Is SOX 404 (a) Management Internal Control Reporting an Effective Alternative to SOX 404 (b) Internal Control Audits?

Abstract

Section 404 of the Sarbanes-Oxley Act (SOX 2002) continues to be controversial. Using samples of SEC registrants with market capitalizations less than $150 million we find that, non-accelerated filers have significantly larger reduction in the likelihood of material misstatements, discretionary revenues and discretionary accruals compared to smaller accelerated filers after non-accelerated filers became subject to the requirements of Section 404(a). Our findings are consistent with the argument that management reporting on internal controls (Section 404 (a)) may be a cost effective alternative to internal control audits (Section 404(b)) for smaller U.S. public companies.

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1. INTRODUCTION

Section 404, arguably the most controversial part of the *Sarbanes-Oxley Act* (SOX, U.S. Congress 2002), has two parts. Section 404(a) requires the SEC to prescribe rules mandating management reporting on internal control over financial reporting (ICFR). Section 404(b) requires the independent auditor to "attest to, and report on, the assessment made by the management" about the ICFR. The objective of this paper is to examine if management reporting on ICFR alone (pursuant to Section 404(a) of SOX) is an effective alternative to requiring both such management reporting and auditor reporting on ICFR (pursuant to Section 404(b) of SOX). Specifically, we examine whether firms subject to 404(a) alone differ from firms subject to both 404(a) and (b) in terms of the likelihood of material financial misstatements.

Examining the impact of Section 404(a) alone on financial reporting quality, and whether it can effectively substitute for Section 404(b), is important for several reasons. First, Section 404 is still very controversial, even a decade after the enactment of SOX. Legislators and regulators continue to debate about the implementation of Section 404, particularly the ICFR audits pursuant to Section 404(b). The *Dodd Frank Act* provides permanent exemption from Section 404(b) for non-accelerated filers, while the *JOBS Act* exempts "emerging growth" companies from complying with Section 404(b) (U.S. Congress 2010 and 2012). The *Dodd-Frank Act* also requires the SEC to study ways to reduce the burden arising from Section 404(b) on smaller accelerated filers (those with market capitalization up to $250 million). Further, during the legislative mark-up of the *JOBS Act*, an amendment was offered that sought to permanently exempt from Section

404(b) all companies with public float of less than $1 billion; the amendment was withdrawn after a promise from the committee Chairman that it will be considered later (Melancon 2012). Thus, issues related to the cost and effectiveness of ICFR 404(b) internal control audits and whether internal control reporting by management alone is sufficient continue to remain of significant interest to legislators, regulators, public companies, and auditors.

Second, the empirical evidence regarding the role of management and auditors in internal control reporting is mixed. Although prior studies generally find that accelerated filers improve their financial reporting quality after compliance with both Section 404(a) and 404 (b) (Nagy 2010; Singer and You 2010; Feng and Li 2015), it is less clear on whether Section 404(a) alone improves financial reporting quality for non-accelerated filers. For example, Kinney and Shepardson (2011) compare the internal control material weakness (ICMW) disclosure rates for smaller public companies subject to 404(b) versus companies subject only to Section 404(a). They find similar increases in the ICMW disclosure rates for small firms undergoing initial SOX 404(b) internal control audits and non-accelerated filers subject to only Section 404(a). Thus, they note that their results "support the view that, for small firms, management internal control reports and traditional financial audits may be a cost effective disclosure alternative to full application of SOX 404(b)" (Kinney and Shepardson 2011, 413). However, Kinney and Shepardson (2011) do not provide direct evidence on whether financial reporting quality of non-accelerated filers actually improves after they start to comply with Section 404(a). Krishnan and Yu (2012), on the other hand, compare the discretionary (abnormal) revenues for small accelerated filers and non-accelerated filers from 2007 to 2009, after non-accelerated filers start to comply with Section 404(a). They find that discretionary revenues are lower for small accelerated filers relative to non-accelerated filers, indicating that SOX Section 404(b) benefits small accelerated filers via higher revenue

quality. However, it is interesting to compare the *improvement* in financial reporting quality for non-accelerated filers after compliance with Section 404(a) from the preceding period to the corresponding changes for small accelerated filers. If the improvement in financial reporting quality for non-accelerated filers is greater than that for small accelerated filers, it suggests that complying with Section 404(a) alone may be beneficial to non-accelerated filers.

Third, SOX was promulgated in response to a series of high-profile corporate accounting scandals, and aims to curb material misstatements resulting from violations of generally accepted accounting principles (GAAP).[1] Section 404 is particularly important in serving this purpose as one main objective of internal controls is to provide reasonable assurance regarding within-GAAP financial reporting. Thus, examining the likelihood of material misstatements for non-accelerated filers before and after they were required to comply with Section 404(a) can provide evidence on whether Section 404 (a) alone can achieve one of the primary goals of Section 404: curbing material misstatements.

In this paper, we compare the effectiveness of two different internal control reporting regimes by examining the likelihood of material misstatements of SEC registrants with market capitalizations less than $150 million from 2004 to 2012. The first reporting regime is the period after Section 404(a) and 404(b) became applicable for accelerated filers but prior to Section 404(a) becoming applicable for non-accelerated filers, i.e., for fiscal years ending between November 15, 2004 to December 14, 2007 (henceforth, referred to as Regime 1).[2] The second reporting regime

[1] When urging his colleagues to support SOX, Sen. Sarbanes stated "I believe that financial irresponsibility and deception of the sort that we have seen in all of the instances that keep appearing on the front pages of our newspapers are a real threat to our economic recovery. … We need to take action to restore public trust in our financial markets, and that really begins with restoring public confidence in the accuracy of financial information" (Senate Floor Statement, July 8, 2002).

[2] Section 302 of SOX requires that the CEO and CFO certify the financial statements, including the effectiveness of the ICFR, and disclose any material changes in internal control. Although Section 302 became effective in August of 2002 and applies to all SEC registrants, the disclosure rules are more ambiguous under Section 302 (Ashbaugh-Skaife

is the period after Section 404(a) became applicable for non-accelerated filers, i.e., for fiscal years ending on or after December 15, 2007 (henceforth, referred to as Regime 2). Because there may be some inherent differences between small accelerated filers and non-accelerated filers, we adopt a difference-in-difference design. That is, if Section 404(a) alone improves financial reporting quality for non-accelerated filers, we should observe a greater reduction in the likelihood of misstatements for non-accelerated filers than for small accelerated filers after non-accelerated filers start to comply with Section 404(a). Consistent with our expectation, we find that there is a greater reduction in misstatement rate for non-accelerated filers compared to accelerated filers from Regime 1 to Regime 2. In addition, we find that non-accelerated filers are more likely to have misstatements, than small accelerated filers in Regime 1, consistent with the finding in Nagy (2010); however, there is no difference in the misstatement rate for small accelerated and non-accelerated filers in Regime 2. To mitigate concerns that other concurrent events around the 404(a) adoption period for non-accelerated filers, such as changing filing deadlines, could drive our results, we directly link the reduction in the misstatement rate for non-accelerated filers to the improved internal control itself after non-accelerated filers start to comply with Section 404(a).

In additional analyses, we also use discretionary revenues and discretionary accruals as in Krishnan and Yu (2012) as alternative measures of financial reporting quality. Consistent with our misstatement results, we find that there is a significantly greater reduction in discretionary revenues and discretionary accruals for non-accelerated filers than for small accelerated filers from

et al., 2007), and Section 404 requires a more rigorous assessment of internal controls (Feng et al. 2009). Also, prior research shows that many companies reporting ineffective internal controls under Section 404 had not disclosed ICMW in the previous quarter under SOX 302 (Hermanson et al. 2009; Munsif et al. 2012). Further, Kinney and Shepardson (2011) report that the ICMW disclosure rates for non-accelerated filers for the years 2003-2006 were 1.70%, 5.22%, 8.81%, and 9.06% respectively. The corresponding proportion was 23.73% in 2007 (the first year when the non-accelerated filers had to comply with Section 404(a)), suggesting that the compliance with Section 404(a) has a significant impact on non-accelerated filers' internal control reporting. We conduct Section 302 related tests as part of our additional analyses.

Regime 1 to Regime 2, indicating compliance with Section 404(a) helps non-accelerated filers improve their revenue and accrual quality.

We also separately examine intentional and unintentional misstatements. Earnings manipulation incentives could create powerful motivations for managers to fail to implement some internal controls, or override and circumvent the controls. Without auditors' attestation, management has more opportunities to do so. Therefore, if compliance with Section 404(a) helps non-accelerated filers improve their internal controls, we should expect the effect of improved internal controls on reduced misstatement rate to be greater for unintentional misstatements compared to intentional misstatements. Consistent with our expectation, we find that non-accelerated filers observe a greater decrease in unintentional misstatements, but not in intentional misstatements, after non-accelerated filers start to comply with Section 404(a).[3] We also conduct several sensitivity tests and our main results continue to hold.

