

Accounting Restatements and the Timeliness of Disclosures

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Synopsis: Regulators are concerned that during the process of preparing accounting restatements firms fail to provide timely progress updates, and delay earnings announcements and regulatory filings. To reduce these perceived lags in disclosure, an advisory group to the Securities and Exchange Commission recommends more use of catch-up adjustments rather than restatements to correct accounting errors. Some investor groups oppose the recommendations because they fear that preparers will begin to correct important errors through catch-up adjustments, which are less transparent than restatements.

We inform this debate by examining 1) the length of disclosure lags around restatements to understand the extent of the problem, and 2) the causes of disclosure lags to evaluate whether the reforms would address the root causes of the lags. We find that lengthy lags are uncommon and appear to be largely unavoidable consequences of fraud investigations. When fraud is a factor, the firm typically takes weeks or months to release restatement details, quarterly earnings, and SEC 10-Q/10-K filings, likely because investigations are necessary to restore the firm's ability to produce reliable information. When fraud is not a factor, the firm typically discloses the restatement's earnings impact within a day of the initial restatement announcement, and quarterly earnings and SEC 10-Q/10-K filings are delayed by less than a week compared to the prior year. Thus, the proposed reforms would have a negligible effect on disclosure timeliness because most disclosure lags are short, and because long lags appear to be caused by inherent constraints on producing reliable information.

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INTRODUCTION

The number of restatements for accounting errors has increased substantially in recent years, likely because of heightened efforts to eliminate errors after the Enron scandal and the reforms that followed. Although investors and regulators generally welcome increased efforts to correct accounting errors, there is concern that while preparing restatements firms fail to provide timely updates about the restatement and delay subsequent earnings announcements and regulatory filings. In its final report to the Securities and Exchange Commission (SEC), the Advisory Committee on Improvements to Financial Reporting (CIFR) claims: “The restatement process, which may take longer than 12 months, imposes significant costs on investors as well as preparers. During that process, companies often go into a ‘dark period’ and issue very little financial information to the public” (CIFR 2008, 6). Elaborating on this point, CIFR states:

“Companies often provide the market with little financial data during the time between an announcement of the identification of errors in historical financial statements and the filing of restated financial statements. Limited information seriously undermines the quality of investor analysis, and sometimes triggers potential loan default conditions or potential delisting of the company’s stock.” (CIFR 2008, 79)

To reduce lags in disclosure, CIFR proposes mandating timely disclosure about the magnitude and nature of the errors, altering materiality criteria so that fewer errors require restatement, and finding more efficient ways to correct and disclose accounting errors. The materiality proposals are controversial because they would give firms that uncover accounting errors more leeway to avoid restating their prior financial statements and instead use less transparent catch-up adjustments to current earnings or equity. A high-level SEC official voiced support for CIFR’s recommended approach and some observers claim that the SEC has begun allowing firms to avoid restatements even without formally adopting the proposals (Rummell

2008; Stuart 2010).¹ However, some investor groups oppose the reforms, fearing that preparers would abuse their discretion to avoid restatements.

We inform this debate in two ways. First, we examine the length of disclosure lags around restatements to understand the extent of the problem. Second, we examine the causes of disclosure lags to evaluate whether the reforms would address the root causes of the lags. If disclosure lags occur because of the extra clerical tasks that restatements require beyond catch-up adjustments, or because the firm simply chooses to withhold disclosures, then the regulatory reforms would reduce lags by eliminating some restatements and mandating timely disclosure. However, if disclosure lags occur because the restating firms are unable to produce reliable information until they investigate and correct their accounting practices, then the reforms would yield little benefit.

Using a comprehensive sample of error-related restatements announced between 1997 and 2005, we find that lengthy disclosure lags around restatements are uncommon and concentrated in restatements involving suspected or confirmed fraud (i.e., intentional manipulations).² When fraud is a factor, the firm typically takes weeks or months to disclose the restatement's earnings impact, likely because investigations are necessary to restore the firm's ability to produce reliable information. In contrast, when fraud is not a factor, the firm typically discloses the restatement's earnings impact within a day of the initial restatement announcement, and the earnings announcement and SEC filing for the current period are delayed by less than a week compared to the prior year. We conclude that reducing firms' use of restatements is unlikely to

¹ In August 2008, SEC Division of Corporate Finance director John W. White stated, "As the [CIFR] notes, this approach of not restating for immaterial errors would provide investors making current investment decisions with more timely financial reports and avoid the costs to investors of delaying prompt disclosure of current financial information in order for a company to correct multiple prior filings" (White 2008b).

² To ease exposition, for the remainder of the paper we refer to restatements involving suspected or confirmed intentional manipulations as "fraudulent" and the others as "non-fraudulent."

substantially speed the flow of information to investors because disclosure lags around non-fraudulent restatements are already short, and lags around fraudulent restatements likely are driven by non-clerical factors.

In addition to informing the regulatory debate over restatements, our study is useful to standard setters and researchers. Our study helps standard setters understand the consequences of expanding retrospective treatment (i.e. restatements) to a wider range of accounting changes. In 2005, the FASB issued Statement of Financial Accounting Standards (SFAS) No. 154, which switched the accounting treatment for changes in accounting principle from current to retrospective. Some academics have advocated further expanding the use of retrospective treatment to changes in estimates (Lundholm 1999; Lev 2003). CIFR's objections to retrospective treatment for error correction could also be raised about retrospective treatment for changes in accounting principle or estimates. Unlike the surprise involved with discovery of accounting errors, preparers typically can anticipate and plan for changes in accounting principles or estimates. Thus, the evidence we provide regarding the disclosure lags involved with error-related restatements likely provide an upper bound for the disclosure lags involved with restatements for changes in accounting principles or estimates.

Our findings add to the academic literature examining the factors that influence the timing and delay of earnings-related disclosures (e.g., Chambers and Penman 1984; Kross and Schroeder 1984; Alford et al. 1994; Kothari et al. 2009; Krishnan and Yang 2009). Our study also provides insight about restatement timelines that is relevant to studies that examine the effects of restatements, such as declines in stock price, increases in cost of capital, or management turnover. Researchers should be aware that some restatements tend to have lengthy resolution periods characterized by uncertainty about the nature and extent of the errors, while

other restatements do not. To obtain valid inferences, researchers may need to control for cross-sectional variation in the stage of resolution, or measure variables like stock returns over the entire period of resolution.

BACKGROUND AND PROPOSED REFORMS

Restatement frequency has increased substantially in recent years, with over 1,600 firms or approximately 10 percent of public companies, issuing a restatement in 2006 (Johnson 2008). Although the number of restatements declined after 2006, annual restatement counts still dwarf those of a decade ago.³ Regulators do not interpret the increase in restatements as a sign of deteriorating internal controls or accounting quality; rather, regulators believe that preparers and auditors have heightened efforts to detect and correct accounting errors. Supporting this belief, restatements' impacts on earnings and market values have become smaller over time, suggesting that auditors and preparers are employing more conservative materiality thresholds (GAO 2006; Plumlee and Yohn 2010). Regulators are concerned that restatements with low informational value slow the flow of more important information to investors, such as earnings announcements and regulatory filings (CIFR 2008, 78-79).

