Has the Regulation of Non-GAAP Disclosures Influenced Managers' Use of Aggressive Earnings Exclusions?

Ervin, L. Black, The University of Oklahoma, USA

Theodore, E. Christensen, The University of Georgia, USA

Paraskevi Vicky Kiosse, University of Exeter Business School, UK

Thomas, D. Steffen, Yale University, USA

Abstract

The frequency of non-GAAP (or "pro forma") reporting has continued to increase in the United States over the last decade, despite preliminary evidence that regulatory intervention led to a decline in non-GAAP disclosures. In particular, the Sarbanes-Oxley Act of 2002 (SOX) and Regulation G (2003) impose strict requirements related to the reporting of non-GAAP numbers. More recently, the Securities and Exchange Commission (SEC) has renewed its emphasis on non-GAAP reporting and declared it a "fraud risk factor." Given the SEC's renewed emphasis on non-GAAP disclosures, we explore the extent to which regulation has curbed potentially misleading disclosures by investigating two measures of aggressive non-GAAP reporting. Consistent with the intent of Congress and the SEC, we find some evidence that managers report adjusted earnings metrics more cautiously in the post-SOX regulatory environment. Specifically, the results suggest that firms reporting non-GAAP earnings in the post-SOX period are *less* likely to (a) exclude recurring items incremental to those excluded by analysts and (b) use non-GAAP exclusions to meet strategic earnings targets on a non-GAAP basis that they miss based on Institutional Brokers' Estimate System (I/B/E/S) actual earnings. However, we also find that some firms exclude specific recurring items aggressively. Overall, the results suggest that while regulation has generally reduced aggressive non-GAAP reporting, some firms continue to disclose non-GAAP earnings numbers that could be misleading in the post-SOX regulatory environment.

Keywords: non-GAAP earnings, pro forma earnings, earnings benchmarks, SOX regulation, Regulation G, opportunistic financial reporting

1. Introduction

The voluntary disclosure of manager-adjusted non-GAAP (or "pro forma") earnings numbers in earnings press releases has attracted considerable attention during the last decade in the United States and increasingly in Europe (e.g., Black & Christensen, 2009; Choi, Lin, Walker, & Young, 2007; Guillamon-Saorin, Isidro, & Marques, 2014). Prior research suggests that some managers report these adjusted numbers to better reflect sustainable core earnings, while others may disclose adjusted earnings metrics to overstate operating results (e.g., Bhattacharya, Black, Christensen, & Larson, 2003). In the midst of the 2001-2002 financial crisis, the Securities and Exchange Commission (SEC) issued a warning in December 2001 stating that non-GAAP disclosures could be misleading to investors (Dow Jones, 2001). Seven months later, the Sarbanes-Oxley Act (SOX) was enacted (on July 30, 2002) as emergency legislation in the wake of several high-profile corporate scandals.[1]As part of this sweeping disclosure reform, the United States Congress included a specific provision in SOX to address the problem of potentially misleading non-GAAP disclosures. To codify the congressional intent specified in SOX, the SEC implemented Regulation G (hereinafter Reg. G) in March 2003 to regulate firms' use of non-GAAP disclosures.

The recent financial crisis (2008-2009) has resulted in additional regulation (e.g., the Dodd-Frank Wall Street Reform and Consumer Protection Act, 2010) and a greater focus on financial reporting issues. The SEC renewed its emphasis on non-GAAP financial measures by issuing a Compliance and Disclosure Interpretation on the topic in January 2010 (updated in July 2011). In addition, the SEC's former chief accountant of the Enforcement Division, Howard Scheck, further emphasized that non-GAAP performance metrics are a "fraud risk factor" (Leone, 2010).[2] Finally, the SEC formed a taskforce in July of 2013 to scrutinize companies' non-GAAP earnings metrics that could potentially be misleading "with an eye toward possible enforcement cases" (Rapoport, 2013). Given the SEC's renewed emphasis on non-GAAP disclosures, we

explore two measures of aggressive non-GAAP reporting over a longer horizon following SOX and Reg. G to determine whether the aggressiveness of non-GAAP earnings disclosures was affected by these regulations.

Black & Christensen (2009) contrast aggressive and less-aggressive manager motivations for disclosing adjusted earnings metrics in quarterly earnings press releases. While managerial intent is not directly observable, they make inferences about managers' underlying intent by examining actual press releases containing non-GAAP earnings numbers. They explore the types of adjustments managers make to meet strategic earnings targets (i.e., meeting analysts' expectations or achieving an operating profit) on a non-GAAP basis when they fall short based on GAAP operating earnings. In addition to the exclusion of one-time items like restructuring charges, they find that managers often exclude *recurring* expenses such as depreciation and amortization, research and development, and stock-based compensation to meet these strategic targets. They argue that the exclusion of these recurring items is especially indicative of aggressive non-GAAP reporting.

Several studies have also examined the effect of SOX and Reg. G on important aspects of the non-GAAP reporting environment. Using hand-collected non-GAAP earnings disclosures, Marques (2006) finds a post-regulation decline in non-GAAP earnings disclosures, while Entwistle, Feltham, & Mbagwu (2006) document declines in both the frequency and magnitude of non-GAAP exclusions. Heflin & Hsu (2008) use Institutional Brokers' Estimate System (I/B/E/S) data as a proxy for manager-disclosed non-GAAP earnings and find some evidence that SOX and Reg. G led to decreases in (a) the frequency of both special and recurring exclusions and (b) the magnitude of those exclusions. They also document a modest decrease in the likelihood that non-GAAP earnings meet or beat analyst forecasts. More recent evidence indicates that despite a temporary decrease in the frequency of these disclosures immediately following SOX, the frequency of non-GAAP reporting has continued to increase significantly

since 2003 (Brown, Black, Christensen, & Heninger, 2012; Brown, Christensen, Elliott, & Mergenthaler, 2012).

We extend prior research by examining whether the regulatory requirements imposed by SOX and Reg. G have changed managers' use of aggressive non-GAAP reporting practices. The frequency of non-GAAP reporting has continued to increase, while the SEC is concerned that these disclosures can mislead investors—even in the post-SOX regulatory environment. However, it is not the mere disclosure of non-GAAP earnings that should cause concern. The more important question is whether SOX and Reg. G have reduced the incidence of *opportunistic* non-GAAP disclosures. Baumker, Biggs, McVay, and Pierce (2014) and Curtis, McVay, and Whipple (2014) find that after Reg. G, some firms opportunistically refrain from reporting non-GAAP earnings figures when GAAP earnings are affected by transitory gains. We provide more empirical evidence on the effects of non-GAAP regulation by examining how Reg. G has influenced the likelihood of aggressive reporting of non-GAAP earnings.

We find that managers are generally more cautious in the post-SOX period. Specifically, we document that after SOX, non-GAAP reporters are less likely to exclude recurring items with which analysts disagree. Moreover, we also find some evidence that they are less likely to disclose non-GAAP earnings that meet or beat analysts' expectations when I/B/E/S actual earnings per share (EPS) fall short. We also provide evidence on how the use of particular recurring exclusions has changed in the post-SOX period. In particular, post-SOX non-GAAP reporters are generally less likely to exclude amortization and depreciation expenses, but they are more likely to exclude tax, interest, and stock-compensation expenses. It appears that the increased exclusion of stock compensation is partially explained by the implementation of Statement of Financial Accounting Standards (SFAS) 123R, which requires the recognition of compensation-related expenses (for reporting periods beginning after June 15, 2005).

Prior research indicates that firms that stopped reporting non-GAAP numbers following SEC intervention had lower quality exclusions in the pre-intervention period (Kolev, Marquardt,

& McVay, 2008). We extend their evidence by splitting our full sample of non-GAAP reporters into three subsamples: (a) firms that disclose non-GAAP earnings both pre- and post-SOX (continuers), (b) firms that report non-GAAP earnings only pre-SOX (stoppers); and (c) firms that disclose non-GAAP earnings only post-SOX (starters). Univariate tests provide consistent evidence across the subsamples indicating that in the post-SOX period managers exclude some recurring items less aggressively[3] (research and development expense, amortization and depreciation), but they exclude other recurring items more aggressively (stock-based compensation, interest, and tax expenses). However, multivariate analyses suggest some differences across the subsamples.

The results suggest that regulation imposed by SOX and Reg. G has, to some extent, accomplished its intended purpose with respect to non-GAAP reporting. Specifically, our evidence suggests that aggressive non-GAAP reporting has generally decreased in the post-SOX period. Overall, we find that while regulation has reduced some forms of aggressive non-GAAP reporting, some firms continue to use non-GAAP exclusions in ways that could be misleading in the post-SOX regulatory environment, providing evidence consistent with the SEC's continued concern regarding non-GAAP reporting.

Our results contribute to the extant literature in several ways. First, we provide evidence about the long-term effects of SOX and Reg. G on aggressive non-GAAP reporting by examining a longer post-regulation period than prior studies. This longer investigation is important because early studies examining the impact of SOX and Reg. G find a short post-regulation decline in the frequency of non-GAAP disclosures, while the frequency of non-GAAP reporting has subsequently increased steadily in the years following the initial post-SOX decline. In addition, we build on prior research documenting that firms that stopped reporting non-GAAP numbers following SEC regulation had lower quality exclusions in the pre-intervention period (Kolev et al., 2008). By splitting our sample to separately examine firms that report non-GAAP earnings in both the pre- and post-SOX periods (i.e., continuers) and those that report non-GAAP numbers

only in the pre- or the post-SOX periods (i.e., stoppers and starters), we provide novel insights about the non-GAAP reporting behavior of continuer and starter firms in the post-SOX regulatory period. Moreover, we provide evidence on which specific exclusions are more or less likely to be used aggressively in the post-SOX period by different groups of firms, allowing us to discuss accounting rule changes that have occurred during the sample period and their potential impact on non-GAAP exclusions.