Overall, our results suggest that for smaller public companies, management reporting on internal controls (pursuant to Section 404(a) of SOX) alone might be sufficiently beneficial. Thus, our findings are consistent with the suggestions of Kinney and Shepardson (2011) that traditional financial audits in conjunction with management reporting on internal controls may be a cost effective alternative to ICFR audits for smaller U.S. public companies.

The rest of the paper is organized as follows. In the next section, we provide the institutional background on SOX Section 404, discuss related literature, and develop our research hypothesis. This is followed by a presentation of our research method and a discussion of results. The paper ends with a summary and discussion.

[3] The cross-sectional analysis on intentional vs. unintentional misstatements also help mitigate concerns about omitted variables because if there is any omitted variable that drives our results, such variable needs to affect intentional and unintentional misstatements differently in the same direction as we observe.

BACKGROUND AND HYPOTHESIS DEVELOPMENT

Institutional Background

SOX was enacted and became law in July 2002, in the immediate aftermath of the Enron and WorldCom scandals, and the failure of Arthur Andersen. Section 404 of SOX deals with ICFR reporting by management (404a) and auditors (404b). The PCAOB (2004, para. 6) notes that "external users of financial statements are interested in information on internal control over financial reporting because it enhances the quality of financial reporting and increases their confidence in financial information." Thus, one main objective of Section 404 is to enhance companies' financial reporting quality.

Section 404 has been very controversial since its enactment. While SOX became law in July 2002, the SEC issued the initial rules related to Section 404 in January 2003. During 2003 and 2004, the SEC continued issuing guidance to registrants and auditors about Section 404. Opposition to SOX was vociferous and widespread, and the SEC reacted to such criticism by convening two round-tables in 2005 and 2006 that focused on improving implementation of Section 404. Subsequently, the PCAOB issued a revised auditing standard, AS No. 5 (PCAOB 2007) that sought to address some of the criticism leveled against the predecessor standard, AS No. 2. Nevertheless, many public company executives believe that Section 404 is a redundant exercise that comes at a very high cost, and that the quality of financial reporting has not improved significantly following compliance with Section 404 (SEC 2009).

In light of such opposition, the SEC made numerous postponements to the Section 404 compliance date for non-accelerated filers. Non-accelerated filers were required to comply with Section 404(a) starting from fiscal years ending on or after December 15, 2007, but were granted

further postponements for compliance with Section 404(b). Before the SEC's final deadline the *Dodd-Frank Act* was enacted in July 2010; Section 989G(a) of the *Dodd-Frank Act* provides permanent exemption from Section 404(b) for non-accelerated filers. In addition, Section 989G(b) of the *Dodd-Frank Act* requires the SEC to "conduct a study to determine how the Commission could reduce the burden of complying with Section 404(b) of the Sarbanes-Oxley Act of 2002 for companies whose market capitalization is between $75,000,000 and $250,000,000." SOX 404-based internal control reporting regimes since 2004 are summarized below.

	Public Float	FY ending Nov 15, 2004 to Dec 14, 2007 (Regime 1)	FY ending on or after Dec 15, 2007 (Regime 2)
Accelerated filers	above 75 million	Sections 404(a)&(b)	Sections 404(a)&(b)
Non-accelerated filers	below 75 million	None	Section 404(a)

The SEC (2011), in a congressionally mandated study of Section 404(b), noted that financial reporting is more reliable when the auditor is involved with internal control over financial reporting. However, the *JOBS Act* in 2012 created a new category of firms called "emerging growth companies" and provided an exemption from Section 404(b) of SOX for such firms.[4] During the legislative mark-up of this Act, one of the amendments proposed permanently exempting from Section 404(b) all companies with public float of less than $1 billion. The amendment was withdrawn, after the committee Chairman promised to consider it later (Melancon 2012). Thus, the law related to internal control reporting is not yet settled, and auditor involvement in internal control reporting continues to be of interest to legislators.

[4] The *JOBS Act* defines an "emerging growth company" as an issuer that had annual revenues of less than $1 billion during its most recently completed fiscal year in addition to meeting certain other requirements (such as age, volume of convertible-debt issuance, and market capitalization). Larger firms with a market float of $700 million or more do not qualify for emerging growth company status under the *JOBS Act*.

Related Research

The primary argument against Section 404 stems from concerns about costs: critics argue that the costs exceed the benefits of the regulation, and would be unduly burdensome for small firms. Direct costs related to Section 404 include higher audit fees, external consulting fees, and the use of internal manpower. Prior studies show that there was a significant increase in audit fees during the initial years of Section 404, both for accelerated filers (Raghunandan and Rama 2006; Hogan and Wilkins 2008) and non-accelerated filers (Kinney and Shepardson 2011). Companies with ICMWs pay incrementally higher audit fees, and audit fees continue to be higher even after companies remediate ICMWs (Hoag and Hollingsworth 2011; Munsif et al. 2011). Krishnan et al. (2008) find, using a sample of companies that voluntarily disclosed total Section 404 costs, that the average total compliance costs for Section 404 are more than double the mean audit costs related to Section 404. Iliev (2010) estimates that non-complying firms would have spent an additional 98% or $697,890 on audit fees in 2004 had they complied with Section 404.

The benefits from internal control evaluations can be broadly grouped into two categories: internal and external. As noted by Kinney and Shepardson (2011), deficiency awareness by management can lead to timely remediation and cost effective improvements in controls, and improved controls should result in more reliable internal data which in turn can lead to better internal decision making and improved operations. For example, Feng et al. (2009) find that management forecasts become more accurate when ICMWs are remediated, and Feng et al. (2015) find that companies' inventory management and operating performance improve when ICMWs are remediated. The external benefits include more reliable information about the processes that generate financial reporting related information (Doyle et al. 2007; Ashbaugh-Skaife et al. 2008). Ashbaugh-Skaife et al. (2009) document that remediation of ICMWs results in lower cost of capital.

Singer and You (2010) find that accelerated filers improve their earnings quality more around the adoption of Section 404 compared with non-accelerated filers. Nagy (2010) uses a sample, from the first two years of SOX 404(b) compliance, of firms surrounding the SOX 404(b) compliance threshold (25 million to 125 million in market cap) and finds a significant negative relation between SOX 404(b) compliance and issuance of materially misstated financial statements.

Bedard and Graham (2011) use proprietary data to examine the detection and severity classification of internal control deficiencies (ICD) identified under Section 404 by both managers and auditors. They find that auditors detect 72 percent of ICDs and 84 percent of material weaknesses. Further, 63.5% of all ICDs were detected by control tests, while only 9.5% were detected by substantive tests. Bedard and Graham (2011) also find that clients often underestimate ICD severity. Their results suggest that Section 404(b) testing is an important source of detecting control deficiencies and material weaknesses, and imply that exemption of Section 404(b) for smaller public companies could result in failure to fully realize potential improvements in financial reporting quality (Bedard and Graham 2011).

Two studies specifically compare the effect of Section 404(a) and Section 404(b) on companies' financial reporting, but the evidence is mixed. Kinney and Shepardson (2011) find similar increases in ICMW disclosure rates for small firms undergoing initial SOX 404(b) internal control audits and small firms subject to only Section 404(a). However, while audit fees more than double for clients subject to 404(b) audits, 404(b)-exempt firms' fees increase only about 10%. Since the disclosure rates appear to be similar even while there are significant differences in cost, Kinney and Shepardson (2011) conclude that financial auditor oversight of management's report may be a cost effective MW disclosure alternative to annual audits of ICFR.

In contrast, Krishnan and Yu (2012) find that discretionary (abnormal) revenues are lower by about 1.5 percent of total assets for accelerated filers relative to non-accelerated filers during 2007 to 2009, indicating that that Section 404(b) reporting (i.e., auditor reporting on internal control effectiveness) is associated with higher revenue quality. Our paper differs from Krishnan and Yu (2012) in that we examine material misstatements because curbing material misstatements is one of the primary goals of Section 404. We employ a difference-in-difference design, and compare changes in misstatement rate for non-accelerated filers and small accelerated filers from Regime 1 to Regime 2. If the improvement in quality for non-accelerated filers from Regime 1 to Regime 2 is greater than that for small accelerated filers, it suggests that complying with Section 404(a) alone may be beneficial to non-accelerated filers.