The SEC commissioned the CIFR to examine the increase in restatements and other developments in the U.S. financial reporting system. Our study complements other academic work inspired by CIFR's concerns and proposals (Burks 2009; Plumlee and Yohn 2010; Wright et al. 2008). CIFR is concerned that firms unnecessarily suspend their communication with investors around restatements, and recommends that companies be required to disclose information about the errors as it becomes available rather than waiting until the restated financial statements are filed. This information includes the nature of the error, the impact of the

³ Counts vary by data provider, but Audit Analytics reports 1,235 and 869 restatements in 2007 and 2008, respectively (Taub 2009). A comprehensive study by Scholz (2008) identifies only 90 and 119 in 1997 and 1998, respectively (Audit Analytics does not track these years).

error on trends, liquidity, or operations, and management’s response to the error (CIFR 2008, 86). In the spirit of this recommendation, we examine how long firms take to disclose the estimated and actual earnings impact of the errors after the initial restatement announcement.

CIFR also recommends modifying materiality guidance so that more errors are deemed “immaterial,” thus allowing firms to avoid restatements (SFAS No. 154 does not require restatements for immaterial errors). CIFR believes that a quantitatively material error should be deemed immaterial for the following qualitative reasons: the error affects metrics that are not important to investor models, the error is a one-time item that does not affect key trends, or the error affects a portion of the business that does not drive the firm’s value or risk (CIFR 2008, 81).⁴ CIFR also recommends that restatements not be used for errors that are immaterial to each prior period even if taking a catch-up adjustment would materially affect current-period financial statements (CIFR 2008, 83).⁵ For errors deemed immaterial, CIFR recommends that they be disclosed in an SEC form 8-K and corrected with a catch-up adjustment to equity or earnings. The assumption underlying these recommendations is that a catch-up adjustment involves less clerical burden than does restating prior period financial statements, allowing firms to correct errors and resume regular reporting schedules more quickly.

The materiality recommendations are controversial. Some observers claim that the recommendations undesirably depart from the SEC’s existing materiality guidance found in Staff Accounting Bulletin (SAB) No. 99. In a comment letter to the CIFR, the Certified Financial

⁴ This recommendation appears to violate the intent of existing materiality guidance found in the SEC’s Staff Accounting Bulletin (SAB) No. 99. SAB No. 99 explains how even quantitatively small errors can be rendered material by qualitative factors. The bulletin never mentions the possibility that large errors could be rendered immaterial by qualitative factors. As described in the next paragraph, many market participants also believe that SAB No. 99 does not allow large errors to be rendered immaterial for qualitative reasons.

⁵ This recommendation violates SAB No. 108, which requires that materiality assessments aggregate the error across periods through the “iron curtain” approach. Also required is the “rollover” approach, which only considers the misstated amount for the current period. If *either* approach suggests a material misstatement, then restatement is required.

Analyst Institute stated, “Fundamentally, we do not understand how a quantitatively large error could be immaterial due to qualitative factors. The list of possible factors [cited by the CIFR] contradicts the intention of materiality factors addressed in SEC Staff Accounting Bulletin No. 99.”⁶ Opposition of a similar nature was registered by the Investors Technical Advisory Committee and the Consumer Federation of America.⁷ Other opponents do not want to lose the transparency that a restatement of prior periods provides over correcting the error with a catch-up adjustment, and are worried that firms would abuse wider discretion to avoid restatements. Responding to the CIFR’s materiality recommendations, an analyst for the Capital Group Cos. stated, “Disclosure is a concern, and investors want to be their own decision-makers of which errors are important in their investment theses” (Johnson 2008).

The SEC has not yet formally adopted the CIFR’s materiality proposals. However, citing the decline in restatements since 2006, some observers claim that the SEC has informally softened its approach to materiality and is allowing more firms to avoid restatement (Rummell 2008; Stuart 2010).⁸ Comments by SEC officials themselves also suggest a softening, possibly prompted by concerns about disclosure lags around restatements. In a January 2008 speech, John W. White, director of the SEC’s Division of Corporate Finance, cautioned preparers against assuming that the SEC would require restatements for questionably material errors: “Please do not presume the [SEC] staff’s conclusion and the need to restate financial statements. Rather, I encourage a discussion with the staff” (White 2008a). In an August 2008 speech, White voiced agreement with CIFR’s claim that disclosure timeliness would improve by avoiding restatements

⁶ The comment letter can be found at <http://www.sec.gov/comments/265-24/26524-68.pdf>.

⁷ Their comment letters can be found at <http://www.sec.gov/comments/265-24/265-24.shtml>.

⁸ As quoted in Rummel (2008), former SEC chief accountant Lynn Turner states, “It appears the SEC is giving firms a pass when it comes to making restatements for errors. I have been told the SEC has even told people contemplating restatements they don’t need to.”

for less material errors (see footnote 1). SEC Chairman Mary Schapiro indicates that the SEC is still considering officially adopting of many CIFR recommendations (Johnson 2009).

Given the controversy surrounding the CIFR's materiality recommendations, the early indications that the SEC is acting upon them, and the potential for formal adoption, it is important to determine whether the recommendations would achieve the stated objective of increasing disclosure timeliness. If the clerical burden of correcting and reissuing prior period financial statements is primarily responsible for disclosure lags, then reducing the use of restatements would speed the flow of information to investors. However, if disclosure lags occur primarily because the firm needs time to investigate and quantify the errors, then disclosure lags are unavoidable even if the errors are corrected by catch-up adjustment.

To assess how avoidable disclosure lags are, we distinguish restatements involving unintentional errors from those involving suspected or confirmed fraudulent manipulations. Fraud perpetrators often go to great lengths to conceal their actions. Therefore, a firm will have difficulty making reliable disclosures until it investigates whether fraudulent manipulations occurred, and identifies the people, accounts, and amounts involved. Auditors typically refuse to render an opinion on the firm's reports until the fraud is investigated (Hennes et al. (hereafter HLM) 2008). Thus, lags in disclosure around fraudulent restatements are largely unavoidable. As in HLM, we classify restatements as fraudulent if the firm describes them as such or if a regulator or the board of directors launches an independent investigation.

One problem with using the presence of investigations to infer the avoidability of disclosure lags is that the investigations themselves might be unnecessary. Firms might initiate investigations even when there is little evidence of intentional manipulations, precluding internal accounting personnel from quickly resolving the errors. However, HLM argue that boards are

unlikely to initiate independent investigations unless fraud is a credible possibility because the direct costs of investigations are substantial and the market typically reacts negatively.

Furthermore, HLM find that restatements they classify as fraudulent result in extremely high rates of CEO or CFO turnover, suggesting that the investigation findings typically confirm the initial suspicions of fraudulent behavior. Thus, we argue that lags in disclosure are largely unavoidable for restatements classified as fraudulent using the HLM methodology. Separating fraudulent restatements from those in which firms are less constrained in providing timely disclosures (i.e. non-fraudulent restatements) allows us to assess the potential effectiveness of the regulatory reforms.