Furthermore, similar to Baumker et al. (2014) and Curtis et al. (2014), we use hand-collected non-GAAP earnings numbers disclosed in actual earnings press releases (rather than assuming that I/B/E/S actual EPS numbers, based on analysts' ex ante forecasts, proxy for ex post manager-adjusted non-GAAP earnings numbers),[4] which enable us to explore managerial incentives by examining different types of non-GAAP exclusions. In particular, we examine those made by managers above and beyond the exclusions made by analysts. This is a powerful aggressiveness measure as it captures the additional recurring exclusions endorsed by managers but rejected by analysts. When analysts are not willing to "go out on a limb" with managers in excluding income statement items, it is more likely that these exclusions are opportunistic and can be misleading to investors. Furthermore, we explore an additional aggressiveness measure that examines whether firms use non-GAAP recurring exclusions to report a non-GAAP number that meets or beats analysts' consensus forecast, while the I/B/E/S actual EPS number (rather than the GAAP operating earnings measure used in previous research) falls short. This measure is a strong indicator of aggressive non-GAAP reporting because it focuses on incremental exclusions made by managers (beyond those endorsed by analysts) to meet or beat earnings expectations.

2.Regulatory Changes, Prior Research, and Hypothesis Development

Congressional and SEC Action Relative to Non-GAAP Reporting

In the midst of the 2001-2002 financial crisis, the SEC issued a warning on December 4, 2001 about the presentation of earnings and operating results on a non-GAAP basis (SEC, 2001).

This warning emphasizes that the antifraud provisions of the federal securities laws also apply to companies reporting non-GAAP metrics and that the principles underlying the presentation of non-GAAP-related measures should be clearly discussed (SEC, 2001). The following year, Congress enacted SOX (on July 30, 2002), and as required by Section 401 (b) of the Act, the SEC implemented a number of new rules addressing the use of non-GAAP measures. First, it prohibits companies disclosing non-GAAP earnings from omitting material information. Moreover, they are required to provide explanations for exclusions, along with a detailed reconciliation between the GAAP and non-GAAP numbers to ensure that investors are not misled. These rules governing non-GAAP disclosures were implemented via a new regulation, known as Reg. G, which was finalized on January 22, 2003 and became effective on March 28, 2003 (SEC, 2002). However, consistent with Black et al. (2012), we expect that most changes in non-GAAP reporting occurred when the Act was passed, rather than when Reg. G was officially implemented in January 2003. To examine the impact of regulation on non-GAAP reporting, we include quarters ending after July 2002 in the post-SOX period.

Reg. G includes a general disclosure requirement and a specific content requirement. The general disclosure requirement indicates that

> a registrant or a person acting on its behalf, shall not make public a non-GAAP financial measure that, taken together with the information accompanying that measure, contains an untrue statement of a material fact or omits to state a material fact necessary in order to make the presentation of the non-GAAP financial measure, in light of the circumstances under which it is presented, not misleading. (SEC, 2002)

The specific content requirement involves a reconciliation of any reported non-GAAP financial measure to a measure computed under GAAP. In particular, it requires companies disclosing non-GAAP financial measures to identify the most directly comparable GAAP measure and to provide a reconciliation of the differences between the GAAP and non-GAAP numbers. Similarly, amended Item 10 of Regulation S-K and Item 10 of Regulation S-B require

companies disclosing non-GAAP numbers in filings with the Commission to present (a) the most directly comparable GAAP measure with equal or greater prominence, (b) a reconciliation of the differences between the two measures, and (c) an explanation of the reasons justifying the usefulness of the non-GAAP disclosures. In addition to these requirements, Item 10 of Regulation S-K and Item 10 of Regulation S-B prohibit companies from disclosing a non-GAAP measure to "eliminate or smooth items identified as non-recurring, infrequent or unusual," if there is a high likelihood that these items will recur within 2 years or when a similar item was reported in the previous 2 years. These amendments also prohibit companies from "presenting non-GAAP financial measures on the face of the registrant's financial statements prepared in accordance with GAAP or in the accompanying notes" as well as the utilization of descriptions for non-GAAP items that are similar to those used for GAAP measures (SEC, 2002).

Finally, Item 12 ("Disclosure of Results of Operations and Financial Condition") of Form 8-K requires firms to furnish a Form 8-K to the SEC within 5 business days of the public release of annual or quarterly results. It also requires them to disclose the reasons they believe non-GAAP measures will be useful to investors and any additional reasons regarding the disclosure of non-GAAP measures that were not already mentioned (SEC, 2002). In January of 2010, the SEC renewed its emphasis on non-GAAP financial measures by issuing a Compliance and Disclosure Interpretation (which was subsequently updated in July 2011). The SEC also began to scrutinize the consistency and accuracy of non-GAAP disclosures to ensure that they are not misleading (Deloitte, 2011). Recently, the SEC's former chief accountant of the Enforcement Division, Howard Scheck, has emphasized that non-GAAP metrics are a "fraud risk factor" (Leone, 2010). Finally, the SEC formed a taskforce in July 2013 to scrutinize companies' non-GAAP earnings metrics that could potentially be misleading "with an eye toward possible enforcement cases" (Rapoport, 2013).

Accounting Rule Changes

Two important accounting rule changes occurred during our sample period, which are relevant to our study. In particular, the Financial Accounting Standards Board (FASB) issued two new standards related to the accounting for (a) goodwill and other intangible assets (SFAS 142) and stock-based compensation (SFAS 123R). We briefly summarize these accounting rule changes to clarify how they influence our analyses.

Goodwill and Other Intangible Assets (SFAS 142). SFAS 142, effective for years beginning after December 31, 2001, addresses the accounting and reporting for acquired goodwill as well as other intangible assets. While Opinion No.17 required the amortization of goodwill and other intangible assets over a maximum of 40 years, SFAS 142 eliminated the amortization of goodwill and other indefinite-lived intangibles and mandated annual impairment testing of intangible assets with indefinite life (FASB, 2001). This new test has triggered impairments more quickly than the test used under SFAS 121 (Bens, Heltzer, & Segal, 2011). However, SFAS 142 still requires the amortization of assets with finite useful lives, even though it removed the arbitrary ceiling of 40 years for amortization. Furthermore, goodwill acquired in business combinations after June 30, 2001, will not be amortized. Overall, this rule change was expected to introduce more volatility in reported income due to the timing and amount of impairment losses (FASB, 2001).

Share-based Payment (SFAS 123R). SFAS 123R revises SFAS 123, Accounting for Stock-based Compensation, and is effective for reporting periods that begin after June 15, 2005. SFAS 123R requires compensation costs resulting from share-based payment arrangements with employees to be recognized at fair value. Hence, the economic consequences of these transactions are now reported in the financial statements, and comparability has been enhanced as firms are no longer able to choose among alternative accounting methods for recording compensation-related costs. Even though SFAS 123 allowed and even encouraged firms to use the fair value method, it did

not mandate this approach (FASB, 2005). Hence, management had a choice under SFAS 123 to disclose stock-compensation expense in the footnotes or recognize it as an expense in the income statement. Following the adoption of SFAS 123R, the number of firms expensing stock-based compensation has increased, and Frederickson, Hodge, and Pratt (2006) find that income statement recognition enhances user perceptions of the reliability of stock-compensation expense.

Background and Hypothesis Development

Prior research indicates that manager-adjusted non-GAAP earnings have generally become more common over time and that there is still potential for investors to be misled by these disclosures (e.g., Black et al., 2012; Brown, Christensen, Elliott, & Mergenthaler, 2012; Curtis et al., 2014). Black and Christensen (2009) explore the motivations for these non-GAAP reports using a hand-collected sample of non-GAAP earnings disclosures and find that firms may be motivated to disclose non-GAAP numbers based on concerns about meeting analyst expectations and earnings volatility. Bhattacharya et al. (2003) and Lougee and Marquardt (2004) also find that incentives to meet or beat analyst forecasts can influence the disclosure of non-GAAP earnings measures. Isidro and Marques (2015) explore how institutional and economic factors are associated with the disclosure of non-GAAP measures that meet strategic benchmarks, while the associated GAAP earnings numbers fall short. Their results suggest that the use of non-GAAP numbers to meet or beat strategic performance targets is higher in countries with strong investor protection, efficient law enforcement, developed financial markets, and better communication and information dissemination. In addition, there is some evidence that investors and analysts appear to pay more attention to non-GAAP earnings than standard GAAP operating earnings, or even I/B/E/S actual earnings (Bhattacharya et al., 2003; Bradshaw & Sloan, 2002; Lougee & Marquardt, 2004).

These studies do not provide direct evidence that investors actually use manager-adjusted earnings numbers in their individual valuation models. Market participants could calculate their

own core earnings metrics to use in their valuation analyses. To the extent, however, that investors use all information at their disposal to develop their unobservable core earnings metrics used for valuation purposes, we would expect that they make use of management-provided non-GAAP earnings measures, along with their corresponding reconciliations, in assessing firm performance. Stated differently, market participants obviously come to their own conclusions about the appropriate core earnings numbers to use in their individual valuations, but to the extent that managers provide information about what they determine to be appropriate adjustments to the GAAP earnings number, investors are likely to consider this information in assessing core performance. If investors are able to determine that some of managers' recommended adjustments are overly aggressive or inappropriate, they may choose to discount or ignore these disclosures (Bhattacharya et al., 2003; Black et al., 2012; Frederickson & Miller, 2004; Marques, 2006).[5]

These results illustrate the need to better understand manager-disclosed non-GAAP earnings. Even though Choi et al. (2007) find evidence suggesting that manager-disclosed non-GAAP metrics are generally intended to better reflect sustainable operating performance in the United Kingdom, Marques (2010); Brown, Christensen, and Elliott (2012); and Entwistle, Feltham, and Mbagwu (2005) find that some managers may disclose non-GAAP performance metrics for opportunistic reasons. Baumker et al. (2014) and Curtis et al. (2014) find that after Reg. G, some managers may opportunistically refrain from reporting non-GAAP earnings in the presence of transitory gains. Elliott (2006) provides experimental evidence that managers' emphasis on non-GAAP numbers can influence nonprofessional investors' decisions. Bhattacharya, Black, Christensen, & Mergenthaler (2007) and Allee, Bhattacharya, Black, & Christensen (2007) find consistent archival evidence, suggesting that less-sophisticated investors are likely to be misled by aggressive non-GAAP disclosures. Furthermore, Christensen, Drake, & Thornock (2014) find that short sellers target companies that issue non-GAAP earnings disclosures. Their evidence suggests that if less-sophisticated investors inappropriately rely on

adjusted earnings numbers in deciding to invest in companies that issue these disclosures, their wealth could be transferred to short sellers. Overall, the evidence from prior research suggests that (a) non-GAAP earnings are more highly associated with market returns, (b) some firms may report non-GAAP earnings opportunistically, and (c) less-sophisticated market participants may be misled by aggressive non-GAAP measures.