Misstatement prevention

The SEC (2003) notes that internal control over financial reporting provides "reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles." The legislative history of SOX indicates many references to misstated financial statements in speeches by Senators and in testimony by witnesses; hence, one way to measure the effectiveness of Section 404 of SOX is by examining the likelihood of financial misstatements. Section 404 helps companies prevent financial misstatements in two ways. First, since it requires firms to evaluate internal controls on an ongoing basis, firms are more likely to prevent errors from occurring in the financial reporting process. Second, when an error does occur, it is more likely to be detected before financial reports are issued (Feng and Li 2015).

External auditors have been performing ICFR audits for accelerated filers since 2004. Auditors have professional knowledge, experience and independence in examining internal

control systems, which can help management discover internal control problems and to remediate them quickly. For example, Bedard and Graham (2011) find that a majority of remediated ICDs are identified by the auditor. When internal control problems are discovered financial reporting errors due to such control deficiencies should be detected in a timely manner—thus reducing the likelihood of a financial misstatement.

On the other hand, after non-accelerated filers were required to evaluate and publicly report on internal control for fiscal years ending on or after December 15, 2007, it is likely that non-accelerated filers also would start to devote resources and attention to maintain and improve internal control systems. The increase in management effort related to internal control will also increase the likelihood of timely detection and reporting of ICMW for non-accelerated filers. As a result, non-accelerated filers are less likely to have material misstatements after 2007 (i.e., after they were subject to the requirements of Section 404(a)) than in prior years. For example, Astea International Inc., a non-accelerated filer, notes as follows in its 10-K filing for the fiscal year ending December 31, 2007:

> In connection with management assessment of our internal control over financial reporting described above, management has identified that as of December 31, 2007, our disclosure controls and procedures did not adequately provide for effective controls over the accounting for revenue recognition and stock based compensation. ... As a result of this deficiency, the Company must restate its Form 10-K for the years ending December 31, 2006 and 2005. …… *Accounting adjustments were recorded in the Company financial results for 2007 to correct for the improper estimate* (emphasis added).

Consistent with our argument, Astea International Inc. identified a material weakness and the related material errors in the previously issued financial statements when conducting the management evaluation of internal controls. The error caused by the internal control weakness was identified and adjusted before the year end, thus avoiding a potential misstatement in the financial statements for the year ending December 31, 2007.

The differences in Section 404 requirements for accelerated and non-accelerated filers, as well as the differences in the years when the relevant standards became effective, enable us to compare the financial reporting quality of the two types of firms across years as follows. For fiscal years ending between November 15, 2004 to December 14, 2007, accelerated filers were subject to the requirements of both Sections 404(a) and 404(b), while non-accelerated filers were exempt from such requirements. If Section 404 is effective in enhancing the quality of financial statements and reducing misstatements, then it should be the case that financial misstatements related to fiscal years ending between November 15, 2004 to December 14, 2007 should be lower for accelerated filers; the empirical evidence in Nagy (2010) supports this conjecture. However, even with such evidence, we cannot say if this is because of the management evaluation of ICFR pursuant to Section 404(a) or the ICFR audit pursuant to Section 404(b), since both Sections were applicable (not-applicable) for accelerated filers (non-accelerated filers) during this time period.

Starting with fiscal years ending on or after December 15, 2007, non-accelerated filers were subject to the requirements of Section 404(a). If it is the ICFR audit requirement pursuant to Section 404(b) of SOX that leads to higher quality financial reporting, then the difference in financial reporting quality between accelerated and non-accelerated filers should persist (albeit smaller) in the years after Section 404(a) became effective for non-accelerated filers. Conversely, if Section 404(a) alone is sufficient to achieve the objectives of improved financial reporting quality, then there should be a significant decrease in the likelihood of financial statement misstatement for non-accelerated filers and such decrease should be greater for non-accelerated filers than for accelerated filers from Regime 1 to Regime 2, when Section 404(a) became effective for non-accelerated filers.

In summary, there are two disclosure regimes: fiscal years ending between November 15, 2004 to December 14, 2007 (Regime 1) and fiscal years ending on or after December 15, 2007 (Regime 2). By examining the change in the likelihood of misstatements from Regime 1 to Regime 2 between small public companies subject to the ICFR requirements of both Section 404(a) and Section 404(b) and small public companies subject only to the ICFR management report (pursuant to Section 404(a)), we can examine the relative efficacy of Sections 404(a) in reducing material financial misstatements. Accordingly, we have the following hypothesis, stated in alternative form:

> H_1: Non-accelerated filers will have a greater reduction, than accelerated filers, in the likelihood of misstatements after non-accelerated filers start to comply with Section 404(a) of SOX.

METHOD

Sample Selection

Our data are from Audit Analytics and COMPUSTAT. As shown in Table 1, we begin with 56,704 firm-year observations covered by both Audit Analytics and COMPUSTAT from 2004 to 2012. We exclude 15,443 firm-year observations that do not have necessary data to construct the models. To ensure that the non-accelerated and small accelerated filer samples are comparable, and to mitigate the impact of firm-size on internal control, we limit the accelerated filers to firms with market values between $75 million and $150 million in our sample.[5] This process yields a sample of 17,964 firm-year observations. The sample includes 3,228 accelerated filer observations and 14,736 non-accelerated filer observations. We then obtain, from Audit Analytics, information

[5] The SEC defines accelerated filers as firms with a public float (the part of equity not held by management or large shareholders) greater than $75 million. Non-accelerated filers are firms with a public float less than $75 million. Some firms with a public float of less than $75 million voluntarily comply with both Section 404(a) and Section 404(b) in Regime 1. We treat these firms as accelerated filers in this study because we are interested in comparing the effectiveness of Section 404(a) alone vs. both Section 404 (a) and (b) compliance process. As discussed later, we also use other size restrictions, and obtain substantively similar results.

about restatements made by the sample firms from January 1, 2004 to December 31, 2014.[6] There are 1,464 misstatement observations, i.e., the firm-years that a company has financial statement misstatement that is revealed through a later restatement announcement. Accelerated filers have 236 misstatement observations, and non-accelerated filers have 1,228 misstatement observations.

---------- Table 1 ----------

Empirical Model for Misstatement Rate

We estimate the following logistic regression model to test the hypothesis that there is a greater reduction in the misstatement rate for non-accelerated filers compared to accelerated filers from Regime 1 to Regime 2:

$$\begin{aligned} MISSTATE = {} & b_0 + b_1 NAF + b_2 REGIME2 + b_3 NAF * REGIME2 \\ & + b_4 LNAT + b_5 LOSS + b_6 LEVERAGE + b_7 MB + b_8 RESTRUCT + b_9 MA \\ & + b_{10} FOREIGN + b_{11} SI + b_{12} SEGNUM + b_{13} AGE + b_{14} BIG4 + b_{15} FINANCING \\ & + b_{16} PRIMIS + b_{17} AUDCHG + b_{18} MGRCHG + error \end{aligned} \quad (1)$$

where the dependent variable, *MISSTATE*, is an indicator variable that equals 1 if there is a financial misstatement that is revealed through a restatement announcement on or before December 31, 2014 and 0 otherwise. *NAF* is an indicator variable that equals 1 if a firm is a non-accelerated filer, and 0 if a firm is an accelerated filer. *REGIME2* is an indicator variable that is equal to 1 if the firm-year observation belongs to Regime 2 (fiscal years ending on or after December 15, 2007), and 0 if the firm-year observation belongs to Regime 1 (fiscal years ending between November 15, 2004 and December 14, 2007). Our test variable is the interaction between *NAF* and *REGIME2*. If the coefficient on *NAF*REGIME2* is significantly negative, it suggests that

[6] The mean (median) time lag between the misstatement ending date and restatement disclosure date is 1 year (1 year) in our sample, and 95 percent of the restatements have less than 2 year lag between the misstatement ending date and restatement disclosure date. So it is reasonable to believe that our misstatement sample (2004 to year 2012) covers the overwhelming majority of the subsequent restatements announced by December 31, 2014. To further ensure that later misstatements have enough time to be detected, we restrict our sample period for this analysis to no later than December 14, 2010. Our primary inferences remain the same, as noted later in our discussion of additional analyses.

the reduction in misstatement rate, from Regime 1 to Regime 2, is significantly greater for non-accelerated filers than for accelerated filers.

Following standard practice, we include size as a control variable. Because larger firms have economies of scale and have superior resources to dedicate to financial reporting, they are less likely to have misstatements (Ashbaugh-Skaife et al. 2007; Dechow et al. 2011). We measure the size of a firm by the natural log of total assets (*LNAT*). Prior research generally finds that financial reporting errors are negatively associated with financial performance and positively associated with growth (DeFond and Jiambalvo 1991). We proxy for a firm's financial health using *LOSS* (whether a firm has a negative net income in the fiscal year), and *LEVERAGE* (long-term debt scaled by total assets). We use *MB* (market to book ratio) to proxy for growth.