SAMPLE SELECTION AND RESTATEMENT DISCLOSURE PERIOD

We obtain our sample from two reports by the Government Accountability Office (GAO) that identify restatements from 1997 to September 2005 (GAO-03-138 and GAO-06-678). We eliminate 323 of the 2,309 restatements because they are missing data on CRSP and Compustat in the year of or year before the restatement. We eliminate another 513 restatements, most commonly because the error relates to an earnings release for the current period rather than to a prior period 10-K or 10-Q (114), or the GAO captures more than one announcement for the same restatement (107). See Table 1 for other reasons for exclusion. The remaining 1,473 restatements serve as the base sample for all analyses, but sample sizes differ by analysis depending on data availability.

[INSERT TABLE 1 HERE]

We hand-collect information about the restatements, including the impact on originally reported earnings and the presence of fraud or investigations. We also track the date when each firm discloses the earnings impact. We refer to the time between the initial announcement

related to the restatement and the announcement of the restatement's earnings impact as the restatement disclosure period. We usually obtain the date of the initial restatement announcement from the GAO reports. However, we also use the Audit Analytics database and search press releases and SEC filings for earlier dates. To find the ending date of the restatement disclosure period, we look for the first disclosure of the restatement's impact on past earnings, either cumulatively or by period. The firm must state the impact definitively, not as an expectation. The earnings impact can be disclosed in a press release before the restated financial statements are filed with the SEC.

RESULTS

Descriptive Statistics for Disclosure Lags

We measure five types of disclosure lags around restatements. Three of the measures capture how long the firm takes to disclose information about the restatement after announcing that a restatement may be forthcoming. These measures count the number of days between the initial restatement announcement and disclosure of (1) the estimated earnings impact (*TO_ESTIMATE*), (2) the definitive earnings impact (*TO_NUMBERS*), and (3) the SEC filing containing the restated financial statements (*TO_FILING*). If the firm provides the definitive earnings impact without ever providing an estimate, then *TO_ESTIMATE* is set equal to *TO_NUMBERS*.⁹ Thus, *TO_ESTIMATE* reflects how long the firm takes to issue the estimated or actual earnings impact.

One limitation of the three measures as proxies for disclosure lags is that disclosures could appear timely when the initial restatement announcement is actually untimely. For instance, a firm that delays its initial announcement until the errors are researched and quantified will appear to deliver timely information about earnings impacts. However, there are two factors that

⁹ As described later, *TO_ESTIMATE* is missing for many observations because it comes from Audit Analytics. If Audit Analytics is missing *TO_ESTIMATE*, then we do not set *TO_ESTIMATE* equal to *TO_NUMBERS* because the firm may have disclosed an estimate before the *TO_NUMBERS* date.

constrain how long firms can delay the initial restatement announcement. First, case law has established that firms have a duty to promptly notify the market of materially false statements (Brown 1999, 3-26 to 3-34).¹⁰ Second, as a practical matter, missing scheduled earnings announcements or SEC filing deadlines forces the firm to explain the reason for delinquency. As described next, we use two other measures of disclosure lag that are not affected by the firm's choice about when to initially announce the restatement.

The two variables measure how long the earnings announcement and 10-Q or 10-K filing for the current period are delayed because of the restatement. We use the term preparation quarter to refer to the quarter whose earnings announcement and SEC filing are pending at the time of the initial restatement announcement. For example, if a firm with a quarter ending on December 31 announces a restatement on January 5, 2004, then the preparation quarter for the earnings announcement and SEC filing would probably be the quarter ended December 31, 2003 because the firm likely has not announced earnings or made the SEC filing so soon after the quarter-end. As depicted in scenario 1 of Figure 1, the earnings announcement and SEC filing usually have the same preparation quarter. However, sometimes the errors are discovered after earnings are announced but before filing with the SEC, in which case the preparation quarter for the earnings announcement would be one quarter after the preparation quarter for the SEC filing (depicted in scenario 2 of Figure 1).¹¹

[INSERT FIGURE 1 HERE]

¹⁰ In August 2004 the SEC formalized this duty by requiring firms to disclose accounting errors in a Form 8-K within four business days of establishing that prior financial statements should no longer be relied upon. See "Final Rule: Additional Form 8-K Disclosure Requirements and Acceleration of Filing Date" at <http://www.sec.gov/rules/final/33-8400.htm#seciic>.

¹¹ To identify which earnings announcement and SEC filing is pending, we use earnings announcement dates from Compustat and 10-K or 10-Q filing dates from the SEC's EDGAR database. Operationally, to designate the preparation quarter we identify the most recent quarter whose earnings announcement or SEC filing had been made as of the restatement announcement date, and designate the next quarter as the preparation quarter.

To measure how long a restatement delays the earnings announcement for the preparation quarter, we compute *EA_DIFF*. *EA_DIFF* equals the number of days between the earnings announcement and the preparation quarter-end minus the same quantity for the quarter in the prior year. One problem is that if the prior year earnings announcement is late, *EA_DIFF* makes the preparation quarter earnings announcement appear early. To mitigate this problem, when computing the prior year quantity we use the earlier of the earnings announcement date or SEC filing deadline. We compute a variable analogous to *EA_DIFF* to measure how long the SEC filing for the preparation quarter is delayed (denoted *FILE_DIFF*).¹²

Table 2 presents descriptive statistics for the five disclosure lag measures. *TO_ESTIMATE* and *TO_FILING* are missing for more than half the sample because we rely on a limited supplemental dataset from Audit Analytics to construct these variables. Median *TO_ESTIMATE* equals 0 days, suggesting that for at least half of all restatements, the firm either estimates or definitively quantifies the restatement's earnings impact on the same day as the initial restatement announcement. Median *TO_NUMBERS* of 13 days suggests that at least half the time firms definitively quantify the earnings impact within two weeks of the initial announcement. Median *TO_FILING* of 24 days suggests that at least half of the firms file restated financial statements with the SEC within a month of the initial restatement announcement. Median *EA_DIFF* of 7 and *FILE_DIFF* of 5 days suggest that earnings announcements and SEC filings are delayed by no more than a week in at least half of all restatements. The means of the five disclosure lag measures are considerably higher than the medians because a minority of restatements have extremely long lags. We examine the entire

¹² Untabulated Pearson correlations among the five measures of disclosure lag are all positive and significant at the one percent level. *TO_NUMBERS* tends to exhibit the highest correlations with the other variables, ranging from 0.577 (*EA_DIFF*) to 0.941 (*TO_FILING*).

distribution of each measure below, but first partition the sample by whether the restatements involve suspected or confirmed fraud.

[INSERT TABLE 2 HERE]

These fraud-related restatements, which comprise 23 percent of the sample, are likely to involve unavoidable disclosure lags. Supporting this idea, Table 2 shows that disclosure lags tend to be much shorter when firms are not constrained by fraud. For example, median *TO_NUMBERS* for non-fraudulent (fraudulent) restatements is 1 (76) days. For non-fraudulent restatements, median *EA_DIFF* and *FILE_DIFF* are 6 and 4 days, respectively. The corresponding medians for fraudulent restatements are 21 and 16. Again, in both partitions the means are considerably higher than the medians.

Figures 2 and 3 plot the cumulative distribution of each disclosure lag measure, conditional on whether the restatement is fraudulent. The cumulative percentages are based on 5-day bins. The plots for the non-fraud sample are higher than the corresponding plots for the fraud sample throughout the relevant range, and are more steeply upward sloping earlier in the range. The plots show that while most firms in the non-fraud category quickly release earnings impacts, amended filings, and current-period earnings and SEC filings, some firms in the category do have lengthy disclosure lags.

