendix.

In picture 1, I plot the total SEC downloads aggregate at the month level vary across sample period. Our sample period is the same as (Lorien Stice-Lawrence, 2020), which is from August 2004 to September 2005, May 2006 to December 2008, and July 2013 to June 2017.

There are two gaps in the sample period. (Loughran & McDonald, 2014) state the first gap is because of the damage and missing of the log files which lead to almost zero coverage during the first gap. The second gap is due to SEC traffic being routed to internal servers in some periods (Stice-Lawrence, 2021). See EDGAR Log File Data Set FAQs.

3.1.2 Audit Failure

We define the term "audit failure" as to whether an audit office in a given year has a restatement. Under this definition, an audit failure is specific to a given auditor office and a given client firm at a given time point.

The audit office-level audit failure is defined as (Francis & Michas, 2013; li, 2016) in the prior literature. Following their definitions, we define the office level audit failure peer as the clients audited by the same auditor office without an audit failure at the same fiscal year when the audit failure occurs. In the audit analytic database, we adjust the

fiscal year using the term "fiscal year-end". A company's fiscal year corresponds to the calendar year in which it has the most overlap in months.

In the restatement database, each restatement has a ticker indicating if there is a SEC involvement in the restatement process is noted. The involvement can take the form of either SEC comment letter that triggered the restatement; formal or informal SEC inquiry into the circumstances surrounding the restatement. Also, there is a ticker that indicates disclosure of Board of Directors and/or Audit Committee involvement or notification in the restatement.

Table 2 describes the procedure of the variable PEER AUD FAIL, I excluded whose restatement with the SEC investigation because they probably don't update the SEC's belief. I keep the restatement only with the "effect" term is negative because positive restatement may not consider as an audit failure.

3.1.3 Other used database

I also obtain accounting data from Compustat; restatement, internal control weakness data from Audit Analytics; price data from CRSP, news coverage from RavenPack; analyst following from I/B/E/S. For the detailed variable definition, see Variable Appendix.

3.2 Empirical model

3.2.1 Method to test office-level contagion on SEC monitoring

The article studied by (Francis & Michas, 2013), who find that the existence of an audit failure indicated the presence of a "contagion effect" on the quality of other concurrent audits at the office level. To examine whether SEC perceive and react this office-level low audit quality. According to Lorien Stice-Lawrence (2020), who studied the Regulatory Spillover around restatements and negative media coverage spikes at the 4-digit SIC industry level. To test my hypothesis, I use the following model:

$$
\begin{aligned}
&SEC\_Monitoring\_Week_t \\
&\quad = \beta_1 Peer\_Aud\_Fail\_Week_t + \beta_2 Peer\_Aud\_Fail\_Week_{t-1} + \cdots + \beta_7 Peer\_Aud\_Fail\_Week_{t-6} \\
&\quad + \beta_8 Aud\_Fail\_Week_t + \beta_9 Aud\_Fail\_Week_{t-1} + \beta_{10} Aud\_Fail\_Week_{t-2} \\
&\quad + \beta_{11} SEC\_Monitoring\_Week_{t-1} + \beta_{12} SEC\_Monitoring\_Week_{t-2} \\
&\quad + \beta_{13} IRS\_Monitoring\_Week_t + \beta_{14} IRS\_Monitoring\_Week_{t-1} + \beta_{15} IRS\_Monitoring\_Week_{t-2} \\
&\quad + \sum Others\ Controls + Year\ Week\ Fixed\ Effects \\
&\quad + Industry\ Fixed\ Effects (Firm\ Fixed\ Effects) + \varepsilon
\end{aligned}
$$

$Peer\_Aud\_Fail\_Week_t = 1$ if both this company and the restated company were audited by the same audit office during the restatement period.

Other control variables are mostly used in the prior literature, which can be divided into three parts. Audit firm & office characteristics, firm characteristics and Information triggers.

For the audit firm & office characteristics, we include Big 4 indicators because DeAngelo (1981) argues that auditors in large firms are more motivated to provide high-quality audit and SEC may monitor firms less. We controlled for the office size because Francis and Yu (2009) and Choi et al. (2010) show that Big 4 office size is negatively associated with client abnormal accruals, which is a proxy of financial

reporting quality. We think SEC may also monitor less out of trust in speculating these audited firms.

For the client firm characteristics, Kedia and Rajgopal (2011) find that, because the SEC is resource-constrained, it is more likely to investigate firms with higher visibility. Therefore, we control the triggers stated in the SOX section 408 paragraph (b), low internal control quality, firms with restatement, firms experience significant volatility, have larger market capitalization and low Earning-to-price ratio are more likely to be subjected to stronger monitoring (Cassell et al., 2013). The variable Influence is included to control for the possibility that a specific client that provides a relatively high percentage of total fees to an auditor office may affect auditor objectivity and audit quality for that client (Francis & Yu, 2009). We also include attributes such as a firm's market performance proxied by market return. Loss is included based on the prior literature (Choi et al., 2010; Francis & Yu, 2009; Hribar & Craig Nichols, 2007; li, 2016; Reichelt & Wang, 2010).

For the Information triggers, we control for whether a 10-K, 10-Q is released in the current quarter/month on the EDGAR, the number of the 8-K filed, number of other filings filed (Lorien Stice-Lawrence, 2020), because these files release new information about the firm, which lead to more monitor actions. Press coverage is controlled to mitigate the effect of media attention (Defond et al., 2018).

Year-quarter/week fixed effect is controlled for the time trend in the SEC monitoring because we can see a clear upward tendency. Either Firm fixed effect or a 4-digit SIC

industry fixed effect to control for the difference in monitoring different firms(industries) because there is specific idiosyncrasy.