We expect firms undergoing restructuring to have more misstatements because restructuring involves many difficult accrual estimations and adjustments such as impairment and goodwill (Dechow and Ge 2006), and firms undergoing restructuring are more likely to have internal control weaknesses (Doyle et al. 2007). We use indicator variables for restructuring charges (*RESTRUCT*) and mergers and acquisitions (*MA*).

We expect misstatements to be positively associated with complexity since reporting errors are more likely to occur when the firm engages in complex transactions and has diverse operations. As in prior research (Ashbaugh-Skaife et al. 2007; Doyle et al. 2007), we use three variables to proxy for complexity: the presence of foreign operations (*FOREIGN*), presence of special items (*SI*), and the natural logarithm of the number of segments (*SEGNUM*).

Prior research shows that more mature firms and firms with a large auditor have higher quality financial reporting (Ashbaugh-Skaife et al. 2007; Doyle et al. 2007) and are less likely to have misstatements (Feng and Li 2015). We use Big 4 auditors (*BIG4*) to proxy for the audit firm

size and we define *AGE* as the log of the number of years the firm has information on Compustat. We include *FINANCING* as an indicator variable to control for whether the firm issues new equity or debt of at least $5 million in the following year. We also include *PRIMIS* as an indicator variable to control for whether the firm has financial misstatement in the prior two years and expect it to be positively associated with *MISSTATE*.

Recent management turnover and auditor switches are also expected to impact the likelihood of misstatements. Therefore, we include management turnover (*MGMTCHG*) and auditor turnover (*AUDCHG*) as indicator variables for whether or not the firm changed executives (CEO or CFO) and auditors during the preceding year. Table 2 provides the summary of variable definitions and the data sources for these variables.

---------- Table 2 ----------

EMPIRICAL RESULTS

Misstatement Rate

Table 3 Panel A provides data about the mean and median values of variables used in model (1) for accelerated filers and non-accelerated filers. The results show that in Regime 1, the misstatement rate is 9%, for accelerated filers and 12% for non-accelerated filers. The difference is significant ($p < 0.05$). In Regime 2, the misstatement rate is 7% for both accelerated filers and non-accelerated filers. The misstatement rate falls by 22% for accelerated filers from Regime 1 to Regime 2, while it falls by 42% for non-accelerated filers after non-accelerated filers start to comply with Section 404(a).[7] Table 3 Panel B presents the misstatement rate by year. We also observe a declining pattern in the misstatement rate for non-accelerated filers in Regime 1. For

[7] The observed decrease in misstatement rate for accelerated filers from Regime 1 to Regime 2 is likely due to the continuous improvement in internal controls (or the steady decline in ICMWs) for accelerated filers after compliance with Section 404 (Kinney and Shepardson 2011).

non-accelerated filers, this could be due to the Section 302 effect because, as discussed earlier, Section 302 of SOX requires that company officers certify the financial statements—even though the disclosure rules under Section 302 are more ambiguous and the assessment of internal control process is less rigorous, compared to the Section 404 requirement (Ashbaugh-Skaife et al., 2007; Feng et al. 2009).[8] We conduct Section 302 related analyses later.

We acknowledge that accelerated filers and non-accelerated filers are likely to be systematically different in both regimes, and such differences may impact the misstatement rate. For example, Table 3 Panel A shows that compared to accelerated filers, non-accelerated filers are smaller, financially weaker, have lower market to book ratios and fewer segments. Further, non-accelerated filers are less likely to (a) undergo restructuring, (b) have foreign transactions, (c) have special items, (d) engage Big 4 auditors, [9] or (e) have external financing activities.

---------- Table 3 ----------

Table 4 presents the regression result for the misstatement model. The regression is statistically significant (chi-sq. = 976.37, $p < 0.01$). The coefficient on *NAF* is positive and significant ($p = 0.034$), indicating that non-accelerated filers are more likely to have financial misstatements in Regime 1; this finding is consistent with Nagy (2010).[10] The interaction term,

[8] The falling misstatement rate in Regime 1 for non-accelerated filers should bias *against* our finding a significantly greater reduction of misstatements from Regime 1 to Regime 2 for such filers compared with accelerated filers, especially if the requirements of Section 404(a) were anticipated and already being implemented voluntarily by firms. In addition, to address the concern that the results may be due to a higher initial starting point for non-accelerated filers, we delete the initial year of 2004. Our results remain qualitatively the same. Specifically, the coefficient on *NAF*REGIME2* is -0.222, with a p-value of 0.086 with this sub-sample.

[9] We examined the effect of Big 4 auditor by interacting *BIG4* with our testing variable (*NAF*REGIME2*). The coefficient on *NAF*REGIME2*BIG4* is insignificant, indicating that there is no significant difference in the effect of 404 (a) between firms audited by Big 4 auditors and firms audited by non-Big 4 auditors. When we separately examine Big 4 and non-big 4 firms, the coefficient on *NAF*REGIME2* is not significant in the subsamples, possibly due to the reduced sample sizes.

[10] It is possible that the misstatement rate for non-accelerated filers in the 2004-2006 period is higher simply because more misstatements were identified and disclosed through the restatement announcements after non-accelerated filers started to comply with the 404(a) in 2007. We do not control for the increase in misstatements that occurred during the pre-404(a) compliance period but resulted from the initial implementation of 404 (a) by non-accelerated filers

*NAF*REGIME2* is negative and significant (coefficient=-0.338, p=0.024), indicating that non-accelerated filers have a bigger reduction in the misstatement rate from Regime 1 to Regime 2 compared to accelerated filers. This result provides support to our hypothesis. Following Ai and Norton (2003) and Evans et al. (2010), we plot z-statistics of the interaction effect, i.e., *NAF*REGIME2*, in the model. The distributions show that the z-statistics are reliably negative across all sample observations, mitigating the concerns regarding the marginal interaction effect of nonlinear regression models (Ai and Norton 2003). Moreover, the sum of *NAF* and the interaction term is not significant, indicating that there is no difference in the misstatement rate for accelerated filers and non-accelerated filers in Regime 2. For control variables, consistent with prior research, we find that misstatements are more likely for firms with (a) losses, (b) mergers and acquisitions, (c) special items, (d) external financing activities, (e) previous misstatement or (f) auditor change. We also find that firms with a longer history and higher leverage are less likely to have misstatements.

In summary, in Regime 1, when only the accelerated filers were subject to the requirements of both Sections 404(a) and 404(b), misstatements are less likely for accelerated filers than for non-accelerated filers. However, non-accelerated filers observe a larger decrease in the misstatement rate from Regime 1 to Regime 2 compared to accelerated filers. Moreover, the difference in the likelihood of misstatement between the two groups is not significant once the non-accelerated filers became subject to the requirements of Section 404(a) alone.[11] Thus, the results are consistent with the argument that internal control evaluation and reporting by

because this speaks to the benefit of 404(a) itself in that 404(a) facilitates the timely detection of previous financial reporting errors which could go on without being detected if there was no Section 404(a) compliance.

[11] One concern related to misstatements during this time period is that there might be misstatements related to technical accounting issues. As sensitivity analysis, we remove the misstatements related to technical accounting issues (e.g., misstatement regarding lease accounting) from the sample, and the inferences remain similar.

management alone (pursuant to the requirements of Section 404(a) of SOX), without the ICFR audit required by Section 404(b) of SOX, has been effective in improving the quality of financial reporting by non-accelerated filers.

---------- Table 4 ----------

ICMW Remediation and the Reduction in Misstatement Rate

Other concurrent events around the 404(a) adoption period for non-accelerated filers, such as changing filing deadlines, could drive our results. To mitigate this concern, we directly link the reduction in the misstatement rate for non-accelerated filers to the improved internal control itself after non-accelerated filers start to comply with Section 404(a). Specifically, we conduct a difference-in-difference test by comparing the changes, from Regime 1 to Regime 2, in the association between the reduction in misstatement rate and the remediation of the internal control material weaknesses (ICMWs) for non-accelerated filers. *MIS_REMEDIATION (IC_REMEDIATION)* equals one if the company has misstatement (ICMW) in year t-1, but no misstatement (ICMW) in year t, and 0 otherwise. In Regime 1, we use ICMWs disclosed in Section 302 report for non-accelerated filers.