[INSERT FIGURES 2 AND 3 HERE]

To better understand why some non-fraudulent restatements have lengthy disclosure delays, in untabulated analysis we compare the non-fraudulent restatements in the top quartile of *TO_NUMBERS* and *FILE_DIFF* to non-fraudulent restatements in the lower half of these lag measures. The median earnings impact (as a percentage of assets) of the restatements with lengthy lags is roughly twice the magnitude of the restatements with shorter lags (1.0 percent of

assets for non-fraudulent restatements with lengthy lags versus 0.5 percent of assets for non-fraudulent restatements with short lags) (significantly different at the 1 percent level). Also, approximately 27 percent of restatements with lengthy lags involve multiple types of errors, whereas only 9 percent of restatements with short lags involve multiple types of errors (significantly different at the 1 percent level). Thus, the lengthy disclosure lags among a minority of non-fraudulent restatements may occur because the firm needs time to investigate large or varied errors. The lags might also be observed because vague firm disclosures lead us to misclassify these restatements as non-fraudulent. Restatements are considered non-fraudulent unless the firm voluntarily mentions fraud or independent investigations. Although we cannot rule out the possibility that regulatory reforms could speed disclosure for a small minority of non-fraudulent restatements, the results suggest that other inherent constraints, such as large or varied errors may preclude firms from making reliable disclosures.

Causes of Disclosure Lags around Restatements

Table 2 suggested that the suspicion or presence of fraud dramatically reduces the timeliness of disclosures. However, fraud is likely correlated with other factors that contribute to disclosure lags such as the size of the errors, the number of accounts involved, and auditor transitions. To better understand the causes of disclosure lags around restatements, we regress each of the five lag measures on potential determinants. We use Poisson regression because the dependent variables are counts of days (Green 2003, 740). Because Poisson regression predicts only nonnegative values, we set negative values of *EA_DIFF* and *FILE_DIFF* to zero before estimating.

Disclosure lags for firm *i* are modeled as a function of restatement, firm, auditor, and time attributes, and factors that would induce managers to voluntarily speed or slow disclosures:

$$\text{Disclosure lag measure}_i = \alpha_0 + \alpha_1 \text{Restatement attributes}_i + \alpha_2 \text{Firm, auditor, and time attributes}_i + \alpha_3 \text{Voluntary disclosure incentives}_i + \varepsilon_i \quad (1)$$

The first restatement attribute is a dummy variable capturing whether the restatement involves fraud or an independent investigation (*FRAUD*). Because frauds in lower levels of the organization may not take as long to investigate, we also include a dummy capturing whether the firm's disclosures suggest that the fraud occurs below the corporate level of the organization (*FRAUDSUB*). The coefficient on *FRAUDSUB* is expected to be negative to partially offset the positive effect of *FRAUD* on disclosure lags.

We predict that disclosure lags increase in the absolute value of the restatement's earnings impact scaled by total assets (*ABS_MAG*), whether prior fiscal years are involved (*ANNUAL*), and whether multiple errors are involved (*MULTIPLE*). To compute *MULTIPLE*, we group restatements into ten categories by account type, and set *MULTIPLE* equal to one for restatements that span categories or involve three or more errors in the same category. To conserve degrees of freedom, dummies for only two of the ten account categories are included in the regression. The category for errors affecting pre-tax operating income (denoted *CORE*) is included because these items are particularly relevant to investors, although we have no prediction for the sign. Also included is the category for restatements involving operating leases (*LEASES*), which were announced by many firms in late 2004 and 2005 (Acito et al. 2009). The publicity surrounding these errors caused many firms to announce the potential for restatements early in the investigation phase, suggesting a positive relation between *LEASES* and *TO_ESTIMATE*, *TO_NUMBERS*, and *TO_FILING*. In contrast, we expect *LEASES* to be negatively related to *EA_DIFF* and *FILE_DIFF* because the publicity provided early warning of

potential problems, likely allowing firms to make timely earnings announcements and SEC filings.¹³

Turning to firm, auditor, and time attributes, the natural log of the firm's assets for the fiscal year ended prior to the restatement announcement (*FIRMSIZE*) is expected to be negatively related to disclosure lags because large firms have more accounting resources. We expect lags to be shorter for firms with Big N auditors (*BIG_N*) because they have more auditing resources. We also include a dummy for restatements that have preparation quarters ending in December, auditors' busiest time of the year (*AUDITOR_BUSY*). Similarly, we include a dummy for restatements whose preparation quarter is the fourth quarter of the firm's fiscal year (*YEAREND*). *YEAREND* could be negatively related to disclosure lags because the audit staff would already be on site at the firm doing the year-end audit. However, *YEAREND* could be positively related to lags because the auditor's workload includes all of the year-end audit tasks in addition to the restatement. We include a dummy capturing auditor transitions occurring 90 days before to 30 days after the initial restatement announcement (*AUDITOR_CHANGE*), expecting auditor transitions to lengthen lags.¹⁴

To control for general changes in the financial reporting climate over the sample period, we include a dummy capturing whether the restatement was announced after passage of the Sarbanes-Oxley Act in July 2002 (*POSTSOX*). We control for a specific regulatory change occurring in August 2004, when the SEC began requiring firms to file a Form 8-K within four

¹³ The other eight categories of account types are 1) taxes, 2) derivatives, 3) impairments and other valuation issues associated with noncurrent operating assets or liabilities, 4) off-balance-sheet obligations, 5) financing activities, 6) balance sheet or statement of cash flow reclassifications not affecting income, 7) merger-related or special items not included in other categories, and 8) unspecified or other errors. In supplemental tests we find that these category dummies have little explanatory power for disclosure lags.

¹⁴ Event time analysis reveals no spike in auditor transitions around restatement announcements. In constructing *AUDITOR_CHANGE*, we choose 90 days before the restatement announcement because the process of finding a new auditor and undergoing the re-audit can take weeks or months. We choose 30 days after the restatement announcement to allow time for lingering disputes that are slowing the audit to result in resignations or dismissals.

business days of establishing the presence of material errors (see footnote 10). This requirement for prompt initial disclosure likely increases lag times between the initial disclosure and disclosure of restatement details. In contrast, the requirement may decrease the lag times of earnings announcements and SEC filings if managers feel pressure to quickly resolve the uncertainty created by the initial disclosure. Therefore, we expect a dummy capturing restatements announced in August 2004 or after (denoted *8K_ERA*) to be positively related to *TO_ESTIMATE*, *TO_NUMBERS*, and *TO_FILING*, and negatively related to *EA_DIFF* and *FILE_DIFF*.