4. Empirical Analysis

4.1 Descriptive statistics

In Table 3, I report the summary statistics for the variable used in quarterly and weekly (calendar) weekly analysis. Panel A reports descriptive statistics for the quarterly sample used for validation of the EDGAR logfile data. The average log (1 + SEC monitoring Qtr) is 1.4695, compare to the average log (1 + IRS monitoring Qtr) (0.6710), suggesting a larger monitoring role and filing review action during the monitoring process. More than half of the SEC monitoring is 0 during a quarter for a firm, suggesting this huge monitoring scope makes it difficult for the SEC to cover so frequently. In panel B/C, we show descriptive statistics on the week (calendar) level. The difference between week and calendar week is the start date of the first date of a year. For the week, we set the first 7 days of a year as the first week. For calendar week, we use the first Monday of a year as the beginning of the first week. The day before the first week will be denoted as last year. Other control variables are also clustered at the same definition of the week if possible. Compared to the quarterly sample, the weekly sample is sparser that nearly 80 percent of the SEC monitoring is 0.

4.2 Validation of the EDGAR log file data

As a novel dataset, I first validate the effectiveness of this dataset. I do this by showing the monitoring intensity is predictable moving around some characters which may have a connection in the literature.

In Table 4 and 5, I provide evidence about the monitor predictability around special issues which can lead to SEC's attention on both quarterly and weekly levels. According to the SEC's filing review process, every company should at least be monitored once every three times (SOX 408). SOX Section 408 paragraph (b) shows characters which SEC should monitor more frequently: issuers with the restatement of financial results, significant volatility in their stock price, issuers with larger market capitalization, abnormal P/E ratio, issuers who have a huge material impact on the economy, and other factors that the Commission may consider relevant. We categorize these as filing review triggers. We also include information triggers when there is an important file (10-K, 10-Q, #8-K, #other files) updated to the EDGAR (Lorien Stice-Lawrence, 2020; Stice-Lawrence, 2021). We expected these factors will increase the average monitoring frequency of a company. Finally, we include some other attributes that may have an impact on the monitoring decision (negative income, audited by a Big4 auditor).

Table 4 shows that companies that have a restatement, an internal control weakness, higher stock price volatility, lower EP ratio, higher press coverage, lower stock return, negative net income are correlated with higher monitoring frequency. Also, when a company uploads their 10-K, 8-K and other files, they will receive more monitoring. Companies audited by the Big4 office correlated to lower monitoring frequency because

the Big4 have a higher audit quality. Fixed effects are included on the year-quarter level and the 2-digit SIC/firm level.

Table 5 further shows the evidence on the calendar weekly level. These factors are included as the control variable in further analysis. Compared with the quarterly results, the weekly results show the SEC responds to these triggers quickly. Fixed effects are also included on the year-week level and the 4-digit SIC/firm level.

4.3 M**ain** R**esults**

In Table 6 and 7, I examine the effect of peer audit failure on the company itself (Hypothesis). In period t, PEER AUD FAIL is an indicator variable set to 1 if both this company and the restated company were audited by the same audit office during the restatement period. According to the past evidence about the low audit quality contagion effect around the audit office (Francis & Michas, 2013; Li et al., 2017). These results support our hypothesis that there is a persistent positive correlation between the peer's restatement and the monitor intensity. In column 1, I show the dynamic effect by showing each week after the restatement happens. All results are positive but with some insignificant, because it's unclear that the exact time of the increased monitoring. In column 2, I show the average effect of these periods by setting the after_7 to 1 to indicate all the time in column 1. Both columns are included for the basic weekly controls shown in Table 4 and 5. I also include the company's restatement itself for three periods. The lag of the monitoring of the SEC and the IRS (lag SEC monitoring,

log IRS monitoring) are included to capture the dynamic effect of the monitoring behavior. Fixed effects are included at the year-week level and the 4-digit SIC level.

4.4 Robustness check

To check the robustness of my study, I first show the direct effect of peer audit failure on SEC monitoring. Then, because of the gap in the sample period because of the damage of the log file. There is concern about the effectiveness of the sample period. I, therefore, use the longest continuous time period (July 2013 – June 2017) to reproduce my analysis. Also, I provide a simulation sample to alleviate the concern about the heterogeneous treatment effect.

4.4.1 direct effect of X on Y

Table 8 shows the direct effect of X on Y. What's more, we generate an indicator treat to identify if there is a peer audit failure that occurs before t. So once peer aud fail = 1, treat = 1 and the time after that. Column (5) to (8) shows the results without control variables, most of these results are positive and significant at the 1% level.

4.4.2 small sample vs all sample

Table 9 shows that using the small but continuous sample, all results remain consistent and have a higher average effect. This is because the SEC

monitoring is increasing over time. Most downloads are in 2013 – 2017. This is also why we choose to include a time fixed effect.

4.4.3 heterogeneous treatment effect

Based on recent advances in econometrics (Baker et al., 2021; Callaway & Sant'Anna, 2020; De Chaisemartin & D'Haultfœuille, 2020; Goodman-Bacon, 2021). The two-way fixed effect may lead to bias estimation with heterogenous and staggered treatment effect. In picture 3, I use a simulation sample similar to our results and use the two-way fixed effects to find in this situation there is not a significant bias in our analysis.

5 Conclusion

The SEC has intensive resource constraint. So researchers need to study how the SEC allocates its resources to multitasks. In this study, I use a novel measure, the total downloads from external EDGAR by the SEC, as the proxy of SEC monitoring behavior at the input side to study the effect of audit failure on the SEC monitoring of its peer firm. I first validate this measure by providing its predictability around several triggers mentioned in SOX 404 and other characteristics that may lead to monitoring. Then I provide evidence of the spillover effect of the SEC monitoring on the audit failure event among the

peers who audited by the same office during the restatement period. Given the results of the contagion effect of the low audit quality at the office and individual level (Francis & Michas, 2013; Li et al., 2017), this result is consistent with the evidence that the SEC spends more resources on those firms that are more likely to have low quality. My result differs from the prior research of the substitute effect of the time allocation on SEC monitoring, we find the SEC uses peer firm's character which reflects low audit quality to allocate the monitoring decisions. My results provide useful insight into the ways how the SEC doing its filing review process. More implications can be found in future work.