The difficulty in analyzing non-GAAP earnings disclosures lies in distinguishing "truthful" disclosures in which managers attempt to focus investors' attention on sustainable core earnings from "opportunistic" ones that may be motivated by managers' desire to overstate their operating performance. While manager intent is not directly observable, Black and Christensen (2009) shed light on the issue by examining the intersection of two settings where opportunism in non-GAAP reporting is most likely: (a) when managers exclude recurring items and (b) when they use non-GAAP adjustments to achieve strategic earnings targets. In addition to the exclusion of one-time items like restructuring charges, they find that managers often exclude recurring expenses such as depreciation, research and development, and stock-based compensation to meet these strategic targets. They argue that the exclusion of recurring items is especially indicative of aggressive non-GAAP reporting.[6]

One of the stated reasons for active interventions in non-GAAP reporting by the U.S. Congress and the SEC (SOX and Reg. G, respectively) was to curb potentially misleading non-GAAP disclosures.[7] However, Black and Christensen's (2009) sample is mostly comprised of pre-SOX observations. We extend their evidence by directly examining the impact of SOX and Reg. G on the likelihood that firms engage in aggressive non-GAAP reporting. We focus on SOX and Reg. G rather than the warning issued by the SEC in 2001 because, as discussed by Heflin and Hsu (2008), the warning may not have discouraged firms from reporting non-GAAP measures. In addition, non-compliance with SOX and Reg. G can result in SEC enforcement actions, whereas before the aforementioned legal and regulatory changes, an enforcement action was predicated on the SEC's proving an intent to mislead investors.

As managers have a better understanding and an insider view of their businesses, analysts and market participants are likely influenced by managers' non-GAAP exclusions.[8] Consistent with this notion, prior research finds evidence that managers are able to influence analysts' earnings estimates during the accounting period (Cotter, Tuna, & Wysocki, 2006; Matsumoto, 2002; Richardson, Teoh, & Wysocki, 2004) and also their street earnings reported in I/B/E/S at the end of the period (Christensen, Merkley, Tucker, & Venkataraman 2011; Black, Christensen, Kiosse, & Steffen, 2014). Therefore, based on prior evidence that managers influence analysts' behavior, we argue that it is important to examine managers' non-GAAP reporting choices.

On average, companies are likely to report non-GAAP earnings metrics to portray firm performance more accurately. However, it is also possible that some managers exercise their discretion in reporting non-GAAP numbers to overstate their firms' performance. Ex ante, it is unclear how the strict non-GAAP reporting requirements imposed by SOX and Reg. G may have affected these two types of behavior. On the one hand, Reg. G may dissuade managers from using non-GAAP disclosures to opportunistically paint a more favorable picture of company performance. On the other hand, some managers may view Reg. G as a "safe harbor" for disclosing adjusted earnings metrics. That is, as long as they are careful to follow all of the rules prescribed by Reg. G, managers may feel safe in providing these additional voluntary earnings disclosures in the post-SOX environment. There is some evidence (based on I/B/E/S actual earnings as a proxy for manager-disclosed non-GAAP earnings) that, in the post-SOX period, managers are less likely to exclude recurring items, that exclusions are of higher quality, and that managers are less likely to use non-GAAP exclusions to meet analysts' forecasts (Heflin & Hsu, 2008; Kolev et al., 2008). However, Curtis et al. (2014) and Baumker et al. (2014) find evidence that some managers opportunistically avoid non-GAAP disclosures when earnings are increased by transitory gains.

While it is unclear which effect dominates, we expect that managers are generally less likely to disclose non-GAAP earnings aggressively after the enactment of SOX. To shed further light on this question, we also examine how the post-SOX regulatory environment has affected the use of specific aggressive non-GAAP exclusions. Because SOX mandated the implementation of Reg. G's specific reconciliation requirement, we expect the frequency of some non-GAAP exclusions to change in the post-SOX period. Specifically, because managers are required to disclose each line item exclusion in the non-GAAP-to-GAAP earnings reconciliation, they may be more likely to exclude items that are truly one-time in nature. They may also be less likely to exclude recurring items because they don't want to appear to be opportunistic or aggressive. An alternative non-mutually exclusive explanation is that changes in the exclusions endorsed by managers may be explained by the accounting rule changes that occurred during the sample period. Our baseline analyses therefore compare all pre-SOX non-GAAP reporters (firm quarters ending through July 2002) with all post-SOX non-GAAP reporters (firm quarters ending after July 2002). We expect that firms report non-GAAP earnings less aggressively in the post-SOX period, leading to our first hypothesis (stated in the alternative form):

Hypothesis 1 (H1): Non-GAAP reporters are less likely to disclose non-GAAP earnings aggressively in the post-SOX period than in the pre-SOX period.

Kolev et al. (2008) find evidence suggesting that firms that stopped reporting non-GAAP earnings immediately after SEC intervention had lower quality analyst earnings exclusions in the pre-intervention period. However, they also find evidence consistent with a decrease in the quality of special item exclusions in the post-intervention period. Curtis et al. (2014) and Baumker et al. (2014) also document opportunistic non-GAAP behavior after Reg. G. Thus, there is mixed evidence about the impact of regulation on non-GAAP reporting. Based on the results of prior studies and also on our own untabulated univariate results suggesting that firms reporting

non-GAAP earnings in both periods are systematically different from firms reporting non-GAAP earnings in either the pre- or the post-SOX period, we split the full sample into three subgroups: (a) continuer firms that report non-GAAP earnings in both the pre- and post-SOX periods, (b) stopper firms that report non-GAAP numbers only in the pre-SOX period, and (c) starter firms that report non-GAAP numbers only in the post-SOX period. We compare the behavior of the continuer firms pre- and post-SOX, and we also compare stopper firms to starter firms.[9]

The continuer sample includes firms that report non-GAAP earnings numbers in both the pre- and the post-SOX periods, which enables us to hold firm-specific characteristics constant and focus on the effects of SOX and Reg. G on aggressive non-GAAP disclosures. Because these firms disclose non-GAAP earnings in both periods, we assume they do not view the change in regulation as a threat to their choice to voluntarily report adjusted earnings metrics. While it is possible that some continuer firms may have become more conservative in their exclusion choices after the regulatory change, the fact that these firms disclose non-GAAP earnings figures in both periods suggests that the fear of regulatory costs did not cause them to cease disclosing adjusted earnings metrics. We posit that continuer firms are less likely to engage in behavior that might be viewed as aggressive in the post-SOX environment because it could result in regulatory costs and a loss of reputation. Thus, our next hypothesis (stated in the alternative form) predicts a decrease in the likelihood of aggressive non-GAAP reporting by continuer firms in the post-SOX period relative to the pre-SOX period:

Hypothesis 2 (H2): Continuer firms are less likely to disclose non-GAAP earnings aggressively in the post-SOX period than in the pre-SOX period.

It is not entirely clear whether firms that begin disclosing non-GAAP earnings in the post-SOX period are more or less likely to disclose adjusted earnings numbers for aggressive reasons than firms that stopped reporting non-GAAP earnings after SOX. As stated previously, we

believe that post-SOX "starter" firms may provide non-GAAP disclosures in the post-SOX period because they perceive that the provisions of SOX and Reg. G create a type of safe harbor. In other words, as long as firms follow the guidelines outlined in Reg. G, they can avoid the threat of litigation and SEC sanctions related to non-GAAP disclosures.[10] We also separately explore firms that provided non-GAAP disclosures in the pre-SOX period, but ceased doing so after SOX ("stoppers"). The fact that stopper firms cease reporting non-GAAP numbers in the post-SOX period possibly provides ex post evidence that these managers felt their disclosures were potentially aggressive or that continuing to disclose such numbers could lead to regulatory (or criminal) action. However, we acknowledge that an alternative explanation may be that some firms appear in the stopper (starter) group because they only reported non-GAAP earnings during the pre-SOX (post-SOX) period as a result of large, one-time charges that they chose to exclude. Firms that only report adjusted earnings metrics sporadically because of the occurrence of a legitimate "one-time" event may be in these groups for logical reasons (other than reacting to the regulation of non-GAAP reporting). Nevertheless, Kolev et al. (2008), using I/B/E/S-adjusted earnings metrics as a proxy for manager-disclosed non-GAAP earnings, infer that firms that stopped reporting non-GAAP numbers in the post-SOX period had lower quality exclusions pre-SOX. Therefore, we expect that on average, stopper firms are more likely to exhibit aggressiveness in non-GAAP reporting than starter firms:

Hypothesis 3 (H3): Starter firms in the post-SOX period are less likely to disclose non-GAAP earnings aggressively than stopper firms in the pre-SOX period.