A negative relation between *8K_ERA* and *EA_DIFF* or *FILE_DIFF* would be evidence of managers' ability to accelerate the restatement process when they have incentive to do so. To further assess how much discretion managers have over disclosure lags, we include other proxies for voluntary disclosure incentives in the model. We expect analyst following (*ANALYSTS*) to be negatively related to disclosure lags because managers likely seek to satisfy analysts' demands for timely information. The next proxy is a dummy capturing whether the firm has shorter SEC filing deadlines due to accelerated filing status (*ACCELERATED_FILER*). We expect that the shorter deadlines prompt managers to complete the restatement process faster than managers of non-accelerated filers do, resulting in shorter *TO_ESTIMATE*, *TO_NUMBERS*, and *TO_FILING*. *EA_DIFF* and *FILE_DIFF* likely would not be affected because they use the firm as its own control; even if a firm speeds its restatement process to meet accelerated filing deadlines, *EA_DIFF* and *FILE_DIFF* would not be smaller because the prior year's filings were also accelerated. Nevertheless, we include *ACCELERATED_FILER* in all regressions for consistency. To complement this variable, we include a dummy capturing whether the accelerated deadlines were effective in the current year but not the previous year

(*FIRST_ACCELERATED*). *FIRST_ACCELERATED* is most important in the *EA_DIFF* or *FILE_DIFF* regressions because firms that are newly subject to accelerated deadlines will tend to make earnings announcements and SEC filings earlier than in the prior year.

Durnev and Mangen (2009) find that restatements convey information to industry competitors about potential capital investment payoffs, and that the effect of a restatement on competitors' investment strategies is larger when the restating firm's market share is high. Therefore, we include the restating firm's market share (*MKT_SHARE*), based on sales and three-digit SIC codes, to proxy for the incentive of managers to delay restatement disclosures for competitive reasons. Many debt contracts require the borrower to furnish timely quarterly and annual reports (Gao et al. 2009). We include the sum of short- and long-term debt scaled by total assets (*LEVERAGE*) to proxy for managers' incentives to avoid violating timely reporting covenants. We include a dummy for industries with high *LITIGATION* risk (Francis et al. 1994), but do not predict the sign. Managers facing high litigation risk might expedite the restatement process to placate shareholders and minimize stock declines due to uncertainty. On the other hand, managers may prefer to wait until the errors are thoroughly researched to avoid inaccurate disclosures. The final proxy for voluntary disclosure incentives is a dummy capturing restatements that boost originally reported aggregate earnings (*POS*). *POS* is expected to be negatively related to disclosure lags, consistent with the tendency of managers to accelerate good news and delay bad news documented in other studies (Kross and Schroeder 1984; Kothari et al. 2009).

[INSERT TABLE 3 HERE]

Table 3 presents descriptive statistics for the explanatory variables. Table 4 presents the regression results for the five measures of disclosure lag. To assess the relative effect of each

explanatory variable on disclosure lags, we compute a measure of the change in expected lag when each explanatory variable changes holding the others at their means.¹⁵ Binary explanatory variables are changed from zero to one; continuous explanatory variables are changed from the 10th to 90th percentile. Consistent with the univariate comparisons in Table 2, *FRAUD* has the most powerful effect on disclosure lags. In every regression, *FRAUD* is highly statistically significant and has by far the largest economic effect, ranging from 35.8 to 84.5 days across the regressions.¹⁶ *MULTIPLE*-item and *ANNUAL* restatements make moderate contributions to disclosure lags. In every regression, *MULTIPLE* is statistically significant and has the second-highest economic effect behind *FRAUD* (ranging from 17.8 to 42.5 days). *ANNUAL* is statistically significant in every regression, with effects ranging from 4.4 to 18.5 days.

[INSERT TABLE 4 HERE]

The other variables are not consistently significant and tend to have small economic effects. Restatements discovered at *YEAREND* have significantly negative effects on the “*TO_*” measures ranging from -7.7 to -19.0 days, but have no statistical effect on *EA_DIFF* or *FILE_DIFF*. *FIRMSIZE* and lease errors (*LEASES*) have negative effects on *EA_DIFF* and *FILE_DIFF* (ranging from -5.8 to -9.7 days), but have no statistical effect on the “*TO_*” measures. The voluntary disclosure incentives are generally insignificant. *ANALYSTS* is significant in the *FILE_DIFF* and *EA_DIFF* regressions, with moderate economic effects (-7.2 and -12.1 days, respectively). *MKT_SHARE* is significant in the *TO_NUMBERS* and *TO_FILING* regressions, and *LITIGATION* is significant in the *TO_NUMBERS* regression, but

¹⁵ The expected value for observation i , $E(y_i|x_i)$, from a Poisson regression equals $\exp(x_i'\beta)$, where x and β are vectors of the explanatory variables and coefficients, respectively.

¹⁶ In supplemental analysis we rerun the regressions splitting *FRAUD* into three components: board investigations, SEC investigations, and irregularities absent a board or SEC investigation. The magnitudes and significance levels of the coefficients on the three components are generally similar, so for parsimony we leave them combined in a single variable.

the economic effects are small (3.8 to 5.5 days). Thus, disclosure lags appear to be largely nondiscretionary, with *FRAUD* being the major nondiscretionary factor.¹⁷

CONCLUSION

The increase in restatements in recent years has fostered concern that investors are deprived of information while firms go through the restatement process. An SEC advisory group has proposed ways to accelerate disclosure to investors, including a controversial proposal to allow firms with questionably material errors to avoid restating altogether. However, the proposal would still require firms to correct errors through catch-up adjustments, meaning that firms would still have to spend time investigating and quantifying the errors. The assumption underlying the materiality proposal appears to be that restatements require extra clerical tasks beyond catch-up adjustments that cause inordinate lags in disclosure of financial information. We examine the length and causes of disclosure lags around restatements to evaluate the necessity and potential effectiveness of the proposed reforms.

We find that lags in disclosure tend to be short when the firm is not constrained by a fraud investigation. Firms tend to disclose the restatement's estimated or actual earnings impact within

¹⁷ In untabulated regressions, we examine whether management turnover lengthens disclosure lags. Using a dataset available from 1997 to 2002, we construct a dummy variable capturing CEO or CFO turnover announced 90 days before to 30 days after the restatement announcement. The variable is not consistently significant across the five regressions, often has the unpredicted sign, and has little effect on the statistical or economic significance of the other variables.

Recall that the three "TO_" measures of disclosure lag can be misleading if firms delay the initial restatement announcement. This is less of a concern after August 2004 because the SEC began to require form 8-K disclosure within four business days of establishing that prior financial statements should not be relied upon. We partition the sample at August 2004 and re-run the regressions. To conserve degrees of freedom, we include only the explanatory variables that were significant in the predicted direction in at least two of the Table 4 regressions. We find that *FRAUD* continues to dramatically affect disclosure lags in each partition, generally dwarfing the effects of the other variables.

Myers et al. (2009) find firms that bundle their restatement announcements with earnings announcements tend to delay the initial disclosure of the restatement. Therefore, we remove restatements whose initial announcements are concurrent with earnings announcements. We also remove restatements whose initial announcements are concurrent with SEC filing dates because this also suggests a delayed initial announcement. The explanatory power of *FRAUD* and the other results remain similar.

a few days of the initial restatement announcement, and tend to issue earnings announcements and SEC filings for the current period less than a week later compared to the prior year. Some firms do take longer to disclose even when not constrained by a fraud investigation, but they are often contending with other factors that preclude them from making reliable disclosures, such as large or numerous errors. Given that disclosure lags are driven primarily by constraints on producing reliable information, we conclude that reducing firms' use of restatements or easing clerical aspects of the process are unlikely to substantially speed the flow of information to investors.