Variable Definitions

Variable Name	Description
SEC_Monitoring_Week	Natural logarithm of 1 + the total number of a firm's filings downloaded by SEC-affiliated IP addresses over the current calendar week from EDGAR logfile.
Peer_Aud_Fail_X_Week	Indicator set to 1 if at least one of a firm's same auditor office peers experienced an audit failure. Audit failure is identified as a client company restates net income downward by a material amount subsequent to the audit. X refers to the materiality level of the restatement (i.e., 0 for a greater than 0 percent downward restatement of net income and 10 for a greater than 10 percent downward restatement of net income). Auditor office locations are taken from Audit Analytics.
Aud_Fail_Week	Indicator set to 1 if the firm experience an audit failure. Audit failure is identified as a client company restates net income downward by a material amount subsequent to the audit. X refers to the materiality level of the restatement (i.e., 0 for a greater than 0 percent downward restatement of net income and 10 for a greater than 10 percent downward restatement of net income). Auditor office locations are taken from Audit Analytics.
IRS_Monitoring_Week	Natural logarithm of 1 + the total number of a firm's filings downloaded by IRS-affiliated IP addresses over the current week from EDGAR logfile.
Peer_IRS_Monitoring_Week	The average value of IRS_Monitoring for all other firms in the same 4-digit SIC code industry over the current calendar week from EDGAR logfile.
Peer_Other_Downloads_Week	The average value of Other_Downloads for all other firms in the same 4-digit SIC code industry over the current calendar week from EDGAR logfile.
Audit Firm & Office Characteristics	
Big 4	Indicator variable set to 1 if the firm was audited by a Big 4 auditor as of the end of the prior fiscal year from Compustat.
Office Size	natural log of the total dollar amount of audit fees charged to all audit clients within an auditor office in year t. Auditor office locations are taken from Audit Analytics.
Client Firm Characteristics	
ICW	Indicator variable coded 1 if the firm had a Section 404A or Section 404B internal control weakness in the current year according to Compustat or Audit Analytics in the prior fiscal year.