3.Sample Selection, Descriptive Statistics, and Research Design

Sample Selection

We collect press releases containing non-GAAP earnings disclosures by searching the *PR Newswire* and *Business Wire* services on LexisNexis for the years 1998-2006. Our sample

selection starts with all non-GAAP announcements in which the company discloses a non-GAAP diluted EPS figure that differs from the GAAP EPS number. Our original search uses the keywords "pro forma," "pro-forma," and "proforma." However, companies often use other terms to describe their non-GAAP earnings figures. Wallace (2002) performs a detailed categorization of non-GAAP earnings nomenclatures used by companies. Based on Wallace's (2002) categorization of adjusted earnings nomenclatures commonly used by firms, we use an expanded search string and retrieved 106,638 potential press releases.[11] After carefully reading each press release, we find 24,018 releases containing an adjusted quarterly pro forma earnings number in addition to the GAAP number. Our analyses require financial statement information from Compustat, analyst information from I/B/E/S and returns from Center for Research in Security Prices (CRSP). Moreover, we require complete data related to adjustment types. These requirements reduce our sample to 9,326 quarterly observations. To enhance comparability across our subsamples of continuers, starters, and stoppers, we subsequently delete firms that reported non-GAAP earnings only once in either the pre- or post-SOX period.[12] The final sample includes 8,136 firm-quarter observations (2,797 observations in the pre-SOX period, which includes all observations through the second quarter of 2002 and 5,339 post-SOX observations from the third quarter of 2002 through December 2006) for which the firm discloses non-GAAP earnings numbers. We then split the full sample into continuers (4,467 observations), stoppers (947 observations), and starters (2,722 observations).

Variable Descriptions

Earnings Measures. Following Black and Christensen (2009), we use the following EPS metrics. $EPS_{Non\text{-}GAAP}$ is the adjusted earnings number disclosed by managers in the earnings press release. $EPS_{I/B/E/S}$ is the actual EPS measure reported by I/B/E/S, often called the "street" earnings number in prior research (e.g., Bradshaw & Sloan, 2002). The I/B/E/S actual EPS number, $EPS_{I/B/E/S}$, is our measure of firm performance. $EPS_{I/B/E/S}$ *is* determined on an operating basis, and a company's

reported earnings are adjusted based on the adjustments made by the majority of analysts (Thomson Reuters, 2009). Our regression analyses focus on these two EPS numbers. We also employ three other Compustat-provided numbers: EPS from operations ($EPS_{GAAP\text{-}OP}$), EPS before extraordinary items (EPS_{BefExt}), and the bottom-line EPS number (EPS_{Net}), to calculate additional exclusion measures and to provide descriptive evidence. It is important to note that we use unrestated Compustat data (i.e., as originally reported) throughout the analyses.[13]

Exclusion Measures. As illustrated in Figure 1 (adapted from Christensen, 2007, and Brown, Christensen, Elliott, & Mergenthaler, 2012), we calculate total manager exclusions ($MGREXCL_{TOTAL}$), including special items and analysts' exclusions, as the difference between $EPS_{Non\text{-}GAAP}$ and GAAP EPS before extraordinary items (EPS_{BefExt}). We then decompose $MGREXCL_{TOTAL}$ into the following components: (1) analysts' total exclusions, calculated as $EPS_{I/B/E/S}$ minus EPS_{BefExt} ($ANALYSTEXCL_{TOTAL}$); and (2) managers' incremental exclusions of recurring items ($MGREXCL_{INCREMENTAL}$), calculated as $EPS_{Non\text{-}GAAP}$ minus $EPS_{I/B/E/S}$.

Note that positive values of the earnings exclusion variables indicate that income-decreasing items (such as expenses and losses) are excluded from the respective GAAP earnings figures, whereas negative values indicate that income-increasing items (such as one-time revenues or gains) are excluded. For example, positive (negative) values of $MGREXCL_{INCREMENTAL}$ indicate that managers excluded more (less) recurring expenses than analysts. We classify both below-the-line items and special items as one-time or non-recurring in nature. Therefore, any additional exclusions by analysts and/or managers are generally recurring operating items such as depreciation, amortization, and R&D expenses (i.e., recurring items).[14]

Indicators of aggressive reporting. Prior research indicates two main signals of aggressive non-GAAP reporting: (a) managers' exclusion of recurring items resulting in managers' non-GAAP earnings that exceed analysts' earnings (the I/B/E/S actual EPS) and (b) the use of non-GAAP

exclusions to report a non-GAAP number that meets or beats analysts' consensus forecast, while the I/B/E/S actual EPS number falls short (Black & Christensen, 2009; Brown, Christensen, & Elliott, 2012; Brown, Christensen, Elliott, & Mergenthaler, 2012; Christensen, 2007).[15] In addition to these prior studies, SAB 99 on materiality provides further evidence consistent with the measures related to meeting or beating analyst forecasts. In particular, it suggests that "among the considerations that may well render material a quantitatively small misstatement of a financial statement are…whether the misstatement hides a failure to meet analysts' consensus expectations for the enterprise..." (SEC, 1999).

In our empirical analyses, we examine these constructs using the following measures: (a) *INCREXCL* is an indicator variable coded 1 if managers exclude any recurring items beyond what analysts exclude (i.e., $MGREXCL_{INCREMENTAL}$ is greater than 0), and 0 otherwise[16]; and (b) *STREETBEAT* is an indicator variable coded 1 if $EPS_{Non\text{-}GAAP}$ meets or beats the consensus forecast, while $EPS_{I/B/E/S}$ falls short of the consensus estimate and 0 otherwise.[17]

Descriptive Statistics

Table 1 provides descriptive statistics for the variables of interest in our analyses. In Panel A, we compare all pre-SOX non-GAAP reporters to all post-SOX non-GAAP reporters. We find that EPS numbers are higher, on average, in the post-SOX period, reflecting general trends in the economy. In particular, there was a major economic downturn in 2000-2002 but economic growth increased from 2003-2006, our post-SOX period. We find similar results when comparing EPS numbers of pre-SOX continuers with those of post-SOX continuers (Panel B) and in comparing pre-SOX stoppers with post-SOX starters (Panel C). When we examine differences in exclusions for the full sample, we find that, on average, managers' and analysts' exclusions decrease during the post-SOX period (variables $MGREXCL_{TOTAL}$, $ANALYSTEXCL_{TOTAL}$, and $MGREXCL_{INCREMENTAL}$ in Panel A).[18] These three exclusion measures also decrease on average when we compare (a) continuers in the pre- and post-SOX periods (Panel B) and (b) pre-SOX

stoppers with post-SOX starters (Panel C). This evidence suggests that pre-SOX non-GAAP reporters (both continuers and stoppers) were more likely to exclude more earnings components (or earnings components of greater magnitude) than post-SOX non-GAAP reporters (both continuers and starters). These results are consistent with a reduction in overall exclusions, by both managers and analysts, due to the enactment of SOX.

Furthermore, in untabulated analyses, we examine the industry breakdown of pre/post-SOX firms by one-digit Standard Industrial Classification (SIC) code by restricting the sample to one quarter per firm in each period (pre- and post-SOX) to remove the potential effects of some firms influencing the industry analyses by reporting non-GAAP figures many times in the sample. In other words, if some firms report non-GAAP earnings every quarter, this could result in overrepresentation of those firms' industries. The single-firm analysis indicates a significant difference in industry breakdown when comparing (a) all pre-SOX firms with all post-SOX firms, and (b) pre-SOX stoppers with post-SOX starters. However, as expected, there is no difference in the industry breakdown when comparing pre-SOX continuers with post-SOX continuers because these firms are the same in both periods.[19]

Research Design

***Univariate tests*.** To provide preliminary evidence on H1, H2, and H3, we first perform univariate tests of the relative frequency of our two indicators of aggressive non-GAAP reporting before and after SOX. In addition, we compare the frequency of recurring non-GAAP exclusions in the pre- and post-SOX regulatory periods. We carry out these tests by making the following comparisons: (a) all pre-SOX observations versus all post-SOX observations, (b) pre-SOX continuers versus post-SOX continuers, and (c) pre-SOX stoppers versus post-SOX starters. These analyses allow us to test which firms use certain exclusions more (or less) frequently after SOX and Reg. G. The continuer firm comparisons are designed to examine whether firms that reported adjusted earnings metrics in both the pre- and post-SOX periods differ in the use of

aggressive non-GAAP reporting after the passage of SOX and Reg. G. The comparisons of stopper and starter firms explore how the use of aggressive reporting techniques compares across these firms in the pre- and post-SOX periods.

Multivariate regression analyses. Our main tests of H1, H2, and H3 examine the association between our two aggressive behavior proxies and the particular adjustments firms use to achieve these objectives. Specifically, for each subsample, we follow Black and Christensen (2009) and regress each of our measures of aggressive reporting (*INCREXCL and STREETBEAT)* on indicator variables representing recurring non-GAAP exclusions. This approach allows us to examine the extent to which specific exclusions are used in an attempt to portray firm performance in a positive light.[20]

$$INCREXCL = \gamma_0 + \gamma_1 R\&D + \gamma_2 AMORT\_DEP + \gamma_3 STOCK\_COMP + \gamma_4 INTEREST + \gamma_5 TAX + \gamma_6 LNSIZE + \gamma_7 CONTROLS + \varepsilon \quad (1)$$

$$STREETBEAT = \tau_0 + \tau_1 R\&D + \tau_2 AMORT\_DEP + \tau_3 STOCK\_COMP + \tau_4 INTEREST + \tau_5 TAX + \tau_6 LNSIZE + \tau_7 CONTROLS + \varepsilon \quad (2)$$

where *INCREXCL* is an indicator variable coded 1 if a firm's incremental manager exclusions are greater than 0, *STREETBEAT* is an indicator variable coded 1 if $EPS_{I/B/E/S}$ falls short of analysts' expectations, while $EPS_{Non\text{-}GAAP}$ meets or beats expectations, *R&D* is an indicator variable coded 1 if managers exclude research and development (R&D) costs, *AMORT_DEP* is an indicator variable coded 1 if managers exclude amortization or depreciation expense, *STOCK_COMP* is an indicator variable coded 1 if managers exclude stock-based compensation costs (excluding amortization of stock-based compensation), *INTEREST* is an indicator variable coded 1 if managers exclude interest-related costs, *TAX* is an indicator variable coded 1 if managers exclude tax-related charges, and *LNSIZE* is the natural log of total assets.