Since disclosure lags seem to be driven by the inability to produce reliable information, regulators might foster speedier, although less reliable, disclosures by granting firms safe harbor during the restatement process. This idea was considered by CIFR in early deliberations but did not survive the final report, likely because of the risks associated with giving firms license to release questionably reliable information.¹⁸ Many firms do issue projections about their restatements and some even release earnings and SEC filings for the current period while the restatement is in process. Future research could examine the accuracy and consequences of these disclosures.

¹⁸ See the CIFR Subcommittee III's, "Report for Discussion at November 2, 2007 Full Committee Meeting," at <http://www.sec.gov/about/offices/oca/acifr/acifr-sc3-report.pdf>.

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TABLE 1
Sample Selection

Restatements identified by the GAO from 1997 to September 2005	2,309
1. Missing basic <i>Compustat</i> and <i>CRSP</i> data in year of or year before restatement	(323)
2. Firm is amending an earnings release rather than a prior form 10-K or 10-Q	(114)
3. Subsequent announcements related to the same restatement	(107)
4. Adopting SAB 101	(72)
5. Adopting a new standard	(65)
6. Firm never files restated financials because of bankruptcy, acquisition, etc.	(33)
7. Restatement impact is not released in U.S. dollars	(25)
8. Changing from one within-GAAP method to another	(24)
9. Firm is not an SEC filer	(16)
10. Firm decides not to restate after the initial announcement	(16)
11. Other	(41)
Total	1,473[#]

[#]The total of 1,473 is the starting point for all tests. Sample sizes differ by table depending on data availability.

TABLE 2
Descriptive Statistics for Disclosure Lags

Full sample	Mean	Std	Q1	Median	Q3	n
Number of days between restatement announcement and						
Estimate of earnings impact (<i>TO_ESTIMATE</i>)	23.5	66.6	0	0	15	548
Definitive earnings impact (<i>TO_NUMBERS</i>)	46.6	94.5	0	13	49	1,323
Filing of restated financial statements (<i>TO_FILING</i>)	53.9	87.0	6	24	56	577
Days required to release earnings compared to same quarter of prior year (<i>EA_DIFF</i>)	27.5	68.8	0	7	25	1,323
Days required to file 10-Q or 10-K compared to same period of prior year (<i>FILE_DIFF</i>)	27.3	72.3	0	5	17	1,323
Restatements when the firm is constrained by suspected or actual fraud						
Number of days between restatement announcement and						
Estimate of earnings impact (<i>TO_ESTIMATE</i>)	74.9**	129.5	0	20**	97	102
Definitive earnings impact (<i>TO_NUMBERS</i>)	128.7**	157.5	21	76**	174	309
Filing of restated financial statements (<i>TO_FILING</i>)	149.6**	143.9	54	103**	210	105
Days required to release earnings compared to same quarter of prior year (<i>EA_DIFF</i>)	71.8**	120.6	5	21**	85	309
Days required to file 10-Q or 10-K compared to same period of prior year (<i>FILE_DIFF</i>)	74.4**	123.7	1	16**	101	309
Restatements when the firm is not constrained by suspected or actual fraud						
Number of days between restatement announcement and						
Estimate of earnings impact (<i>TO_ESTIMATE</i>)	11.7	30.1	0	0	10	446
Definitive earnings impact (<i>TO_NUMBERS</i>)	21.5	37.6	0	1	31	1,014
Filing of restated financial statements (<i>TO_FILING</i>)	32.6	46.9	5	18	43	472
Days required to release earnings compared to same quarter of prior year (<i>EA_DIFF</i>)	14.0	31.3	0	6	17	1,014
Days required to file 10-Q or 10-K compared to same period of prior year (<i>FILE_DIFF</i>)	13.0	35.9	0	4	14	1,014

** , * denote that the value in the fraud partition significantly differs from the corresponding value in the non-fraud partition at the 1 and 5 percent levels, respectively, two-tailed. T-tests are used for means and Wilcoxon signed rank tests are used for medians. *TO_ESTIMATE* equals the number of days between the initial restatement announcement and disclosure of the restatement's estimated earnings impact (or disclosure of the definitive earnings impact if no estimate is made). *TO_NUMBERS* equals the number of days between the initial restatement announcement and definitive disclosure of the restatement's earnings impact. *TO_FILING* equals the number of days between the initial restatement announcement and the filing of the restated financial statements with the SEC. *EA_DIFF* equals the number of days between the earnings announcement date and quarter-end minus the same quantity for the quarter in year t-1. If the t-1 earnings were announced after the SEC filing deadline, then the t-1 quantity is set to the number of days between the SEC filing deadline and quarter-end. *FILE_DIFF* equals the number of days between the SEC filing date and quarter-end minus the same quantity for the quarter in year t-1. If the t-1 filings were filed late, then the t-1 quantity is set to the number of days between the SEC filing deadline and quarter-end.

TABLE 3
Descriptive Statistics for Firm and Restatement Characteristics

	Mean	Standard Error	Q1	Median	Q3	n
<u>Restatement Attributes</u>						
<i>FRAUD</i>	0.243	0.429	0.000	0.000	0.000	1,473
<i>FRAUDSUB</i>	0.049	0.216	0.000	0.000	0.000	1,473
<i>ABS_MAG</i>	0.039	0.083	0.002	0.009	0.033	1,467
<i>ANNUAL</i>	0.746	0.435	0.000	1.000	1.000	1,473
<i>MULTIPLE</i>	0.229	0.420	0.000	0.000	0.000	1,473
<i>CORE</i>	0.349	0.477	0.000	0.000	1.000	1,473
<i>LEASES</i>	0.087	0.282	0.000	0.000	0.000	1,473
<u>Firm, Auditor, and Time Attributes</u>						
<i>FIRMSIZE</i>	5.915	2.197	4.415	5.828	7.406	1,442
<i>BIG_N</i>	0.843	0.364	1.000	1.000	1.000	1,468
<i>AUDITOR_BUSY</i>	0.344	0.475	0.000	0.000	1.000	1,470
<i>YEAREND</i>	0.482	0.500	0.000	0.000	1.000	1,473
<i>AUDITOR_CHANGE</i>	0.077	0.266	0.000	0.000	0.000	1,473
<i>POSTSOX</i>	0.656	0.475	0.000	1.000	1.000	1,473
<u>Voluntary Disclosure Incentives</u>						
<i>8K_ERA</i>	0.331	0.471	0.000	0.000	1.000	1,473
<i>ANALYSTS</i>	1.038	1.038	0.000	0.693	1.792	1,323
<i>ACCELERATED_FILER</i>	0.361	0.480	0.000	0.000	1.000	1,464
<i>FIRST_ACCELERATED</i>	0.147	0.354	0.000	0.000	0.000	1,464
<i>MKT_SHARE</i>	0.034	0.080	0.000	0.003	0.024	1,466
<i>LEVERAGE</i>	0.260	0.242	0.043	0.214	0.405	1,463
<i>LITIGATION</i>	0.364	0.481	0.000	0.000	1.000	1,470
<i>POS</i>	0.156	0.363	0.000	0.000	0.000	1,467

Variable definitions:

FRAUD equals 1 if the restatement is described as intentional or if investigations by a government entity, the board or directors, or audit committee are disclosed and 0 otherwise.