Restatement	Indicator variable coded 1 if the firm had a restatement announcement in the current quarter (week) from Audit Analytics.
Stock_Vol	the standard deviation of a company's monthly stock returns during year t from CRSP.
Log_MVE	natural log of a company's total assets in year t from Compustat.
E_P Ratio	Earnings-to-price ratio, measured as of the end of the prior fiscal year from CRSP & Compustat.
Return	Cumulative stock returns over the current week from CRSP.
Loss	Indicator variable set to 1 if the company records net income below 0 in year t, and 0 otherwise from Compustat.
Information Triggers	
10K_Filed_Week	Indicator variable set to 1 if the firm filed its 10- K during the current week from EDGAR.
10Q_Filed_Week	Indicator variable set to 1 if the firm filed its 10- Q during the current week from EDGAR.
ln_8K_Week	Natural log of 1+ the number of 8-Ks the firm filed during the current week from EDGAR.
ln_Other_Filings_Week	Natural log of 1+ the number of total regulatory filings the firm filed during the current week, excluding 8-Ks, 10-Ks, and 10-Qs from EDGAR.
Press_Coverage_Week	Natural logarithm of 1+ the total number of articles written about a firm during the current week, using articles with a relevance score >=75 on RavenPack.
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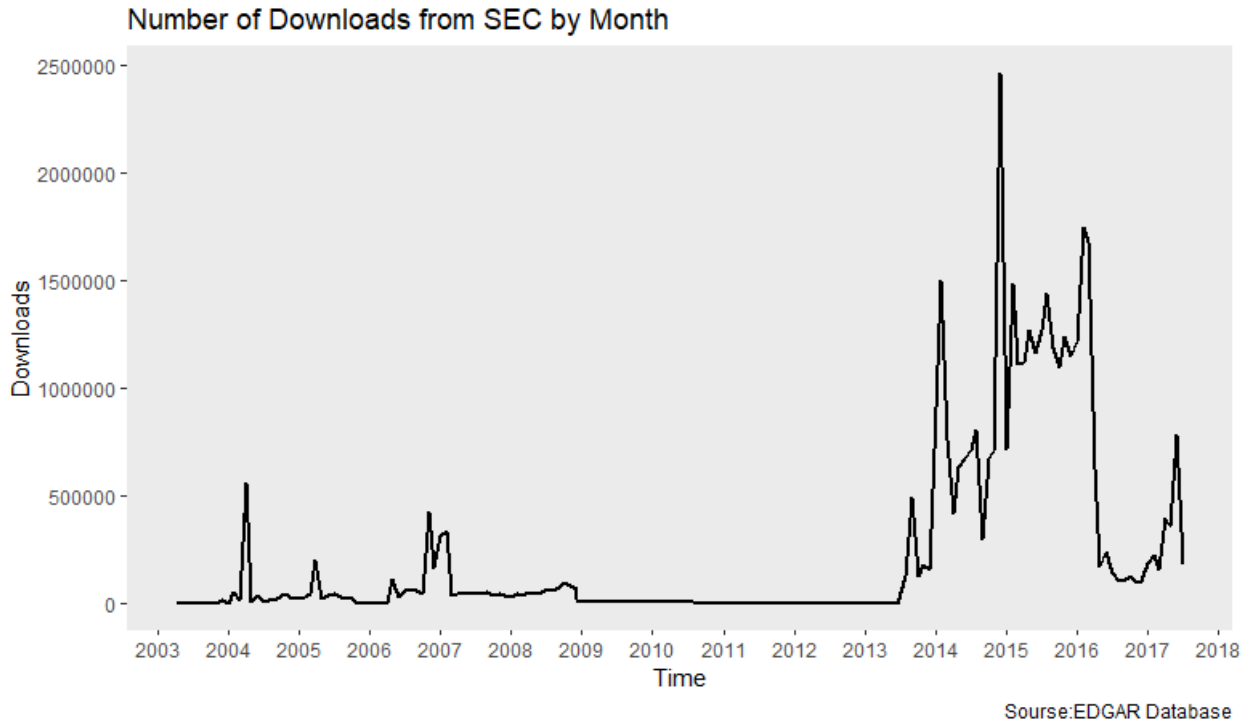
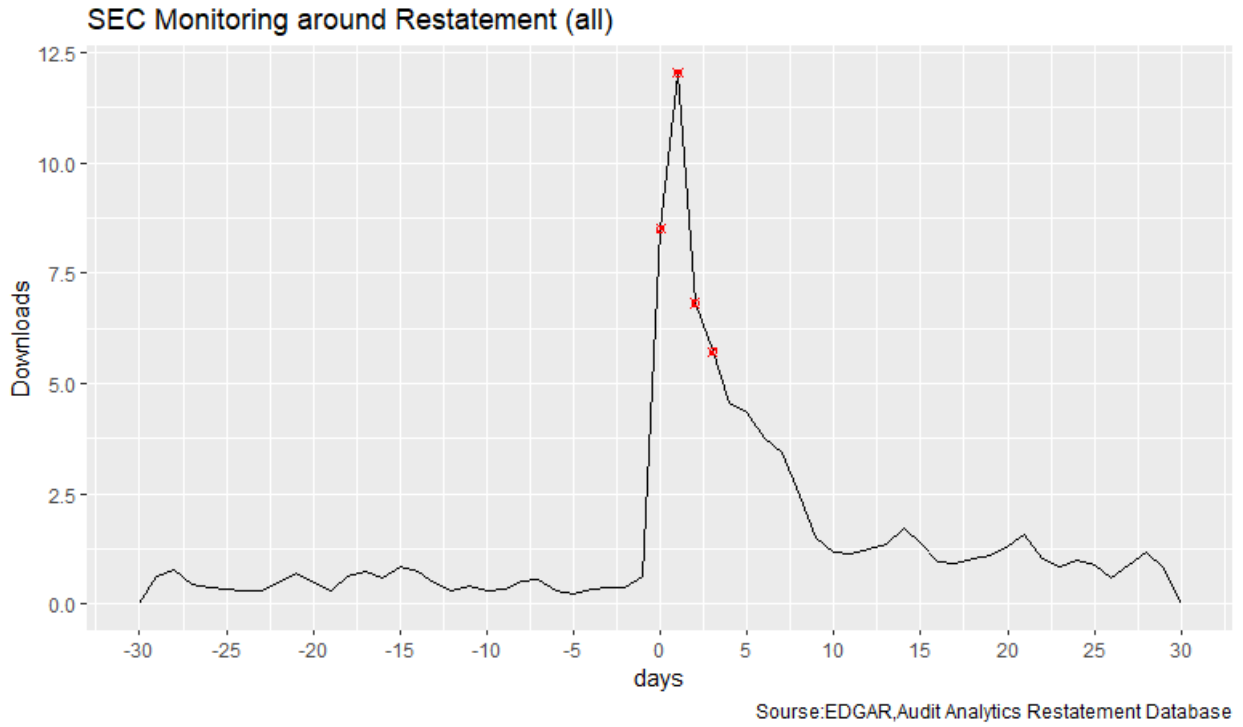
Stice-Lawrence, L. (2021). *Monitoring Decisions and Frictions at the SEC*.
Swanquist, Q. T., & Whited, R. L. (2015). Do Clients Avoid "Contaminated" Offices? The Economic Consequences of Low-Quality Audits. *The Accounting Review*, *90*(6), 2537-2570. https://doi.org/10.2308/accr-51113
Van Loo, R. (2019). REGULATORY MONITORS: POLICING FIRMS IN THE COMPLIANCE ERA. *Columbia Law Review*, *119*(2), 369-444. <Go to ISI>://WOS:000466392400003

Picture 1: Number of Downloads from the EDGAR Database by Month

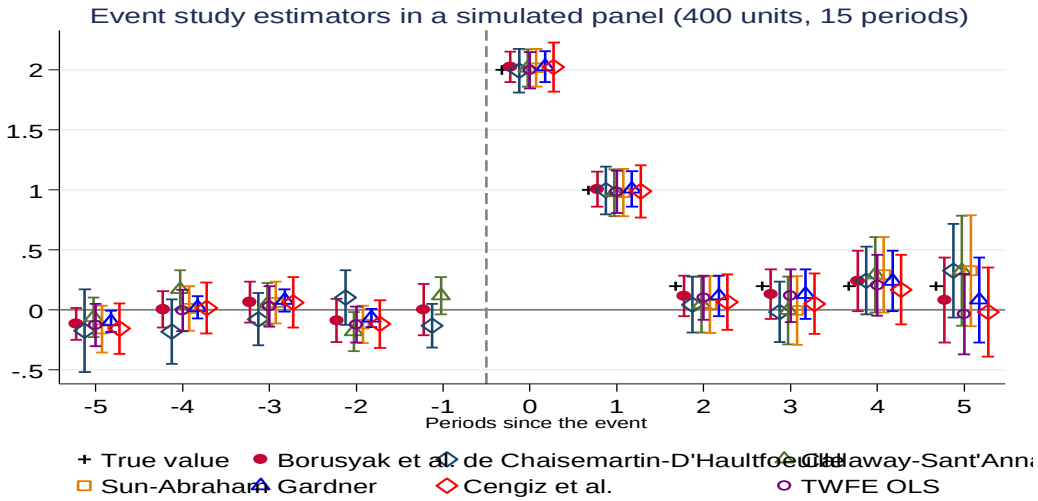


Picture 2: Average SEC Monitoring in the Days Around the Restatements



Picture 3: simulated sample

Generate a complete panel of 300 units observed in 15 periods,
Randomly generate treatment rollout years uniformly across Ei=10..16 (note that periods t>=16 would not be useful since all units are treated by then)
Generate the outcome with parallel trends and heterogeneous treatment effects
Denote K as the time period relevant to the treatment.
Denote tau as the average treatment effect relative to the control group at the exact relative time.
(1)
K = 0, tau = 2;
K = 1, tau = 1;
K > 1, tau = 0.2
(2)
K = 0, tau = -2;
K = 1, tau = -1;
K > 1, tau = 0.2