The results, reported in Table 5, indicate that the association between the remediation of ICMWs and the reduced likelihood of misstatements becomes significantly stronger for non-accelerated filers after they start to comply with Section 404(a) (the coefficient on *IC_REMEDIATION*REGIME2* is significantly positive with a p-value = 0.001). Thus, the remediation analysis provides further support to our argument that the greater reduction in the misstatement rate from Regime 1 to Regime 2 for non-accelerated filers, compared to accelerated filers, is due to the internal control reporting requirement.

---------- Table 5 ----------

Additional Analyses

Discretionary revenues and discretionary accruals

Krishnan and Yu (2012) use the discretionary revenue estimated from Stubben's (2010) revenue model and find that discretionary revenues are lower by about 1.5 percent of total assets for accelerated filers relative to non-accelerated filers in years 2007 through 2009, indicating that that auditor reporting on the effectiveness of ICFR benefits small accelerated filers via higher revenue quality. Following Krishnan and Yu (2012), we compare the discretionary revenues of accelerated filers and non-accelerated filers. As shown in Table 6 Panel A, the coefficient on *NAF*REGIME2* is negative and significant (coefficient=-0.020, p-value=0.024), indicating that discretionary revenues for non-accelerated filers reduce significantly more from Regime 1 to Regime 2 compared to small accelerated filers. This finding is consistent with our misstatement results, discussed earlier.

In addition, consistent with the misstatement results, we find that there is no significant difference in discretionary revenue between non-accelerated filers and accelerated filers in Regime 2. This finding appears to be inconsistent with the results in Krishnan and Yu (2012). Further analysis suggests that the apparent inconsistency is because our sample includes more years (2007 to 2012) being examined after non-accelerated filers start to comply with Section 404(a). When we limit our Regime 2 period to 2007 to 2009 (as in Krishnan and Yu 2012), we find that, consistent with Krishnan and Yu (2012), non-accelerated filers have larger discretionary revenues. Thus, it appears that the revenue quality of non-accelerated filers gradually improves once they begin to comply with Section 404(a).

We also compare the discretionary accruals, another commonly used financial reporting quality measure, of accelerated filers and non-accelerated filers. [12] As shown in Table 6 Panel B, the coefficient on *NAF*REGIME2* is negative and significant (coefficient=-0.060, p-value=0.004), indicating that discretionary accruals for non-accelerated filers reduce significantly more from Regime 1 to Regime 2 compared to small accelerated filers. In addition, the sum of *NAF* and the interaction term is not significant, indicating that there is no difference in discretionary accruals for accelerated filers and non-accelerated filers in Regime 2. Again, these findings are consistent with our misstatement results.

Finally, we perform ICMW remediation analyses for discretionary revenue and discretionary accruals measures. *CHG_DREV* (*CHG_DACCRUAL*) is the difference between discretionary revenue (accruals) from year t-1 to t. The untabulated results show that non-accelerated filers remediating ICMWs are associated with a greater reduction in discretionary revenues from Regime 1 to Regime 2 (the coefficient o*n IC_REMEDIATION * REGIME2* is -0.313, with a p-value = 0.059). That is, the association between the remediation of ICMWs and the reduced discretionary revenues becomes significantly stronger for non-accelerated filers after they start to comply with Section 404 (a). However, we do not find a significant interaction in the analysis of discretionary accruals.

---------- Table 6 ----------

Intentional and unintentional misstatements

Our restatement data contains both intentional misstatements (irregularities) and unintentional misstatements (errors). Earnings manipulation incentives behind intentional

[12] Discretionary accruals are measured by the absolute value of discretionary accruals following the modified Jones model (see Klein 2002; Bartov et al. 2000).

misstatements could create powerful motivations for managers to fail to implement some internal controls, or override and circumvent the controls. Without auditor attestation on internal controls, managers have more opportunities to do so given that they are responsible for establishing, monitoring and reporting on the internal controls. Therefore, if compliance with Section 404(a) helps non-accelerated filers improve their internal controls, we should expect the effect of improved internal controls on reduced misstatement rate to be greater for unintentional misstatements compared to intentional misstatements. Hence, we separately examine the effect of Section 404(a) only versus Sections 404(a) and 404(b) on intentional and unintentional misstatements.

We use Audit Analytics data to distinguish intentional and unintentional misstatements. Consistent with the coding in Hennes et al. (2008), intentional misstatements are classified as those with a financial fraud, irregularity or a regulatory investigation related to the misstatement. In the intentional misstatement sample, the dependent variable is 1 if there is an intentional misstatement, and 0 if there is no misstatement. In the unintentional misstatement sample, the dependent variable is 1 if there is an unintentional misstatement, and 0 if there is no misstatement. The independent variables are the same as those in model (1).

Table 7 presents the results for the two samples. In the unintentional misstatement sample (Panel A), the coefficient of *NAF*REGIME2* is negative and significant (coefficient = -0.363, p = 0.042), suggesting that non-accelerated filers observe a greater decrease in unintentional misstatements from regime 1 to regime 2 compared to accelerated filers. In contrast, in the intentional misstatement sample (Panel B), the coefficient on *NAF*REGIME2* is not significant (coefficient =0.090, p = 0.864). Thus, the pattern of results is consistent with our expectations.

---------- Table 7 ----------

Misstatement magnitude and timeliness of misstatement detection

Apart from the likelihood of the occurrence of misstatements, we also compare the magnitude of the misstatements and the timeliness of misstatement detection for non-accelerated (accelerated) filers in Regime 1 and Regime 2. As shown in Table 8 Panel A, we find that the magnitude of the misstatements for non-accelerated filers (measured by the absolute value of percentage change in net income) is lower in Regime 2 than that in Regime 1 (p-value = 0.093). In contrast, there is no significant difference in the magnitude of misstatements between Regime 1 and Regime 2 for accelerated filers. Table 8 Panel B also shows that the length of time for the misstatements to be detected, measured by the days between the disclosure date of the restatement and the date the restatement period began, is significantly shorter for non-accelerated filers in Regime 2 compared to that in Regime 1 (p-value = 0.001). The corresponding difference is not significant for accelerated filers. Table 8 Panel C rearranges the first two panels and compares the magnitude and detection timeliness between accelerated filers and non-accelerated filers in Regimes 1 and 2 separately. It shows that accelerated filers have smaller misstatement magnitude than non-accelerated filers in both Regime 1 and Regime 2, but the difference between the two groups is smaller in Regime 2 than that in Regime 1. While there is no significant difference in detection timeliness between the two groups in Regime 1, the time to detect the misstatement is significantly shorter for non-accelerated filers in Regime 2.

---------- Table 8 ----------

The effect of Section 302

Section 302 of SOX became applicable for all public companies on August 29, 2002—irrespective of accelerated filer status—and continues to be applicable for all public companies. In contrast, as discussed earlier, Section 404 became applicable for accelerated filers first (for fiscal

years ending on or after November 15, 2004) and much later (and, even then, only partially since Section 404(b) is not applicable) for non-accelerated filers. Section 302 relates to "disclosure controls" while Section 404 relates to "internal controls over financial reporting." As noted by the SEC (2003), while there are many differences between the requirements of Sections 302 and 404 of SOX,[13] there also is considerable overlap between "disclosure controls" (required to be evaluated pursuant to Section 302) and "internal controls over financial reporting" (required to be evaluated pursuant to Section 404). Thus, compliance with Section 302 could affect the reduction in the misstatement rate for non-accelerated filers even before their compliance with Section 404(a), as shown in Table 3 Panel B. Although this will bias against our inferences, and our difference-in-difference design helps to mitigate this concern, we further examine the Section 302 effect in the following two ways.

First, we compare non-accelerated filers with accelerated filers in the two-year period before Section 404 became effective—which we refer to as Regime 0. In this period (i.e., fiscal year-ends between November 15, 2002 to November 14, 2004) both groups comply with Section 302, but not Section 404. The difference in the misstatement rate between the two groups is not significant in Regime 0 (0.117 for non-accelerated filers vs. 0.123 for accelerated filers). Thus, combined with the results in Table 3 Panel A, it appears that there is no difference in the misstatement rate for accelerated and non-accelerated filers when both groups comply with Section 302, but not 404. Subsequently, accelerated filers have lower likelihood of misstatements when they start to comply with Section 404(a) and (b), and non-accelerated filers only comply with

[13] The SEC (2003) notes as follows: "For example, a company might have developed internal control over financial reporting that includes as a component of safeguarding of assets dual signature requirements or limitations on signature authority on checks. That company could nonetheless determine that this component is not part of disclosure controls and procedures."

Section 302. Finally, the two groups have similar likelihood of misstatement again after non-accelerated filers comply with Section 404(a). Thus, even if Section 302 helps non-accelerated filers reduce misstatements, Section 404(a) appears to be a better internal control requirement that helps non-accelerated filers reduce misstatements further.