FRAUDSUB equals 1 if a fraud or investigation pertains to errors committed in subsidiaries or lower levels of the organization and 0 otherwise.

ABS_MAG equals absolute value of the cumulative impact of the restatement on past earnings, scaled by total assets for the year ended prior to the restatement announcement.

ANNUAL equals 1 if the restatement involves prior fiscal years and 0 otherwise.

MULTIPLE equals 1 if the restatement involves errors that span more than one item category, or involve three or more errors in the same category, and 0 otherwise.

The categories are CORE, LEASES, and the eight others listed in footnote 13.

CORE equals 1 if the restatement affects pre-tax operating income items and 0 otherwise.

LEASES equals 1 if the restatement involves operating leases announced by many firms in 2004 and 2005 and 0 otherwise (see Acito et al. 2009).

FIRMSIZE equals natural log of the firm's total assets for the fiscal year ended prior to the restatement announcement.

BIG_N equals 1 if the auditor is a Big 4 or 5 audit firm and 0 otherwise.

AUDITOR_BUSY equals 1 if the preparation quarter ends in December and 0 otherwise.

YEAREND equals 1 if the preparation quarter is the firm's fiscal fourth quarter and 0 otherwise.

AUDITOR_CHANGE equals 1 if the auditor is dismissed from 90 days before to 30 days after the restatement announcement and 0 otherwise.

POSTSOX equals 1 if the restatement is announced in the month SOX was passed (July 2002) or after, 0 otherwise.

8K_ERA equals 1 if the restatement is announced after the effective date of the SEC's four-day notification requirement for nonreliance on previously issued financial statements (August 2004) and 0 otherwise.

ANALYSTS equals natural log of 1 plus the number of IBES analysts following the firm as of the quarter-end prior to the restatement announcement. *ANALYSTS* is set to zero if the firm is not on IBES.

ACCELERATED_FILER equals 1 if the firm is subject to accelerated filing deadlines for the preparation quarter and 0 otherwise (we assume the firm is subject to accelerated filing deadlines if its market capitalization is greater than \$75 million and the quarter ends after December 15, 2003).

FIRST_ACCELERATED equals 1 if the preparation quarter is the first that the firm is subject to accelerated filing deadlines and 0 otherwise.

MKT_SHARE equals market share of the restating firm as of the fiscal year ended prior to the restatement announcement, measured by dividing the restating firm's sales by total sales in the same three-digit SIC, and winsorized at the 1/99 percentile.

LEVERAGE equals sum of long term debt and debt in current liabilities divided by total assets, winsorized at the 1/99 percentile. All values are as of the fiscal year ended prior to the restatement announcement.

LITIGATION equals 1 if the firm is in an industry characterized by high litigation risk and 0 otherwise. The industries are SICs 3570-3577, 7370-7374, 3600-3674, 2833-2836, 8731-8734, and 5200-5961 (Francis et al. 1994).

POS equals 1 if cumulative restated earnings are greater than cumulative original earnings and 0 otherwise.

TABLE 4
Causes of Disclosure Lags around Restatements

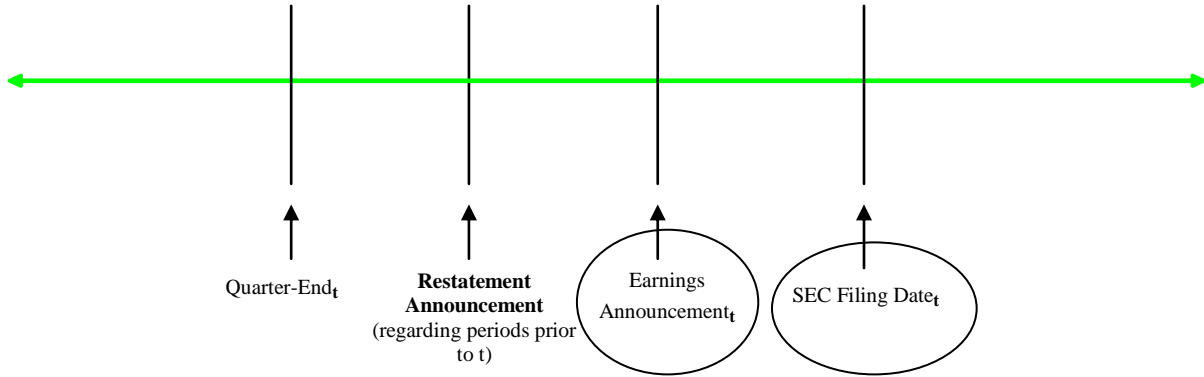
	Predicted Sign	<i>TO_ESTIMATE</i>		<i>TO_NUMBERS</i>		<i>TO_FILING</i>		<i>FILE_DIFF</i>		<i>EA_DIFF</i>	
		Coefficient	Effect	Coefficient	Effect	Coefficient	Effect	Coefficient	Effect	Coefficient	Effect
Intercept	?	2.4186**		1.4887**		3.1321**		1.5310**		2.1609**	
<u>Restatement Attributes</u>											
<i>FRAUD</i>	+	1.3862**	35.8	1.3924**	59.0	1.2660**	84.5	1.4252**	36.4	1.3406**	36.1
<i>FRAUDSUB</i>	-	-1.8687**	-15.3	-0.1911	-4.7	-0.1259	-5.3	-0.7197**	-8.5	-0.4719*	-6.7
<i>ABS_MAG</i>	+	1.6751*	2.9	1.8300**	5.1	0.4938	2.2	0.9190	1.5	1.1359*	2.0
<i>ANNUAL</i>	+	0.8431*	11.5	0.8212**	18.5	0.3705*	15.1	0.5491**	7.8	0.2670*	4.4
<i>MULTIPLE</i>	+	0.8334**	17.8	0.7840**	26.9	0.7557**	42.5	1.0678**	24.1	0.9046**	21.0
<i>CORE</i>	?	0.1433	2.4	0.0081	0.2	0.1477	6.7	0.2558	4.3	0.1649	3.0
<i>LEASES</i>	+ in first 3, - in last 2	0.3765	7.3	0.1498	4.3	0.1679	8.0	-0.6917**	-8.5	-0.7329**	-9.7
<u>Firm, Auditor, and Time Attributes</u>											
<i>FIRMSIZE</i>	-	0.0393	3.6	0.0443	6.6	-0.0104	-2.5	-0.0657*	-5.8	-0.0933**	-9.0
<i>BIG_N</i>	-	-0.4861*	-9.6	0.0643	1.7	0.0445	2.0	0.1994	3.0	0.3598*	5.6
<i>AUDITOR_BUSY</i>	+	0.4976*	9.0	0.1677	4.7	0.2155	10.0	0.0500	0.8	0.1874	3.4
<i>YEAREND</i>	?	-0.5521*	-9.1	-0.2856*	-7.7	-0.4253**	-19.0	0.2370	3.8	0.2476	4.4
<i>AUDITOR_CHANGE</i>	+	-0.1444	-2.2	0.0716	2.0	0.4492**	24.5	0.1422	2.4	0.1599	3.0
<i>POSTSOX</i>	?	-0.7998*	-15.7	0.1956	5.1	-0.3423	-16.3	0.4285**	6.4	0.2335	3.9
<u>Voluntary Disclosure Incentives</u>											
<i>8K_ERA</i>	+ in first 3, - in last 2	-0.2108	-3.4	0.2394*	6.7	0.2560	11.9	0.2507	4.2	0.2308	4.2
<i>ANALYSTS</i>	-	-0.0680	-2.8	-0.0263	-1.8	0.0511	5.9	-0.1821**	-7.2	-0.2813**	-12.1
<i>ACCELERATED_FILER</i>	-	-0.0978	-1.6	-0.1314	-3.5	-0.0629	-2.8	0.4247	7.3	0.3073	5.6
<i>FIRST_ACCELERATED</i>	-	0.1572	2.7	0.1776	5.1	-0.0470	-2.1	-0.1256	-1.9	0.2141	4.1
<i>MKT_SHARE</i>	+	1.4238	2.2	1.5079**	3.8	0.9359*	3.9	0.6841	1.0	1.0566	1.7
<i>LEVERAGE</i>	-	0.2518	2.5	0.2918	4.7	0.1720	4.5	0.1690	1.6	0.1595	1.7
<i>LITIGATION</i>	?	0.1702	2.9	0.1984*	5.5	0.0655	2.9	0.0372	0.6	-0.0096	-0.2
<i>POS</i>	-	-0.1020	-1.6	-0.0137	-0.4	-0.0939	-4.1	-0.1168	-1.8	-0.1703	-2.8
Coefficient of determination		32.0%		50.3%		40.3%		31.4%		33.5%	
n		546		1,319		575		1,319		1,319	