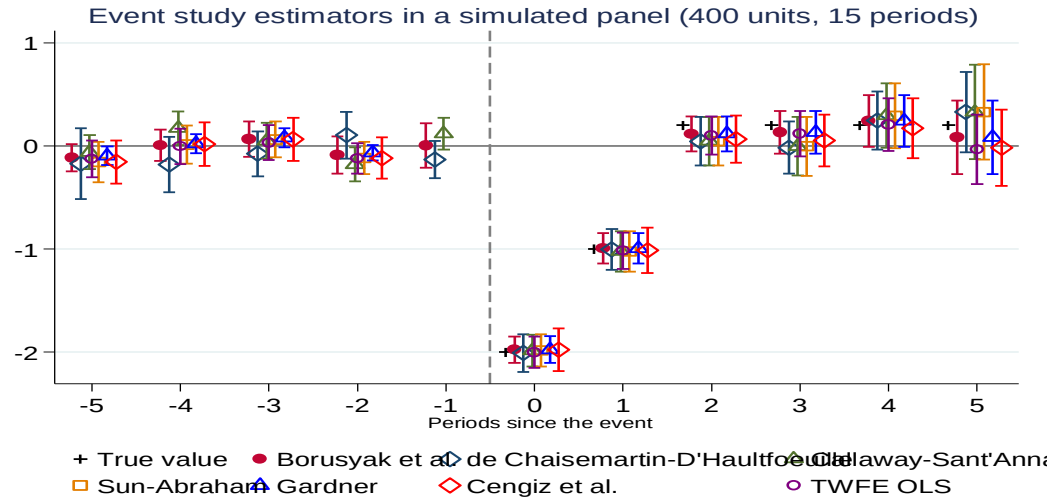


Table 1. SEC monitoring data description

Panel A. Sample selection

All EDGAR log file data
Filter with SEC IP address
Filter with time period
Less:
  Idx = 0 (if the requester landed on the index page of a set of documents (e.g., - index.htm)
Aggregate by quarter/week for each firm

Panel B. SECmonitoring: weekdays vs weekends

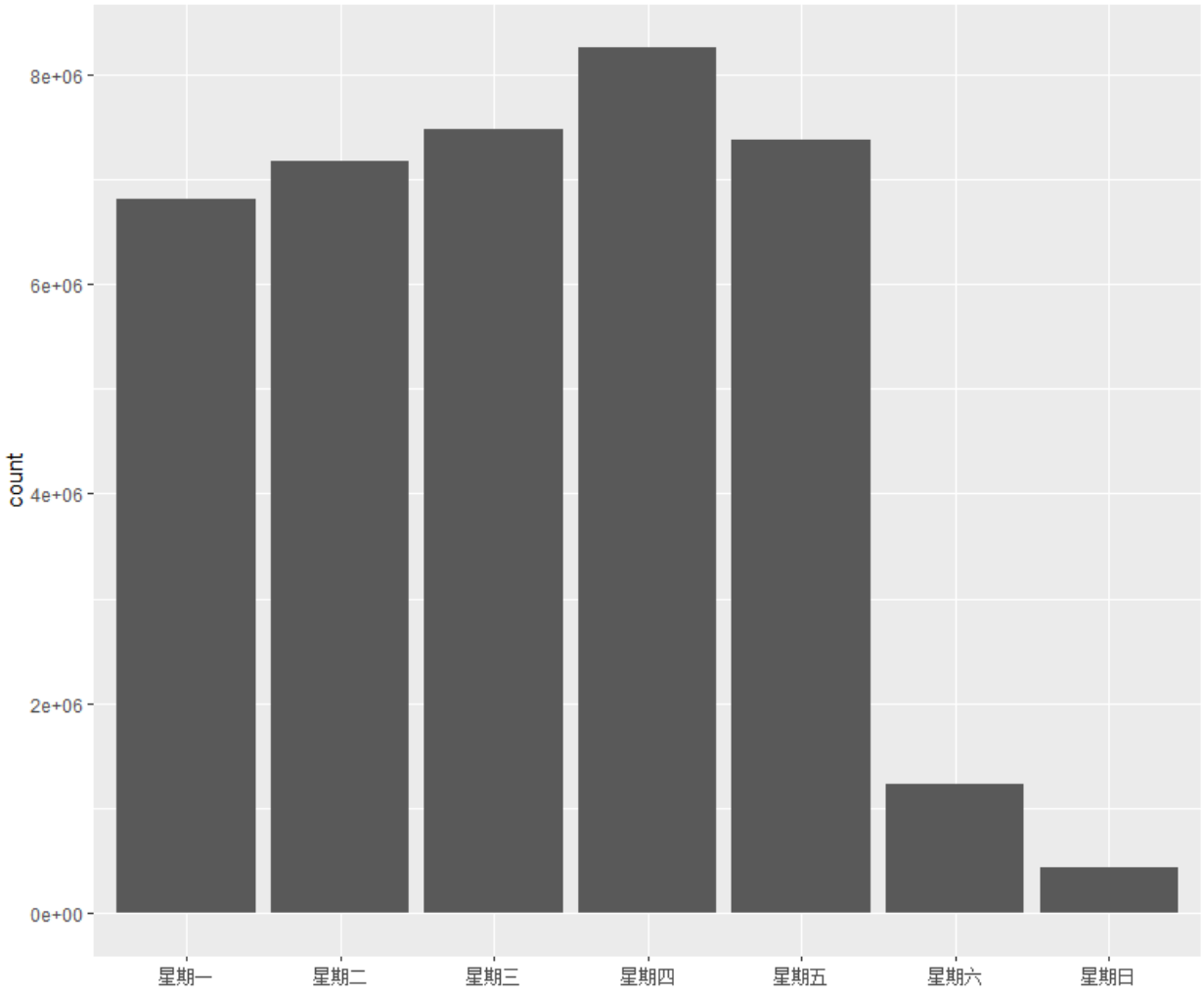
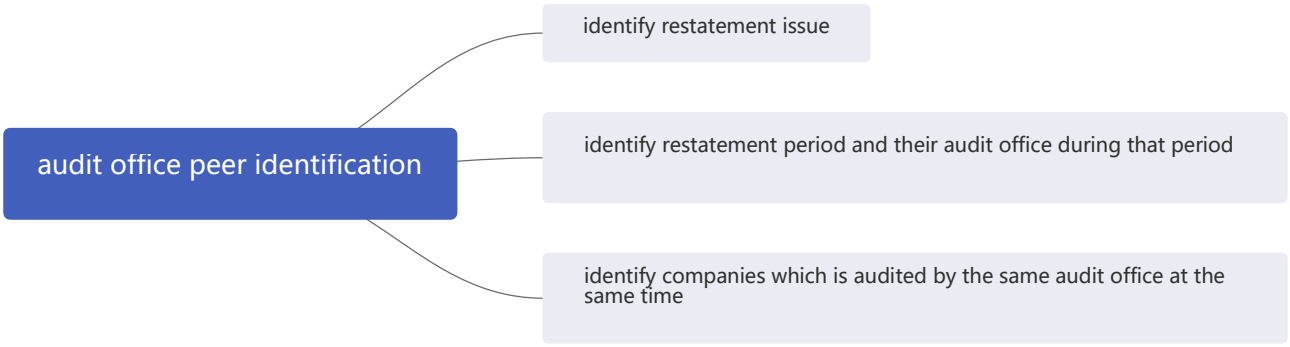