As with the univariate tests, our regression analyses compare (a) all pre-SOX with all post-SOX observations, (b) pre-SOX continuers with post-SOX continuers, and (c) pre-SOX stoppers with post-SOX starters. We first perform the regression analyses separately for each

time period and subsample. That is, we estimate each of the regression models on six separate subsamples: all pre-SOX observations, all post-SOX observations, pre-SOX continuers, post-SOX continuers, pre-SOX stoppers, and post-SOX starters. Then, to make statistical comparisons, we add a *POSTSOX* indicator variable (equal to 1 if the observation occurs in the post-SOX period) to each regression model and interact *POSTSOX* with each non-GAAP exclusion variable. For each aggressive non-GAAP exclusion measure, we estimate this expanded model on the full sample and two subsamples: only continuers and only stoppers/starters.

Our purpose in these analyses is to determine whether managers are less likely to make aggressive recurring item adjustments in calculating their non-GAAP earnings metrics in the post-SOX period. The sign and magnitude of the coefficients provide information about the degree to which each adjustment type increases or decreases the likelihood that managers demonstrate one of the two types of aggressive behavior we examine. Our focus is on whether managers exclude recurring items to achieve these aggressive objectives. Following prior studies, all regression models control for the number of analysts following the firm and forecast dispersion (Chevis, Das, & Sivaramakrishnan, 2001; Heflin & Hsu, 2008). Firms followed by a larger number of analysts may have greater incentives to meet or beat analyst forecasts. We measure analyst following as the number of analysts following the firm during the quarter from I/B/E/S. Chevis et al. (2001) suggest that a meet or beat strategy may be easier to implement when analyst forecast dispersion is lower. Therefore, we also include a control for forecast dispersion, measured as the standard deviation of analyst forecasts over the quarter as reported in I/B/E/S.

Furthermore, we include earnings quality as an additional control following Heflin & Hsu (2008). We measure earnings quality using the quarterly e-loading measure used by Ecker, Francis, Kim, Olsson, and Schipper (2006) using CRSP and the Accruals Quality (AQ) factor data from Frank Ecker's website. We also control for earnings guidance (which we collect from First Call), an indicator variable equal to 1 if managers issue earnings guidance during the

quarter, and 0 otherwise, following Brown and Higgins (2005) and Christensen et al. (2011). Other control variables include leverage, defined as total liabilities divided by common equity over the quarter (Chevis et al., 2001; Heflin & Hsu, 2008) and book-to-market computed as common equity divided by market value of equity over the quarter, using Compustat data (Heflin & Hsu, 2008). We follow Heflin and Hsu (2008) and include an indicator variable equal to 1 if the fiscal quarter is the fourth quarter. Finally, we include industry controls.

4.Results

Univariate Results

We first test for changes in the frequencies of our aggressive non-GAAP exclusion measures (*INCREXCL* and *STREETBEAT*) after SOX. Table 2 presents direct univariate tests of H1, H2, and H3. Overall, the results provide evidence consistent with the notion that the frequency of aggressive non-GAAP reporting decreased in the post-SOX period. Panel A compares all pre-SOX non-GAAP reporters with all post-SOX non-GAAP reporters for our measures of aggressiveness: (a) the existence of incremental recurring exclusions beyond what analysts exclude (*INCREXCL*) and (b) using additional exclusions to move from missing analysts' expectations based on I/B/E/S earnings to meeting or beating expectations based on a non-GAAP basis (*STREETBEAT).* In addition, it compares the exclusion of specific recurring items in the pre- and post-SOX periods. We find a significantly lower frequency of non-GAAP reporters in the post-SOX period that exclude recurring items, which are incremental to what analysts exclude: 17.1% versus 21.3%. Similarly, the percentage of firms that are able to meet or beat analyst forecasts based on non-GAAP earnings but not based on the I/B/E/S actual EPS number decreases from 4.9% to 4.3%, but the difference is not statistically significant. We find similar results in Panel B for the continuer sample and in Panel C comparing pre-SOX stoppers with post-SOX starters, except that the decrease in *STREETBEAT* is marginally significant in Panel C.

In addition, we examine the exclusion of specific recurring items in the pre- and post-SOX periods. While the exclusion of one-time items can be a way for a firm to disclose a measure of permanent earnings that is likely to be sustainable in future periods, the exclusion of recurring expenses is less justifiable and is generally regarded to be more aggressive (and thus potentially misleading to investors seeking to forecast future operating performance). Hence, our analyses focus on the following recurring items: R&D expense, amortization and depreciation, stock compensation, interest, and tax charges.

We first provide visual evidence. Figure 2 compares the percentage of observations excluding each type of recurring item. Panel A makes comparisons for the full sample, whereas Panel B makes comparisons for the continuer sample, and Panel C compares pre-SOX stoppers with post-SOX starters. In each case, we find that both R&D and amortization and depreciation decrease from the pre- to the post-SOX periods. However, stock-based compensation, interest, and tax expense exclusions increase from pre- to post-SOX. Figure 3 plots the frequency of each recurring item exclusion for the full sample over time. By superimposing all five exclusion types in the same line chart, it is easy to see how each type of exclusion has changed over our sample period. This figure indicates, for the full sample, exactly *when* the relative frequencies of each recurring exclusion type changed over time. Interestingly, while the exclusion of depreciation and amortization expenses peaked at 62% in 2001, it declined dramatically after the enactment of SOX in 2002. It also illustrates how the exclusion of stock-based compensation expense increased dramatically after the implementation of SFAS 123R in 2005.

Table 2 tests whether these shifts in the relative frequencies of recurring exclusions in each category from the pre- to the post-SOX period are statistically significant. The z-score statistics indicate that all changes are statistically significant. Moreover, the results are virtually identical across comparisons in all three panels. Specifically, we find that non-GAAP earnings in the post-SOX period exclude two recurring items less frequently: (a) R&D costs and (b) amortization and depreciation costs, consistent with H1. It should be noted that the decrease in

the frequency in which amortization and depreciation costs are excluded could be due to the changes imposed by SFAS 142 (which occurred around the same period as SOX). SFAS 142 eliminates the amortization requirement for goodwill and other indefinite-lived intangibles. Contrary to H1, non-GAAP disclosures in the post-SOX period have higher frequencies of the following recurring exclusions: (a) stock-based compensation expense, (b) interest expense, and (c) tax-related expenses. However, SFAS 123R, which became effective for reporting periods after June 15 2005, requires firms to recognize stock compensation in the income statement. Hence, it is likely that the increased exclusion of stock-based compensation is attributable to this change in standards. Consistent with this result, Barth, Gow, and Taylor (2012) find that stock compensation expense is a common exclusion in the post-SOX period.

Overall, we find mixed evidence for H_1 based on changes in the exclusion of specific recurring exclusions in the post-SOX period. However, we note that the frequency of tax and interest expense exclusions are relatively low and the increase in stock-based compensation does not appear to be related to increased aggressiveness, but simply the change in accounting standards. Hence, our results are generally consistent with a decrease in aggressiveness in the post-SOX period.

Multivariate Regression Results

We further test H1, H2, and H3 using multivariate analyses. Specifically, we examine whether managers engage in aggressive non-GAAP reporting by excluding recurring items above and beyond what analysts exclude in the post- relative to the pre-SOX period. We use our base Models 1 and 2 and their expanded versions with *POSTSOX* interactions to investigate how the regulatory changes imposed by SOX and Reg. G affect the extent to which specific types of exclusions are associated with each of our indicators of aggressive non-GAAP reporting. Table 3 reports the multivariate analyses pertaining to H1. Panel A (Panel B) presents the results of estimating Models 1 and 2 on all pre-SOX (post-SOX) observations. We present these period-

specific estimations for completeness, but we focus on the results in Panel C to statistically test H1. Panel C provides results from estimating Models 1 and 2 on the entire sample, but augmenting each model with a *POSTSOX* indicator variable and its interaction with each recurring exclusion indicator variable. The estimated coefficients on these interaction terms constitute our formal tests of H1.

When we estimate Models 1 and 2 using the full sample with interaction terms (Table 3, Panel C), we focus on changes in the association between excluding recurring items and indicators of aggressive non-GAAP reporting. We first summarize the results of Model 1. Specifically, we investigate the significance of interactions between recurring item indicator variables and the *POSTSOX* indicator variable in these models. The significantly negative coefficient on the *AMORT_DEP* × *POSTSOX* interaction term indicates that managers are less likely in the post-SOX period to exclude amortization and depreciation when analysts do not, consistent with H1. This result may also be influenced by the implementation of SFAS 142 in June of 2001. The significantly positive coefficient on the *STOCK_COMP* × *POSTSOX* interaction term suggests that managers are more likely to exclude stock-based compensation when analysts do not.[21] Finally, the coefficient on the *TAX* × *POSTSOX* interaction term is also significantly positive at the 5% level. When we perform separate analyses for the pre- and the post-SOX periods, we find that in the pre-SOX period (Panel A) managers were less likely to exclude tax-related items when analysts did not. However, this relation does not hold as it is not significant in the post-SOX period (Panel B).

Model 2 explores our second measure of aggressive non-GAAP reporting (*STREETBEAT*): the use of non-GAAP exclusions to meet or beat analysts' consensus forecast when the I/B/E/S actual EPS number falls short. The significantly negative coefficient on the *AMORT_DEP* × *POSTSOX* interaction term indicates that managers are less likely in the post-SOX period to exclude amortization and depreciation when analysts do not to meet/beat analysts' expectations, consistent with H1. However, the significantly positive coefficient on the *STOCK_COMP* × *POSTSOX* interaction term suggests that in the post-SOX period managers are

more likely to exclude stock-based compensation when analysts do not to meet expectations. We also find a significantly positive coefficient on the *INTEREST* × *POSTSOX* interaction term. When we perform separate analyses for the pre- and post-SOX periods, we find that while the coefficient on *INTEREST* is significantly negative in the pre-SOX period (Panel A), it is not statistically significant in the post-SOX period (Panel B).