Second, for non-accelerated filers, we try to match the ICMW accounts disclosed under Section 302 (Section 404(a)) in Regime 1 (Regime 2) with the concurrent misstatement accounts (revealed through subsequent restatement announcements). We can find 221 companies that have both ICMW accounts and restatement accounts in Audit Analytics. The untabulated result shows that in Regime 1 (N = 71) about 65% of the restatements are in the same accounts as the ICMW accounts disclosed under Section 302. But in Regime 2 (N = 150) only 19% of the restatements are in the same accounts as the ICMW accounts disclosed under Section 404(a), and the difference is significant (p-value = 0.001). This indicates that when companies find they have ICMWs after complying with Section 404(a), they try to correct the errors in the financial statements before the financial statements are filed with the SEC, so the filed financial statements are less likely to have material errors in the same areas as the ICMWs. This is consistent with the example presented earlier for Astea International Inc.'s 2007 404(a) report. In summary, although Section 302 could help non-accelerated filers reduce misstatements, complying with Section 404(a) reduces misstatements *further*.[14]

Financial reporting quality in the first three years of 404 (a) adoption

We also test the misstatement rate, discretionary revenues and discretionary accruals in the first three years of Section 404 (a) adoption by non-accelerated filers. We use three years because

[14] Alternatively, it is possible that "learning" was going on with Section 302, and it took some time for Section 302 to be effective.

Section 404(a) may take some time to implement and show an effect (similar to the continuous improvements in internal controls under Section 404(a) and (b) for accelerated filers). Specifically, we compare the misstatement rate, discretionary revenues, and discretionary accruals in the first three years of Regime 2 (i.e., fiscal years ending between December 15, 2007 to December 14, 2010) with the first three years of Regime 1 (i.e., fiscal years ending between November 15, 2004 to November 14, 2007). In such analysis, when considering subsequent misstatements, the coefficient on *NAF*REGIME2* is negative and significant (coefficient=-0.381, p= 0.022), indicating that compared with small accelerated filers, the misstatement rate for non-accelerated filers decreased significantly more in the first three years after non-accelerated filers start to comply with Section 404 (a). Further, in the model with discretionary revenues (discretionary accruals) as the dependent variable, the coefficient on *NAF*REGIME2* is also negative and significant (coefficient= -0.026 and -0.054, p=0.032 and 0.012, respectively). This suggests that non-accelerated filers have a larger reduction in discretionary revenues and discretionary accruals in the first three years after they start to comply with Section 404 (a) compared to accelerated filers.[15]

One-year change analysis of financial reporting quality

We also conduct a one-year change analysis. As mentioned earlier, there may be some learning effects when non-accelerated filers expect to comply with Section 404(a) or just start to comply with Section 404(a). Hence, we exclude the transition period (fiscal years ending between December 15, 2006 to December 14, 2008), and compare non-accelerated filers with accelerated filers using a cleaner one-year pre- and one-year post-period (i.e., fiscal years ending between

[15] In the analysis with discretionary revenues the sum of *NAF* and the interaction term is positive and significant (p-value = 0.062). Thus, we also find that non-accelerated filers have larger discretionary revenues than accelerated filers during the first three years of Regime 2. This finding is consistent with Krishnan and Yu (2012).

December 15, 2005 to December 14, 2006 (Regime 1) versus fiscal years ending between December 15, 2008 to December 14, 2009 (Regime 2)).[16] With this sub-sample, we continue to find a significant negative interaction between *NAF* and *REGIME2* for the all three financial reporting quality measures (coefficient = -0.494, -0.019 and -0.073; p-value = 0.048, 0.061 and 0.049, for the likelihood of misstatement, discretionary revenues and discretionary accruals, respectively).

Robustness checks

To check the robustness of our results for different cut-offs of firm-size, we conduct the following tests. First, we limit non-accelerated filers to firms with market capitalization between $25 million and $75 million; untabulated results show that the inferences from Table 4 continue to hold (coefficient=-0.319, p-value=0.043). Next, we extend our sample to the accelerated filers with market capitalization of less than $1 billion; once again, our inferences remain qualitatively similar (coefficient = -0.347, p-value = 0.038).

To mitigate the effect of different firms in different regimes, we restrict our sample to firms that exist in all three years of Regime 1 and at least three years of Regime 2. As expected, the sample size drops significantly with this restriction. Even with the smaller sample size, untabulated results show that non-accelerated filers have bigger improvements in the misstatement rate than accelerated filers after they begin to comply with Section 404(a) (coefficient = -0.229, p-value = 0.093). Finally, we examine the situation where firms changed their accelerated/non-accelerated status. Specifically, we test whether the change from accelerated filers to non-accelerated filers is associated with an increase in the misstatement rate. If Section 404(a) alone is not as effective as

[16] We do not find significant results when we compare 12/15/2006-12/14/2007 to 12/15/2007-12/14/2008 for AFs and NAFs. This is consistent with the argument that there may be some learning effect when NAFs expect to comply with Section 404(a) or just start to comply with Section 404(a).

Section 404(a) and (b) together in reducing the misstatement rate for small firms, we should observe a positive association between the "downgrade" of filing status (switching from accelerated filers to accelerated filers) and an increase in the misstatement rate. The untabulated results show that switching from accelerated filers to non-accelerated filers is not associated with an increase in the misstatement rate.

SUMMARY AND CONCLUSIONS

A decade after SOX became law, Section 404 of SOX continues to remain controversial. The *Dodd-Frank Act* and the *JOBS Act* (U.S. Congress 2010, 2012) expand the set of companies that are exempt from the audit attestation requirements of Section 404(b), and legislators continue to push for additional exemptions. Many such proponents have argued that management reporting on internal controls alone, subject to Section 404(a) of SOX, is sufficient without the costly auditor attestation requirements of Section 404(b) of SOX.

In this paper, we use data from SEC registrants with market capitalization less than $150 million and examine changes in the likelihood of material financial misstatements for non-accelerated filers (that became subject to Section 404(a) for fiscal years ending on or after December 15, 2007) and small accelerated filers (that became subject to both Sections 404(a) and 404(b) for fiscal years ending on or after November 15, 2004). Our results suggest that after they became subject to the requirements of Section 404(a) of SOX, non-accelerated filers had a greater reduction in the rate of material misstatements compared to accelerated filers. Further, during the period when only accelerated filers were subject to the requirements of Section 404 (i.e., for fiscal years ending between November 15, 2004 and December 14, 2007) accelerated filers were significantly less likely to have material misstatements in financial statements. However, after non-

accelerated filers became subject to the requirements of Section 404(a) of SOX (i.e., for fiscal years ending on or after December 15, 2007), we find no such difference between accelerated and non-accelerated filers. We also link the reduction in the misstatement rate for non-accelerated filers after the compliance of Section 404(a) to the improvement of internal control itself. In additional analyses, we find that our results hold for unintentional misstatements but not for intentional misstatements. We also find similar results when using discretionary revenues and discretionary accruals as alternative financial reporting quality measures.

In summary, our results suggest that for smaller public companies, management reporting on internal controls (pursuant to Section 404(a) of SOX) alone might be sufficiently effective, at least with respect to unintentional misstatements.[17] Thus, our findings are consistent with suggestions that management reporting on internal controls coupled with expanded financial audits may be a cost effective alternative to ICFR audits for smaller U.S. public companies. However, we acknowledge that although our results are economically significant, our misstatement sample is relatively small. In addition, although we conduct a difference-in-difference test and cross-sectional analysis (comparing intentional vs. unintentional misstatements), we cannot completely rule out the possibility that the greater reduction in misstatement rate from Regime 1 to Regime 2 for non-accelerated filers compared to accelerated filers is due to better auditing and/or more attention by management that is unrelated to Section 404.

[17] The fact that Section 404(a) of SOX does not appear to be effective in curbing intentional misstatements is also interesting, and should be of concern to regulators and legislators.

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Table 1: Sample Selection

Sample selection	
Observations covered by Audit Analytics and COMPUSTAT: 2004-2012	56,704
Missing information necessary to construct variables in primary model	-15,443
Observations with market values greater than $ 150 million	-23,297
	17,964
Observations from accelerated filers	3,228
Observations from non-accelerated filers	14,736
Sample composition	
Observations from Regime 1	6,426
Observations from Regime2	11,538
Observations that report misstatements	
Observations from accelerated filers	236
Observations from non-accelerated filers	1,228
	1,464

Note: Regime 1 includes observations with fiscal year ends prior to December 15, 2007. Regime 2 includes observations with fiscal year ends on or after December 15, 2007 (when non-accelerated filers became subject to the requirements of Section 404(a) of SOX).