Table 2. Restatement (Audit Failure) data description

Panel A. Sample selection

Restatements in Audit Analytics Restatement database (during the sample period)	8,324
Less:	
Restatements with the effect item is not negative	(1,250)
Restatements with SEC Investigation involved	(440)
Final restatement sample	6,634

Panel B. Audit office peer identification procedure



Panel C. Audit office contaminated peer by year at the year-week level

2004	4,707
2005	11,752
2006	8,823
2007	8,576
2008	4,764
2013	2,522
2014	5,380
2015	5,510
2016	4,861
2017	2,369
Final peer audit failure sample	59,264

Table 3 Descriptive statistics

VARIABLES	N	mean	sd	p25	p50	p75
Panel A. Quarterly Analysis Sample						
log SEC monitoring Qtr	124,482	1.4695	2.0224	0.0000	0.0000	2.8332
log IRS monitoring Qtr	124,482	0.6710	0.9541	0.0000	0.0000	1.0986
restatement	124,482	0.0227	0.1490	0.0000	0.0000	0.0000
ICW	123,905	0.0612	0.2398	0.0000	0.0000	0.0000
Stock Vol	124,084	0.0274	0.0177	0.0167	0.0233	0.0327
ln mkvalt	124,482	7.0113	1.7611	5.7373	6.8807	8.1276
EP ratio	124,479	-0.2326	10.9798	-0.0118	0.0360	0.0594
ln Press Coverage	124,482	3.9570	2.1201	3.4340	4.4886	5.3132
file 10K	124,482	0.1911	0.3932	0.0000	0.0000	0.0000
ln 8K	124,482	1.1034	0.6722	0.6931	1.0986	1.6094
ln Other Filings	124,482	2.1843	1.1911	1.6094	2.3979	3.0445
Loss	124,482	0.2781	0.4480	0.0000	0.0000	1.0000
Big4	124,482	0.8411	0.3655	1.0000	1.0000	1.0000
Panel B. Weekly Analysis Sample						
log SEC monitoring Week	1285573	0.3927	0.9965	0.0000	0.0000	0.0000
log IRS monitoring Week	1285573	0.0608	0.2892	0.0000	0.0000	0.0000
Peer Audit Failure Week	1285573	0.0457	0.2089	0.0000	0.0000	0.0000
restatement Week	1285573	0.0019	0.0436	0.0000	0.0000	0.0000
Stock Vol Week	1265320	0.0264	0.0275	0.0120	0.0195	0.0318
file 10K Week	1285573	0.0134	0.1152	0.0000	0.0000	0.0000
file 10Q Week	1285573	0.0480	0.2137	0.0000	0.0000	0.0000
ln 8K Week	1285573	0.1242	0.2882	0.0000	0.0000	0.0000
ln Other Filings Week	1285573	0.3748	0.6360	0.0000	0.0000	0.6931
return Week	1285573	0.0011	0.0781	0.0289	0.0000	0.0297
Panel C. Calendar Weekly Analysis Sample						
log SEC monitoring Calendar Week	1278820	0.3884	0.9962	0.0000	0.0000	0.0000
log IRS monitoring Calendar Week	1278820	0.0605	0.2887	0.0000	0.0000	0.0000
Peer Audit Failure Calendar Week	1278820	0.0463	0.2102	0.0000	0.0000	0.0000
restatement Calendar Week	1278820	0.0019	0.0436	0.0000	0.0000	0.0000
Stock Vol Calendar Week	1258732	0.0264	0.0275	0.0119	0.0194	0.0319
file 10K Calendar Week	1278820	0.0135	0.1153	0.0000	0.0000	0.0000
file 10Q Calendar Week	1278820	0.0480	0.2138	0.0000	0.0000	0.0000
ln 8K Calendar Week	1278820	0.1238	0.2877	0.0000	0.0000	0.0000
ln Other Filings Calendar Week	1278820	0.3718	0.6342	0.0000	0.0000	0.6931
return Calendar Week	1278820	0.0010	0.0778	0.0285	0.0001	0.0295

Descriptive statistics of data used in quarterly analyses (Panel A), weekly analyses (Panel B), calendar weekly analyses (Panel C). Variables are presented for the broadest sample used in any specification.