Table 4 follows the same format as Table 3, except that it presents results for our tests of H2 for continuer firms. As with Table 3, we focus on Panel C of Table 4, which presents the results for Models 1 and 2 in which the exclusion variables are interacted with the *POSTSOX* indicator variable. The results for Model 1 indicate that, consistent with H2, managers are less likely to exclude amortization and depreciation in the post-SOX period when analysts are not willing to do so. However, they are more likely after SEC intervention to exclude stock-based compensation. The results from estimating Model 2 investigate managers' propensity in the post-SOX period to exclude incremental recurring earnings components to meet or beat analysts' expectations when I/B/E/S actual EPS would otherwise fall short. The results suggest that managers are more likely in the post-SOX period to exclude stock-based compensation-related costs when analysts do not to meet/beat analysts' expectations. We do not find evidence that any of the other recurring items are more or less likely to be excluded by managers for continuers in the post-SOX period.

Taken together, the results presented in Table 4 indicate that managers are less likely in the post-SOX period to utilize certain recurring exclusions such as amortization and depreciation to meet their opportunistic motivations, while there is evidence that managers are more likely to exclude stock-based compensation in the post-SOX period to achieve their aggressive targets. Overall, these results are consistent with the notion that firms that reported non-GAAP numbers in both the pre- and post-SOX periods perceive net benefits from non-GAAP reporting and they are therefore less likely to engage in overly aggressive non-GAAP reporting in the post-SOX period.

Similar to the previous two tables, Panel C of Table 5 presents our tests of H3 on the stopper/starter subsample of firms. The results for Model 1 indicate that, consistent with H3, managers are less likely to exclude amortization and depreciation in the post-SOX period when analysts are not willing to do so. However, they are slightly more likely after SEC intervention to exclude R&D expense (which is marginally significant). In addition, they are more likely to exclude stock-based compensation post-SOX. Model 2 investigates managers' propensity to exclude earnings components that analysts do not exclude to meet or beat analysts' expectations. Consistent with H3, the results indicate that managers are less likely in the post-SOX period to exclude amortization and depreciation (marginally significant). Contrary to H3, the results indicate that managers are more likely in the post-SOX period to exclude both interest and stock-based compensation to meet analysts' expectations.[22]

Taken together, the results presented in Tables 3 to 5 indicate that SOX and Reg. G reduced the likelihood of opportunistic non-GAAP exclusions, but there is also some evidence that managers of firms that started reporting non-GAAP numbers in the post-SOX period are more likely to utilize certain recurring exclusions such as interest, tax and stock-based compensation exclusions to meet their opportunistic motivations. Hence, our results illustrate the influence of SOX and Reg. G in non-GAAP exclusions as well as the changes in accounting rules. The following section specifically examines the impact of the introduction of SFAS 123R on our results.

Additional Analyses

In our main analyses discussed in the Multivariate Regression Results section, we find evidence that managers are more likely to exclude stock-based compensation (a) when analysts do not and (b) to meet analyst expectations. As the accounting standard governing share-based payments SFAS 123 was superseded by SFAS 123R (which requires the recognition of stock-compensation expense) during our post-SOX period, our results relative to *STOCK_COMP* may

be influenced by the implementation of SFAS No.123R. To address this concern and shed more light on whether our results are attributable primarily to SOX or the implementation of SFAS 123R, we conduct additional analyses examining the impact of SFAS 123R, which became effective for reporting periods beginning after June 15, 2005. In particular, we repeat the multivariate analyses reported in Tables 3, 4 and 5 after excluding post-SFAS-123R observations. Finding similar results about stock compensation after excluding the post-SFAS-123R observations would suggest that managers exclude stock-based compensation opportunistically. However, finding that *STOCK_COMP* is no longer statistically significant in our regressions after excluding the post-SFAS 123R observations would suggest that our results regarding stock-based compensation are primarily attributable to the implementation of SFAS 123R and not the implementation of SOX.

We find that the results related to *STOCK_COMP* in Table 3 (using the full sample) are robust to the exclusion of post-SFAS-123R observations for both Models 1 and 2 (even though they are less statistically or economically significant). Hence, we conclude that stock-based compensation exclusions are used opportunistically by managers to appear to meet or beat analyst forecasts in the post-SOX period when analysts choose not to exclude this expense. This result is consistent with Barth et al.'s (2012) evidence, though it is clear that the implementation of SFAS 123R in the latter part of our sample period also influences our results (i.e., managers are also more likely to exclude stock-compensation expense in the post-SFAS-123R period).

When we repeat Model 1 reported in Tables 4 and 5 for continuer and stopper/starter firms respectively, the results are robust to the exclusion of post-SFAS-123R observations, suggesting that managers of continuer firms in the post-SOX period and of starter firms in the post-SOX period are more likely to exclude stock-based compensation when analysts do not. These results are consistent with those reported previously for the full sample. However, the coefficient on *STOCK_COMP* is no longer statistically significant when we exclude post-SFAS-123R observations and repeat the Model 2 regressions reported in Tables 4 and 5. This result, as

well as the sharp rise in stock-compensation exclusions shown in Figure 3, suggests that the evidence for our second aggressiveness measure (*STREETBEAT*) for these specific subsamples is strongly influenced by the implementation of SFAS 123R. Overall, the additional analyses suggest that the results regarding stock-based compensation are partially attributable to the implementation of SFAS 123R during the latter part of our post-SOX period, requiring firms to recognize compensation-related expenses at fair value. However, we also find evidence consistent with the notion that managers exclude stock compensation for opportunistic reasons.

5.Conclusion

U.S. firms have continued to disclose non-GAAP earnings figures even though the Sarbanes-Oxley Act of 2002 (SOX) and Regulation G impose strict requirements regulating the reporting of non-GAAP numbers. In addition, emphasis on non-GAAP reporting was recently renewed when the SEC declared that non-GAAP earnings are a "fraud risk factor" (Leone, 2010). In this context, we investigate the extent to which regulation has curbed potentially misleading non-GAAP disclosures.

We first examine the influence of SOX and Reg. G on our full sample of pre-SOX and post-SOX non-GAAP reporters. Building on evidence in prior research that firms used lower quality exclusions in the pre-SOX period, we split the sample based on whether firms report non-GAAP numbers in both the pre- and post-SOX periods (continuer firms), only in the pre-SOX period (stopper firms), or only in the post-SOX (starter firms) regulatory period. Overall, the results suggest that the enactment of SOX and the implementation of Reg. G have achieved their intended purposes to a certain extent. In particular, we provide evidence that managers generally exclude fewer recurring items upon which analysts disagree in the post-SOX regulatory period and that managers are also less likely to make recurring exclusions to meet strategic earnings targets, such as meeting or beating analyst forecasts on a non-GAAP basis when firms would have missed this target under I/B/E/S actual EPS. However, some firms continue to exclude

recurring items such as interest, tax and stock-based compensation expenses in the post-SOX period, even though the latter result is partly influenced by changes in accounting rules. From these results, we conclude that even though regulation has influenced aggressive non-GAAP disclosures, a number of firms still appear to endorse aggressive non-GAAP exclusions.

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Figure 1
Illustration of the Calculation of Exclusion Variables