Table 2: Definitions of Variables

MISSTATE	1 if there is a financial misstatement in year t that is revealed through a restatement before December 31, 2014 from Audit Analytics, 0 otherwise.
NAF	1 if a firm is a non-accelerated filer from Audit Analytics in year t, 0 otherwise.
REGIME2	1 if a firm-year observation belongs to Regime 2 (fiscal year ending on or after December 15, 2007), and 0 otherwise. This is when non-accelerated filers became subject to the requirements of Section 404(a) of SOX.
LNAT	The natural logarithm of total assets from Compustat at the end of year t.
LOSS	1 if a firm has a negative net income from Compustat in year t, 0 otherwise
LEVERAGE	Total long-term debt / total assets from Compustat at the end of year t.
MB	Market to book ratio from Compustat at the end of year t.
RESTRUCT	1 if a firm recognized restructuring charges in Compustat in year t, 0 otherwise
MA	1 if a firm undertook a merger or acquisition in Compustat in year t, 0 otherwise.
FOREIGN	1 if a firm has foreign transactions in Compustat in year t, 0 otherwise.
SI	1 if a firm has special items in Compustat in year t, 0 otherwise.
SEGNUM	The natural logarithm of the total number of geographic and operating segments from Compustat at the end of year t.
AGE	The natural logarithm of the number of years that a firm is covered by Compustat at the end of year t.
BIG4	1 if a firm has a Big 4 auditor in year t from Audit Analytics, 0 otherwise.
FINANCING	1 if a firm issues new equity or new debt of at least $5 million in the following year from Compustat, 0 otherwise.
PRIMIS	1 if there is a financial misstatement in the prior two years from Audit Analytics.
AUDCHG	1 if the firm switched auditors during the previous year from Audit Analytics, 0 otherwise
MGRCHG	1 if the firm changes either CEO or CFO during the previous year from Audit Analytics, 0 otherwise

Table 3 Panel A: Mean and Median Values of Variables

Variable	Regime 1 (N=6,426)						Regime 2 (N=11,538)					
	Accelerated filers		Non-accelerated filers				Accelerated filers		Non-accelerated filers			
	Mean	Median	Mean	Median	t /chisq	Z	Mean	Median	Mean	Median	t /chisq	Z
MIS	0.09	0.00	0.12	0.00	-2.15†	-2.14†	0.07	0.00	0.07	0.00	-0.13	-0.13
DREV	0.01	0.01	0.02	0.01	-1.04	-2.31†	0.00	0.01	0.01	0.01	-1.85‡	-2.15†
DACCRUAL	0.06	0.04	0.14	0.07	-11.40*	-1.59	0.06	0.03	0.10	0.05	-12.70*	-1.64
LNAT	4.88	4.80	2.65	2.86	31.11*	30.13*	5.44	5.34	3.40	3.46	38.99*	38.40*
LOSS	0.54	1.00	0.61	1.00	-3.64*	-3.63*	0.55	1.00	0.63	1.00	-7.37*	-7.35*
LEVERAGE	0.12	0.04	0.15	0.02	-3.06*	1.13	0.18	0.08	0.25	0.09	-8.93*	-3.82*
MB	2.18	1.62	1.85	1.52	1.80‡	3.16*	1.45	0.97	1.06	0.79	3.85*	8.70*
RESTRUCT	0.22	0.00	0.07	0.00	13.17*	12.96*	0.23	0.00	0.09	0.00	19.28*	19.01*
MA	0.09	0.00	0.10	0.00	-0.75	-0.75	0.11	0.00	0.08	0.00	5.97*	5.96*
FOREIGN	0.23	0.00	0.13	0.00	7.79*	7.75*	0.28	0.00	0.15	0.00	15.70*	15.55*
SI	0.55	1.00	0.45	0.00	5.30*	5.29*	0.61	1.00	0.44	0.00	15.08*	14.94*
SEGNUM	0.44	0.00	0.30	0.00	6.49*	6.41*	0.58	0.00	0.45	0.00	8.94*	7.40*
AGE	2.26	2.30	2.37	2.40	-4.4*	-3.60*	2.41	2.48	2.30	2.48	5.47*	4.33*
BIG4	0.56	1.00	0.23	0.00	20.81*	20.03*	0.57	1.00	0.11	0.00	57.15*	50.90*
FINANCING	0.90	1.00	0.80	1.00	7.12*	7.09*	0.76	1.00	0.64	1.00	10.86*	10.81*
PRIMIS	0.18	0.00	0.18	0.00	0.37	0.37	0.09	0.00	0.07	0.00	2.80*	2.80*
AUDCHG	0.01	0.00	0.01	0.00	1.37	1.37	0.02	0.00	0.07	0.00	-8.07*	-8.05*
MGRCHG	0.01	0.00	0.01	0.00	0.77	0.77	0.26	0.00	0.25	0.00	1.29	1.29

Note: Regime 1 includes observations with fiscal year ends prior to December 15, 2007. Regime 2 includes observations with fiscal year ends on or after December 15, 2007, when non-accelerated filers became subject to the requirements of Section 404(a) of SOX). Variables are defined in Table2.* significant at the 0.01 level; † significant at the 0.05 level; and ‡ significant at the 0.10 level.

Table 3 Panel B: Misstatement Rate by Year

	Misstatement rate by year									
	2004	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
accelerated filers	11.93%	9.21%	8.38%	6.36%	5.44%	6.86%	7.09%	7.69%	6.76%	7.04%
non-accelerated filers	16.99%	11.99%	8.82%	6.31%	6.37%	5.85%	7.43%	7.18%	6.51%	4.18%

Table 4: Logistic Regression Results: Misstatement Model

DV=MISSTATE				
	[+/-]	Coefficient	Chi-Square	P value
INTERCEPT		-3.272	225.460	0.001
NAF	**+**	**0.262**	**3.323**	**0.034**
REGIME2	**?**	**0.225**	**1.234**	**0.267**
NAF*REGIME2	**-**	**-0.338**	**3.928**	**0.024**
LNAT	-	-0.010	0.392	0.266
LOSS	+	0.154	4.395	0.018
LEVERAGE	+	-0.010	3.158	0.076
MB	+	0.000	1.978	0.160
RESRTUCT	+	-0.016	0.025	0.875
MA	+	0.400	17.557	0.001
FOREIGN	-	-0.109	1.309	0.126
SI	+	0.166	6.159	0.007
SEGNUM	+	0.058	1.107	0.146
AGE	-	-0.078	3.961	0.023
BIG4	-	-0.051	0.378	0.269
FINANCING	+	0.147	3.523	0.030
PRIMIS	+	1.815	753.767	0.001
MGRCHG	**?**	0.243	2.591	0.108
AUDCHG	**?**	0.157	2.950	0.086
Total Obs =		17,964		
Misstatement Obs =		1,464		
Non-accelerate Obs =		14,736		
Chi-square		976.37		
R-square		0.13		

Note: This table presents the regression result for the misstatement rate. *MISSTATE* =1 if the financial statement is subsequently restated, and 0 otherwise. *NAF* = 1 if the firm is a non-accelerated filer, and 0 otherwise. *REGIME2* = 1 if a firm-year observation belongs to Regime 2 (fiscal year ending on or after December 15, 2007, when non-accelerated filers became subject to the requirements of Section 404(a) of SOX), and 0 otherwise. Please see Table 2 for the definitions of the variables. All *p* values are two-tailed for unsigned predictions and one-tailed for signed predictions.

Table 5: Remediation of ICMW and reduction in misstatement rate

		MIS_REMEDIATION		
	[+/-]	Coefficient	Chisq	P value
INTERCEPT		-2.861	243.048	0.001
IC_REMEDIATION	**+**	**-0.697**	**1.188**	**0.277**
REGIME2	**?**	**-0.705**	**12.320**	**0.001**
IC_REMEDIATION*REGIME2	**+**	**2.240**	**11.156**	**0.001**
CHG_LNAT	**-**	-0.058	0.194	0.660
CHG_LOSS	**+**	-0.046	0.084	0.772
CHG_LEVERAGE	**+**	0.497	4.080	0.022
CHG_MB	**+**	0.030	5.153	0.012
CHG_RESRTUCT	**+**	0.051	0.032	0.430
CHG_MA	**+**	-0.252	1.563	0.211
CHG_FOREIGN	**-**	0.093	0.084	0.770
CHG_SI	**+**	0.009	0.005	0.471
CHG_SEGNUM	**+**	0.613	4.452	0.017
CHG_BIG4	**-**	-0.064	0.029	0.433
CHG_FINANCING	**+**	-0.087	0.423	0.513
CHG_PRIMIS	**+**	4.874	675.480	0.001
CHG_MGRCHG	**?**	-0.036	0.026	0.871
CHG_AUDCHG	**?**	0.093	0.533	0.464
Total Obs =		8,279		
R-square		0.162		

Note: This table examines the relationship between the remediation of ICMW and the reduction in the misstatement rate for non-accelerated filers. *IC_REMEDIATION* = 1 if the firm has ICMW in year t-1 but no ICMW in year t, and 0 otherwise. *MIS_REMEDIATION* = 1 if the firm has misstatement in year t-1 but no misstatement in year t, and 0 otherwise. *REGIME2* = 1 if a firm-year observation belongs to Regime 2 (fiscal year ending on or after December 15, 2007, when non-accelerated filers became subject to the requirements of Section 404(a) of SOX), and 0 otherwise. Please see Table 2 for the definitions of the other variables. All *p* values are two-tailed for unsigned predictions and one-tailed for signed predictions.