Table 4. Basic Drivers of Quarterly SEC Disclosure Monitoring

VARIABLES	(1) ***Log SEC monitoring Qtr***	(2) ***Log SEC monitoring Qtr***
	Filing Review Triggers	
restatement	0.270***	0.223***
	(5.09)	(5.07)
L.ICW	0.259***	0.153***
	(6.54)	(5.35)
Stock Vol	2.948***	0.986**
	(3.79)	(2.11)
ln mkvalt	0.115***	0.059***
	(7.30)	(4.51)
E/P ratio	-0.001**	-0.000
	(-2.14)	(-1.26)
	Visibility & Information Events	
ln Press Coverage	0.020***	0.011*
	(3.78)	(1.74)
file 10K	-0.073	-0.084*
	(-1.34)	(-1.86)
ln 8K	0.174***	0.143***
	(6.28)	(7.05)
ln Other Filings	-0.007	0.046***
	(-0.63)	(4.79)
return	-0.110***	-0.058*
	(-3.13)	(-2.01)
	Other Attributes	
L.loss	0.112***	0.026
	(4.80)	(1.59)
L.Big4	-0.114***	-0.089***
	(-5.74)	(-3.22)
Constant	0.623***	1.032***
	(4.34)	(9.95)
Fixed Effects:		
Year FE	Y	Y
Quarter FE	Y	Y
2-digit SIC Industry FE	Y	N
Firm FE	N	Y
Observations	119,239	119,229
R-squared	0.804	0.827

Quarterly analyses establishing basic cross-sectional determinants of SEC disclosure monitoring (log SEC Monitoring Qtr). Control variables that could be observed or affect SEC monitoring in real time are measured in the current quarter; all others are lagged. Observations restricted to only those with data available for all specifications. Robust t-statistics clustered by firm and 2-digit SIC code industry-quarter are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 5. Basic Determinants of Weekly SEC Disclosure Monitoring

VARIABLES	(1) **Log SEC monitoring Week**	(2) **log SEC monitoring Week**
restatement	0.694***	0.645***
	(17.37)	(15.15)
Stock Vol	0.446***	0.864***
	(3.56)	(8.70)
file 10K	1.200***	1.214***
	(7.17)	(7.21)
file 10Q	0.970***	0.980***
	(8.46)	(8.55)
ln 8K	0.182***	0.156***
	(19.53)	(19.76)
ln Other Filings	0.092***	0.071***
	(12.65)	(20.12)
return	-0.075***	-0.105***
	(-3.05)	(-4.84)
Constant	0.351***	0.350***
	(43.46)	(41.35)
Fixed Effects:		
Year FE	Y	Y
Week FE	Y	Y
4-digit SIC Industry FE	Y	N
Firm FE	N	Y
Observations	1,265,389	1,265,361
R-squared	0.276	0.312

Weekly analysis estimating determinants of SEC disclosure monitoring (log SEC Monitoring Week). Industry x Calendar Month fixed effects are generated for all 4-digit SIC code industry and calendar month combinations. Observations are restricted to only those with data available for all specifications. Robust t-statistics clustered by 4-digit SIC code industry and firm – year & week in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 6 Shocks to Peer Monitoring Caused by Audit Failure Weekly

VARIABLES	(1) log SEC monitoring	(2) log SEC monitoring
after_7		0.012***
		(4.02)
PEER AUD FAIL WEEK	0.013**	
	(2.23)	
L.PEER AUD FAIL WEEK	0.002	
	(0.48)	
L2.PEER AUD FAIL WEEK	0.003	
	(0.61)	
L3.PEER AUD FAIL WEEK	0.008*	
	(1.85)	
L4.PEER AUD FAIL WEEK	0.007*	
	(1.69)	
L5.PEER AUD FAIL WEEK	0.013***	
	(3.82)	
L6.PEER AUD FAIL WEEK	0.000	
	(0.10)	
log SEC monitoring *[t-1~t-2]*	Y	Y
log IRS monitoring *[t~t-2]*	Y	Y
restatement *[t~t-2]*	Y	Y
Basic Weekly Controls	Y	Y
Fixed Effects:		
Year FE	Y	Y
Week FE	Y	Y
4-digit SIC Industry FE	Y	Y
Observations	1,197,891	1,242,834
R-squared	0.353	0.352

Analysis demonstrating the timeline by which peer audit failure events affect a firm's own week level disclosure monitoring (log SEC Monitoring Week). Shocks to peer monitoring are identified by the presence of peer audit failure (Peer Aud Fail Week), where peer audit failure exclude those that were prompted by the SEC according to Audit Analytics. These variables are measured and controlled Basic Week-Level Controls are all control variables from Table 3. Controls also for lag SEC monitoring and log IRS Monitoring include for in (t), t-1, and t-2.Observations are restricted to only those with data available for all specifications. Robust t-statistics clustered by firm and 4-digit SIC code / firm-week are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 7 Shocks to Peer Monitoring Caused by Audit Failure Calendar Weekly