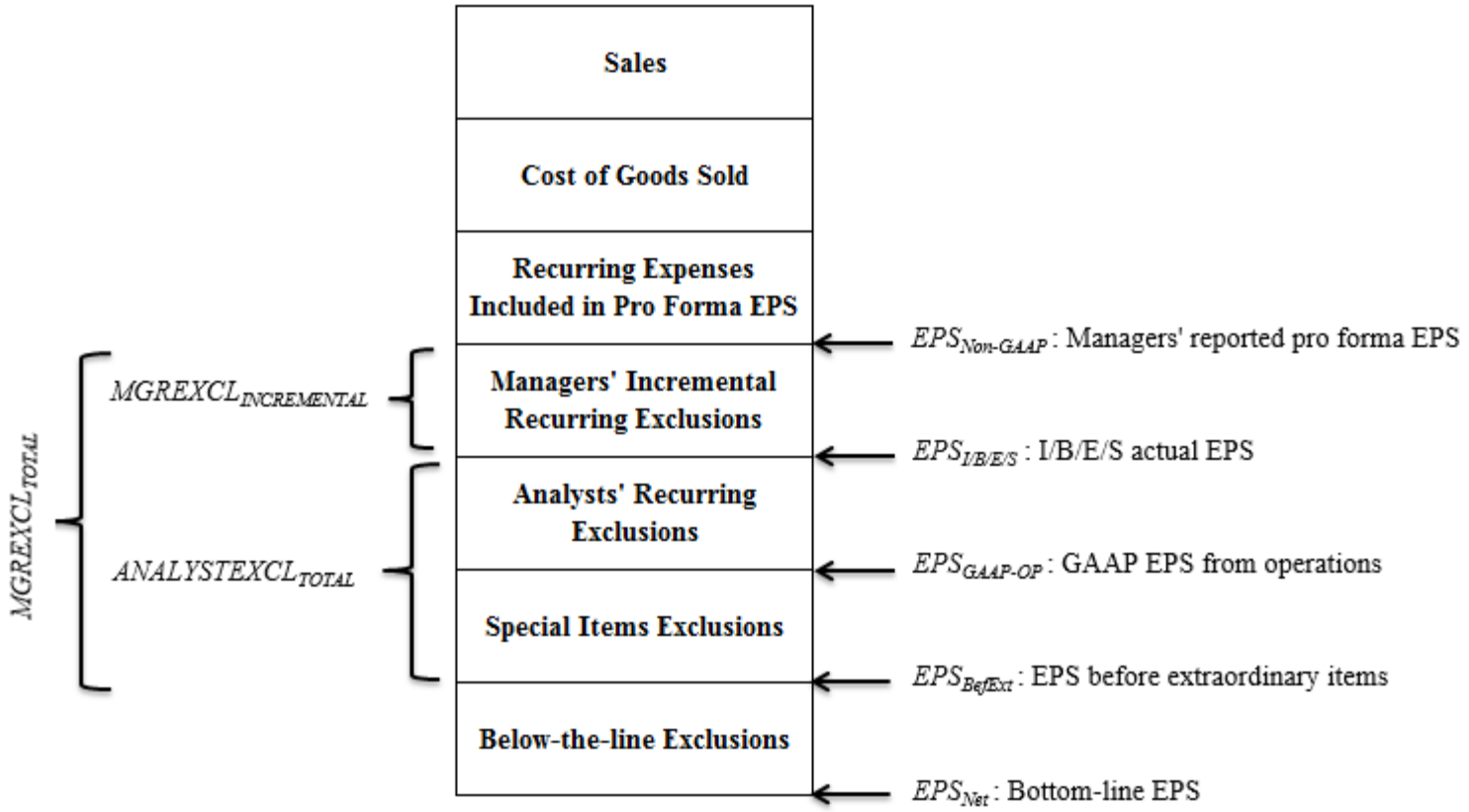
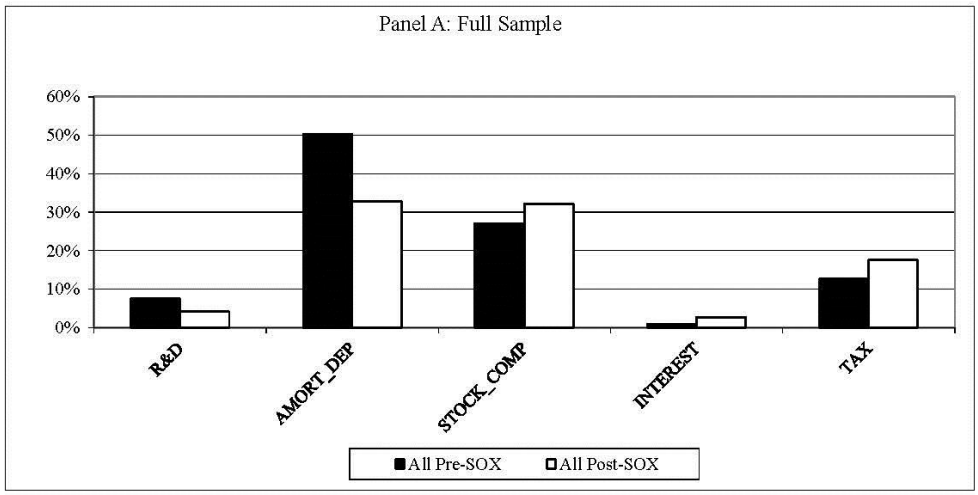
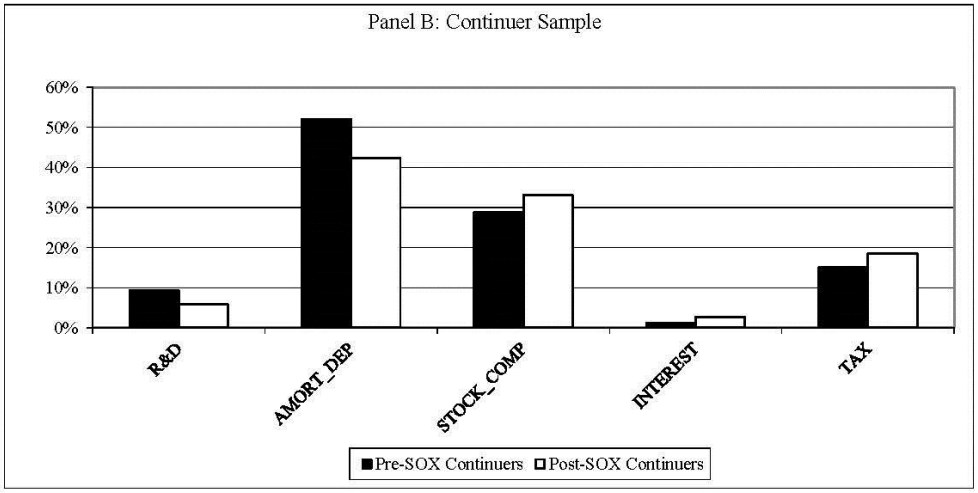


Figure 1. Illustration of the calculation of exclusion variables. Note. EPS = earnings per share; $MGREXCL_{TOTAL}$ = managers' total above-the-line exclusions ($EPS_{Non\text{-}GAAP}$ - EPS_{BefExt}); $MGREXCL_{INCREMENTAL}$ = managers' incremental above-the-line exclusions beyond those made by analysts ($EPS_{Non\text{-}GAAP}$ - $EPS_{I/B/E/S}$); $ANALYSTEXCL_{TOTAL}$ = analysts' total above-the-line exclusions ($EPS_{I/B/E/S}$ - EPS_{BefExt}); $EPS_{Non\text{-}GAAP}$ = manager-adjusted GAAP earnings per share from the press release; $EPS_{I/B/E/S}$ = I/B/E/S unadjusted actual earnings per share; $EPS_{GAAP\text{-}OP}$ = Compustat diluted operating earnings per share; EPS_{BefExt} = Compustat diluted EPS before extraordinary items; EPS_{Net} = Compustat diluted EPS; GAAP = generally accepted accounting principles; I/B/E/S = Institutional Brokers' Estimate System.

Figure 2
Pro Forma Exclusion Frequencies Pre/Post SOX





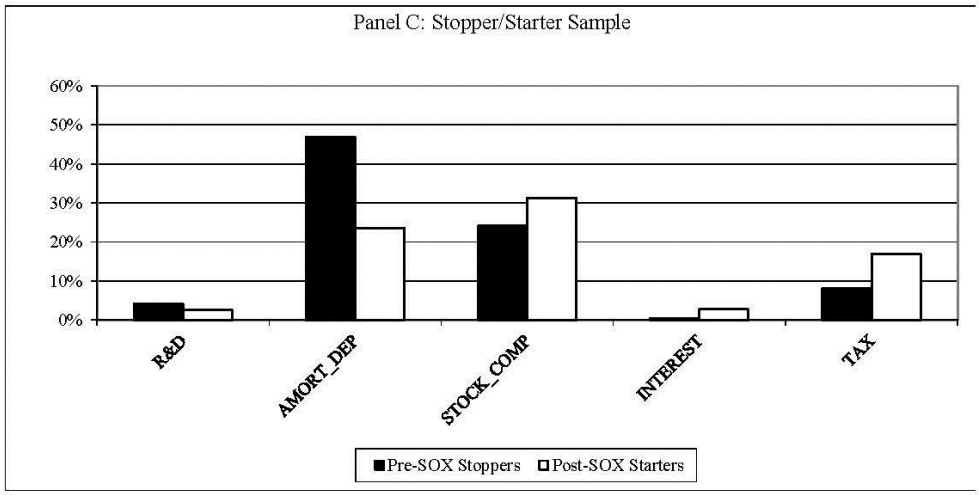


Figure 2. Non-GAAP exclusion frequencies pre/post-SOX.

Note. See Table 2 for definitions of exclusion types. SOX = Sarbanes–Oxley Act; R&D = research and development; AMORT_DEP = depreciation and amortization costs (excluding amortization of stock-based compensation); STOCK_COMP = stock-based compensation costs; INTEREST = interest-related items; TAX = tax-related items.

Figure 3
Recurring Exclusion Types as a Percentage of Total Exclusions

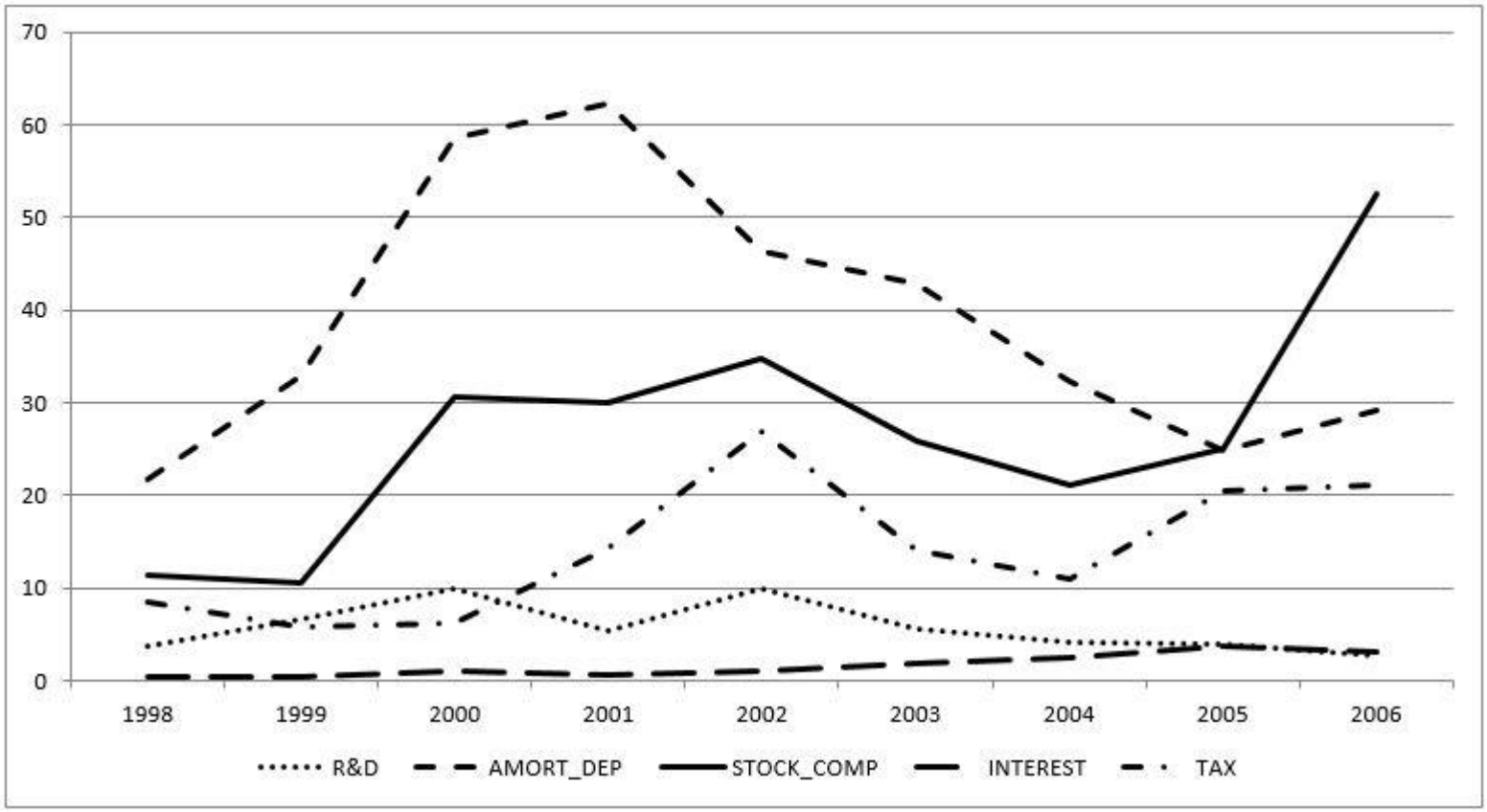


Figure 3. Recurring exclusion types as a percentage of total exclusions.