Table 6: Regression Results: Discretionary Revenues and Discretionary Accruals

		DV=DREV			DV=DACCRUAL		
	[+/-]	Coefficient	t-stat	P value	Coefficient	t-stat	P value
INTERCEPT		-0.031	-0.45	0.656	0.286	14.09	0.001
NAF	**+**	**0.029**	**1.52**	**0.128**	**0.032**	**1.49**	**0.068**
REGIME2	**?**	**-0.005**	**-0.36**	**0.717**	**-0.016**	**-0.4**	**0.687**
NAF*REGIME2	**-**	**-0.020**	**-1.98**	**0.024**	**-0.060**	**-2.64**	**0.004**
LNAT	-	0.019	1.59	0.113	-0.044	-17.11	0.001
LOSS	+	-0.009	-0.89	0.375	0.008	0.46	0.322
LEVERAGE	+	0.001	0.74	0.457	0.065	5.46	0.001
MB	+	0.001	0.53	0.594	0.001	0.08	0.468
RESRTUCT	+	-0.019	-2.53	0.012	0.003	0.45	0.327
MA	+	0.034	5.89	0.001	0.121	1.85	0.032
FOREIGN	-	-0.002	-0.33	0.74	-0.008	-1.98	0.024
SI	+	-0.013	-1.12	0.264	-0.009	-0.43	0.664
SEGNUM	+	-0.006	-0.94	0.346	-0.012	-1.75	0.08
AGE	-	-0.002	-0.32	0.747	-0.012	-1.99	0.023
BIG4	-	-0.012	-1.13	0.258	-0.019	-2.06	0.02
FINANCING	+	-0.004	-0.23	0.82	0.044	7.71	0.001
PRIMIS	+	0.006	0.99	0.322	0.018	1.16	0.124
MGRCHG	**?**	0.037	0.68	0.499	0.016	1.02	0.307
AUDCHG	**?**	-0.032	-1.63	0.104	0.005	1.22	0.221
Total Obs =		11,017			10,850		
R-square		0.078			0.024		

Note: This table presents the regression result for the revenue quality. *DREV* = discretionary revenue following Krishnan and Yu (2012). *DACCRUAL* = absolute value of discretionary accruals following modified Jones model. *NAF* = 1 if the firm is a non-accelerated filer, and 0 otherwise. *REGIME2* = 1 if a firm-year observation belongs to Regime 2 (fiscal year ending on or after December 15, 2007, when non-accelerated filers became subject to the requirements of Section 404(a) of SOX), and 0 otherwise. Please see Table 2 for the definitions of the variables. All *p* values are two-tailed for unsigned predictions and one-tailed for signed predictions.

Table 7: Intentional and unintentional misstatements

		Panel A: DV=Unintentional Misstatement			Panel B: DV=Intentional Misstatement		
	[+/-]	Coefficient	Chi-Square	P value	Coefficient	Chi-Square	P value
INTERCEPT		-3.472	223.117	0.001	-4.992	80.407	0.001
NAF	**+**	**0.245**	**2.613**	**0.053**	**0.402**	**1.193**	**0.137**
REGIME2	**?**	**0.355**	**2.786**	**0.095**	**-0.866**	**1.817**	**0.178**
NAF*REGIME2	**-**	**-0.363**	**4.121**	**0.042**	**0.090**	**0.029**	**0.864**
LNAT	-	-0.017	1.015	0.157	0.041	1.172	0.279
LOSS	+	0.133	2.915	0.044	0.236	1.483	0.112
LEVERAGE	+	-0.011	3.048	0.081	-0.004	0.234	0.629
MB	+	0.000	2.013	0.078	0.000	0.063	0.401
RESRTUCT	+	0.066	0.374	0.270	-0.884	5.536	0.019
MA	+	0.311	8.970	0.001	0.874	18.140	0.001
FOREIGN	-	-0.101	1.013	0.157	-0.190	0.462	0.248
SI	+	0.167	5.530	0.009	0.132	0.621	0.215
SEGNUM	+	0.052	0.779	0.189	0.153	1.078	0.150
AGE	-	-0.063	2.279	0.066	-0.171	2.980	0.042
BIG4	-	-0.003	0.001	0.486	-0.425	3.144	0.038
FINANCING	+	0.152	3.346	0.034	0.047	0.049	0.413
PRIMIS	+	1.835	689.549	0.001	1.673	100.155	0.001
MGRCHG	?	0.266	2.838	0.092	0.107	0.058	0.810
AUDCHG	?	0.175	3.352	0.067	-0.065	0.049	0.825
Total Obs =		17,785			16,679		
Misstatement Obs =		1,285			179		
Chi-square		849.49			204.45		
R-square		0.13			0.13		

Note: We use Audit Analytics data to distinguish intentional and unintentional misstatements. Consistent with the coding in Hennes et al. (2008), intentional misstatements are those with a financial fraud, irregularity or a regulatory investigation related to the restatement. We excluded intentional restatements in Panel

A and unintentional restatements in Panel B. *REGIME2* = 1 if a firm-year observation belongs to Regime 2 (fiscal year ending on or after December 15, 2007, when non-accelerated filers became subject to the requirements of Section 404(a) of SOX), and 0 otherwise. Please see Table 2 for the definitions of the variables. All p values are two-tailed for unsigned predictions and one-tailed for signed predictions.

Table 8: Misstatement magnitude and timeliness of misstatement detection

Panel A: Univariate results for the magnitude of misstatements

	Regime	Number of restatement companies with changes in net income	Magnitude of misstatement	t-Stat	P-Value
Non-accelerated filers	**1**	215	0.525	1.68	0.093
	2	214	0.393		
Accelerated filers	**1**	49	0.264	0.12	0.903
	2	116	0.252		

Notes: This table compares the magnitude of the misstatements of net income for non-accelerated filers and accelerated filers during Regime 1 and Regime 2. Magnitude of misstatement is defined as the absolute value of the percentage change in net income. *REGIME2* = 1 if a firm-year observation belongs to Regime 2 (fiscal year ending on or after December 15, 2007, when non-accelerated filers became subject to the requirements of Section 404(a) of SOX), and 0 otherwise.

Panel B: Univariate results for the timeliness of misstatement detection

	Regime	Number of restatement companies	Length of detection	t-Stat	P-Value
Non-accelerated filers	**1**	216	1155.4	3.95	0.001
	2	220	933.7		
Accelerated filers	**1**	49	1321.9	1.51	0.132
	2	117	1127		

Notes: This table compares the timeliness of misstatements detection for non-accelerated filers and accelerated filers during Regime 1 and Regime 2. Timeliness of misstatement detection is defined as the number of days between the announcement of restatement and the date of restatement period began. *REGIME2* = 1 if a firm-year observation belongs to Regime 2 (fiscal year ending on or after December 15, 2007, when non-accelerated filers became subject to the requirements of Section 404(a) of SOX), and 0 otherwise.

Panel C: Univariate results for comparison between accelerated filers and accelerated filers.

	Regime	Accelerated filers	Non-accelerated filers	t-Stat	P-Value
magnititude of misstatement	**1**	0.264	0.525	2.05	0.041
	2	0.252	0.393	1.73	0.085
length of detection	**1**	1321.9	1155.4	1.30	0.193
	2	1127	933.7	3.65	0.003

Notes: This table compares the magnitude of the misstatements and the length of misstatement detection between non-accelerated filers and accelerated filers during Regime 1 and Regime 2. Magnitude of misstatement is defined as the absolute value of the percentage change in net income. Timeliness of misstatement detection is defined as the number of days between the announcement of restatement and the date of restatement period began. *REGIME2* = 1 if a firm-year observation belongs to Regime 2 (fiscal year ending on or after December 15, 2007, when non-accelerated filers became subject to the requirements of Section 404(a) of SOX), and 0 otherwise.