VARIABLES	(1) log SEC monitoring	(2) log SEC monitoring
after_7		0.012***
		(4.08)
PEER AUD FAIL CALENDAR WEEK	0.009*	
	(1.82)	
L.PEER AUD FAIL CALENDAR WEEK	0.007	
	(1.65)	
L2.PEER AUD FAIL CALENDAR WEEK	0.005	
	(1.26)	
L3.PEER AUD FAIL CALENDAR WEEK	0.009**	
	(2.10)	
L4.PEER AUD FAIL CALENDAR WEEK	0.010***	
	(2.68)	
L5.PEER AUD FAIL CALENDAR WEEK	0.001	
	(0.39)	
L6.PEER AUD FAIL CALENDAR WEEK	0.003	
	(0.88)	
log SEC monitoring $_{[t-1\sim t-2]}$	Y	Y
log IRS monitoring $_{[t\sim t-2]}$	Y	Y
restatement $_{[t\sim t-2]}$	Y	Y
Basic Calendar Weekly Controls	Y	Y
Fixed Effects:		
Year FE	Y	Y
Week FE	Y	Y
4-digit SIC Industry FE	Y	Y
Observations	1,191,426	1,236,363
R-squared	0.336	0.337

The analysis demonstrating the timeline by which peer audit failure events affect a firm's own **calendar** week level disclosure monitoring (log SEC Monitoring Week). Shocks to peer monitoring are identified by the presence of peer audit failure (Peer Aud Fail Week), where peer audit failure exclude those that were prompted by the SEC according to Audit Analytics. These variables are measured and controlled Basic Week-Level Controls are all control variables from Table 3. Controls also for lag SEC monitoring and log IRS Monitoring include for in (t), t-1, and t-2. Observations restricted to only those with data available for all specifications. Robust t-statistics clustered by firm and 4-digit SIC code / firm-week are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 8 Sensitivity Analysis - Direct Effect of X on Y

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Log SEC monitoring				Log SEC monitoring			
PEER AUD FAIL CALENDAR WEEK	0.010**	0.003			0.038***	0.017***		
	(2.10)	(0.55)			(5.81)	(3.11)		
treat			0.017***	-0.007			0.061***	0.000
			(2.73)	(-1.05)			(6.47)	(0.06)
Observations	1,236,363	1,236,360	1,236,363	1,236,360	1,278,820	1,278,818	1,278,820	1,278,818
R-squared	0.337	0.354	0.337	0.354	0.236	0.267	0.236	0.267
Controls	Y	Y	Y	Y	N	N	N	N
Fixed Effects:								
Year FE	Y	Y	Y	Y	Y	Y	Y	Y
Week FE	Y	Y	Y	Y	Y	Y	Y	Y
4-digit SIC Industry FE	Y	N	Y	N	Y	N	Y	N
Firm FE	N	Y	N	Y	N	Y	N	Y

In table 8 we demonstrate both either temporal effect or permanent effect of peer audit failure on the disclosure monitoring (log SEC Monitoring Week). PEER AUD FAIL CALENDAR WEEK = 1 if the peer audit failure event happens exactly at that time. Treat = 1 if there is a peer audit failure event that happens during the time period. (i.e. the staggered adoption in the design).

Table 9 Sensitivity Analysis – Small Sample vs All Sample

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	log_SEC_monitoring				log_SEC_monitoring			
PEER AUD FAIL CALENDAR WEEK	0.009*	0.003			0.028***	0.014		
	(1.90)	(0.54)			(2.72)	(1.37)		
L.	0.008**	0.002			0.026***	0.012		
	(2.07)	(0.37)			(2.79)	(1.20)		
L2	0.007	-0.001			0.025***	0.010		
	(1.49)	(-0.23)			(2.70)	(0.99)		
treat			0.017***	-0.007			0.039***	-0.004
			(2.73)	(-1.05)			(4.11)	(-0.48)
Observations	1,213,782	1,213,780	1,236,363	1,236,360	578,896	578,895	586,242	586,240
R-squared	0.335	0.353	0.337	0.354	0.382	0.402	0.381	0.401
Controls	Y	Y	Y	Y	Y	Y	Y	Y
Fixed Effects:								
Year FE	Y	Y	Y	Y	Y	Y	Y	Y
Week FE	Y	Y	Y	Y	Y	Y	Y	Y
4-digit SIC Industry FE	Y	N	Y	N	Y	N	Y	N
Firm FE	N	Y	N	Y	N	Y	N	Y
Sample Period	all	all	all	all	small	small	small	small

Because of the hiatus of our sample period. In table 8 we demonstrate the results on both all sample periods and the most complete and continuous sub-sample (from 2013 to 2017). PEER AUD FAIL CALENDAR WEEK = 1 if the peer audit failure event happens exactly at that time. Treat = 1 if there is a peer audit failure event that happens during the time period. (i.e. the staggered adoption in the design).

Appendix：IP address of SEC and IRS

SEC IP address:

1 162.138.128.ahd
2 162.138.128.hhj
3 162.138.128.cfi
4 162.138.128.gai
5 162.138.128.fef
6 162.138.128.bhj
7 162.138.128.gjj
8 162.138.128.fjc
9 162.138.128.aej
10 162.138.128.efi
11 162.138.176.agj
12 162.138.184.aej
13 162.138.184.jcf
14 162.138.176.iei
15 162.138.191.fab
16 162.138.180.jdj
17 162.138.2.ggf
18 162.138.200.ggf
19 162.138.210.ggf
20 12.1.239.jii

IRS IP address:

1 152.216.3.eja
2 152.216.3.ggf
3 152.216.3.ech
4 152.216.7.ggf
5 152.216.7.ech
6 152.216.7.eja
7 152.216.11.ech
8 152.216.11.ggf
9 152.216.11.eja
10 152.216.3.gjc
11 152.216.7.gjc
12 152.216.11.gjc
13 152.216.11.ahg
14 152.216.15.eja
15 152.216.7.ahg