** , * denote significantly different from zero at the 1 and 5 percent levels, respectively. One-tailed when sign is in predicted direction, two-tailed otherwise. See Tables 2 and 3 for variable definitions.

FIGURE 1
How to Identify the Preparation Quarter

Scenario 1: Restatement announcement occurs prior to the earnings announcement and SEC filing date.

The quarter t earnings announcement and SEC filing have the potential to be delayed.
 Therefore, the preparation quarter is t for both of them.



Scenario 2: Restatement announcement occurs after the earnings announcement but prior to the SEC filing date.

The quarter t SEC filing and the quarter t+1 earnings announcement have the potential to be delayed.
 Therefore, the preparation quarter is t for the SEC filing date and t+1 for the earnings announcement.

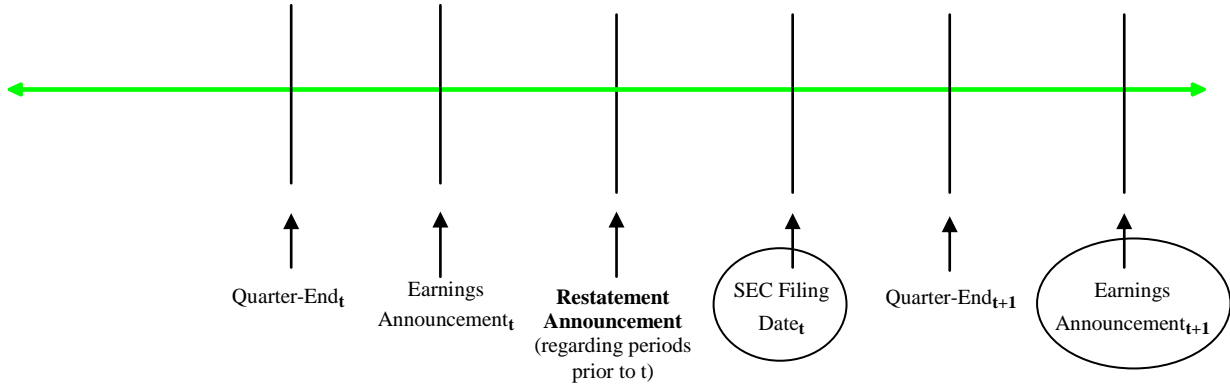


FIGURE 2
Cumulative Distribution of the Number of Days between Initial Restatement Announcement and Estimate of Impact (*TO_ESTIMATE*), Definitive Impact (*TO_NUMBERS*), and SEC filing (*TO_FILING*)

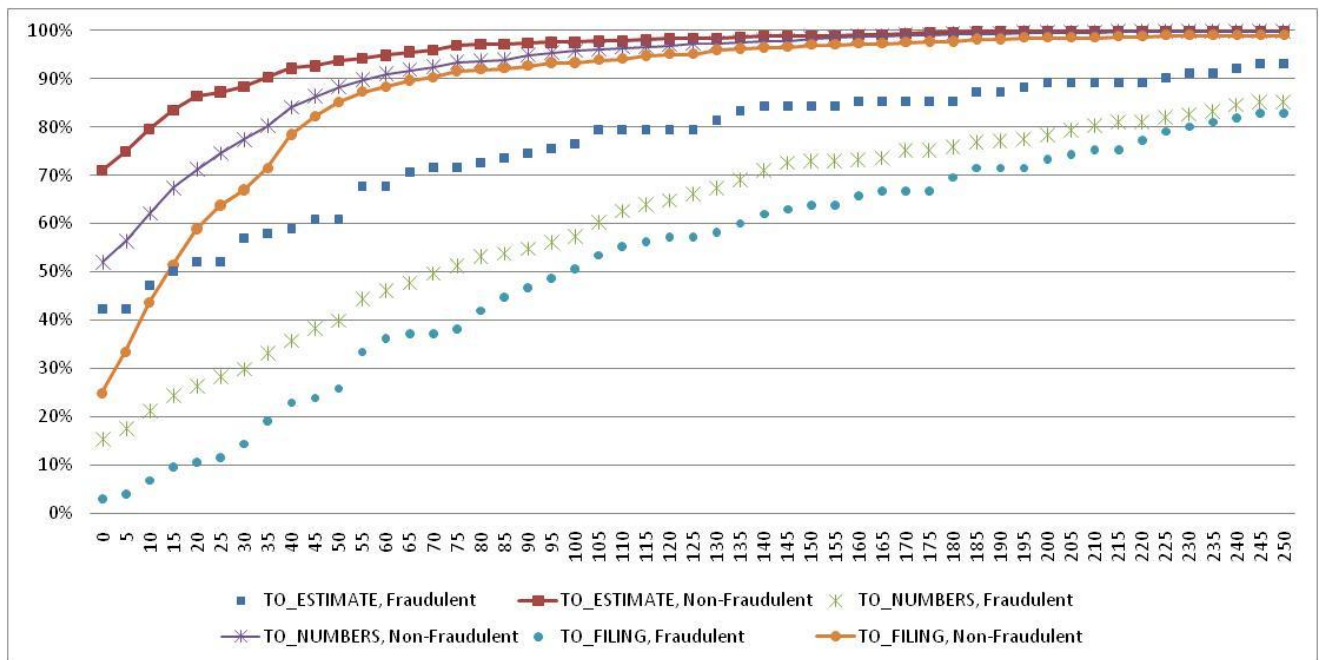


FIGURE 3
Cumulative Distribution of the Timing of Earnings Announcements and SEC Filings Compared to the Same Quarter of Prior Year