Note. R&D = research and development; AMORT_DEP = depreciation and amortization costs (excluding amortization of stock-based compensation); STOCK_COMP = stock-based compensation costs; INTEREST = interest-related items; TAX = tax-related items.

Table 1. Descripitve Statistics.

Panel A: Full Sample.

	Pre-SOX (n=2,797)				Post-SOX (n=5,339)					
Variable	*Q1*	*Mean*	*Median*	*Q3*	*Q1*	*Mean*	*Median*	*Q3*	*Difference*	*t statistic*
$EPS_{Non\text{-}GAAP}$	0.010	0.216	0.150	0.390	0.100	0.355	0.280	0.520	-0.139	-14.375 ***
$EPS_{I/B/E/S}$	0.000	0.203	0.150	0.370	0.100	0.349	0.270	0.510	-0.146	-15.272 ***
$EPS_{GAAP\text{-}OP}$	-0.110	0.077	0.100	0.360	0.060	0.314	0.240	0.490	-0.237	-12.039 ***
EPS_{BefExt}	-0.190	-0.033	0.050	0.320	0.020	0.233	0.200	0.460	-0.266	-11.569 ***
EPS_{Net}	-0.200	-0.052	0.050	0.310	0.020	0.234	0.200	0.460	-0.286	-11.750 ***
$MGREXCL_{TOTAL}$	0.030	0.249	0.080	0.210	0.010	0.122	0.040	0.120	0.127	6.185 ***
$ANALYSTEXCL_{TOTAL}$	0.000	0.235	0.060	0.200	0.000	0.116	0.030	0.110	0.119	5.819 ***
$MGREXCL_{INCREMENTAL}$	0.000	0.013	0.000	0.000	0.000	0.006	0.000	0.000	0.007	8.171 ***
TOTASSET	228.676	6735.794	756.913	2676.753	417.319	10849.566	1341.199	4504.645	-4113.772	-3.363 ***

Panel B: Continuer Subample.

	Pre-SOX Continuers (n=1,850)				Post-SOX Continuers (n=2,617)					
Variable	*Q1*	*Mean*	*Median*	*Q3*	*Q1*	*Mean*	*Median*	*Q3*	*Difference*	*t statistic*
$EPS_{Non\text{-}GAAP}$	0.020	0.217	0.150	0.350	0.070	0.323	0.240	0.470	-0.106	-8.589 ***
$EPS_{I/B/E/S}$	0.020	0.205	0.150	0.340	0.080	0.320	0.240	0.470	-0.115	-9.374 ***
$EPS_{GAAP\text{-}OP}$	-0.090	0.097	0.100	0.320	0.040	0.278	0.200	0.450	-0.181	-9.500 ***
EPS_{BefExt}	-0.160	-0.046	0.050	0.280	0.010	0.196	0.170	0.410	-0.242	-6.954 ***
EPS_{Net}	-0.170	-0.055	0.050	0.270	0.000	0.197	0.170	0.420	-0.252	-7.165 ***
$MGREXCL_{TOTAL}$	0.030	0.263	0.080	0.220	0.010	0.127	0.040	0.120	0.136	4.205 ***
$ANALYSTEXCL_{TOTAL}$	0.010	0.251	0.060	0.210	0.000	0.124	0.040	0.110	0.127	3.947 ***
$MGREXCL_{INCREMENTAL}$	0.000	0.012	0.000	0.000	0.000	0.004	0.000	0.000	0.008	7.128 ***
TOTASSET	282.226	7040.632	854.695	2537.724	464.289	9649.634	1465.927	5315.867	-2609.002	-2.301 *

Panel C: Stopper/Starter Subample.

	Pre-SOX Stoppers (n=947)				Post-SOX Starters (n=2,722)					
Variable	*Q1*	*Mean*	*Median*	*Q3*	*Q1*	*Mean*	*Median*	*Q3*	*Difference*	*t statistic*
$EPS_{Non\text{-}GAAP}$	-0.050	0.214	0.160	0.450	0.130	0.385	0.310	0.560	-0.171	-10.812 ***
$EPS_{I/B/E/S}$	-0.050	0.198	0.140	0.430	0.130	0.377	0.300	0.560	-0.179	-11.354 ***
$EPS_{GAAP\text{-}OP}$	-0.160	0.037	0.110	0.420	0.080	0.350	0.280	0.540	-0.313	-7.865 ***
EPS_{BefExt}	-0.250	-0.006	0.050	0.400	0.050	0.268	0.240	0.500	-0.274	-9.914 ***
EPS_{Net}	-0.270	-0.044	0.050	0.400	0.040	0.270	0.240	0.500	-0.314	-9.495 ***
$MGREXCL_{TOTAL}$	0.020	0.220	0.080	0.190	0.010	0.117	0.040	0.120	0.103	4.789 ***
$ANALYSTEXCL_{TOTAL}$	0.000	0.204	0.040	0.190	0.000	0.109	0.030	0.110	0.095	4.413 ***
$MGREXCL_{INCREMENTAL}$	0.000	0.016	0.000	0.010	0.000	0.008	0.000	0.000	0.008	5.292 ***
TOTASSET	165.169	6140.281	541.549	2964.915	388.667	12003.211	1264.560	4036.534	-5862.930	-2.345 *

Note. SOX = Sarbanes–Oxley Act; $EPS_{Non\text{-}GAAP}$ = manager-adjusted GAAP earnings per share from the press release; $EPS_{I/B/E/S}$ = I/B/E/S unadjusted actual earnings per share; $EPS_{GAAP\text{-}OP}$ = Compustat diluted operating earnings per share; EPS_{BefExt} = Compustat diluted EPS before extraordinary items; EPS_{Net} = Compustat diluted EPS; $MGREXCL_{TOTAL}$ = managers' total above-the-line exclusions ($EPS_{Non\text{-}GAAP}$ - EPS_{BefExt}); $ANALYSTEXCL_{TOTAL}$ = analysts' total above-the-line exclusions ($EPS_{I/B/E/S}$ - EPS_{BefExt}); $MGREXCL_{INCREMENTAL}$ = managers' incremental above-the-line exclusions beyond those made by analysts ($EPS_{Non\text{-}GAAP}$ - $EPS_{I/B/E/S}$); TOTASSET = total assets in US$ millions at the end of the quarter; I/B/E/S = Institutional Brokers' Estimate System.

*Significant at the .10 level. **Significant at the .05 level. ***Significant at the .01 level.

Table 2. Pre/Post SOX Comparisons of Strategic Benchmark Measures and Non-GAAP Exclusion Frequencies.

Panel A: Full Sample.

	Pre-SOX (n=2,797)		**Post-SOX (n=5,339)**				
Aggressive Reporting Measures	*Frequency*	*%*	*Frequency*	*%*	*Difference(%)*	*z-score*	
INCREXCL	595	21.3	912	17.1	4.2	4.62	***
STREETBEAT	138	4.9	231	4.3	0.6	1.25	
Recurring Item Exclusions							
R&D	209	7.5	224	4.2	3.3	6.25	***
AMORT_DEP	1,406	50.3	1,751	32.8	17.5	15.36	***
STOCK_COMP	759	27.1	1,719	32.2	-5.1	-4.71	***
INTEREST	25	0.9	144	2.7	-1.8	-5.42	***
TAX	354	12.7	940	17.6	-4.9	-5.80	***

Panel B: Continuer Subample.

	Pre-SOX (n=1,850)		**Post-SOX (n=2,617)**				
Aggressive Reporting Measures	*Frequency*	*%*	*Frequency*	*%*	*Difference(%)*	*z-score*	
INCREXCL	339	18.3	365	13.9	4.4	3.95	***
STREETBEAT	79	4.3	101	3.9	0.4	0.69	
Recurring Item Exclusions							
R&D	171	9.2	153	5.8	3.4	4.31	***
AMORT_DEP	962	52	1,108	42.3	9.7	6.38	***
STOCK_COMP	531	28.7	866	33.1	-4.4	-3.12	***
INTEREST	21	1.1	70	2.7	-1.6	-3.59	***
TAX	278	15	484	18.5	-3.5	-3.03	***

Panel C: Stopper/Starter Subample.

	Pre-SOX (n=947)		**Post-SOX (n=2,722)**				
Aggressive Reporting Measures	*Frequency*	*%*	*Frequency*	*%*	*Difference(%)*	*z-score*	
INCREXCL	256	27.0	547	20.1	6.9	4.45	***
STREETBEAT	59	6.2	130	4.8	1.4	1.74	*
Recurring Item Exclusions							
R&D	38	4.0	71	2.6	1.4	2.19	**
AMORT_DEP	444	46.9	643	23.6	23.3	13.50	***
STOCK_COMP	228	24.1	853	31.3	-7.2	-4.22	***
INTEREST	4	0.4	74	2.7	-2.3	-4.22	***
TAX	76	8.0	456	16.8	-8.8	-6.57	***

Note. SOX = Sarbanes–Oxley Act; *INCREXCL* = 1 if $MGREXCL_{INCREMENTAL}$ is greater than 0; *STREETBEAT* = 1 if $EPS_{Non\text{-}GAAP}$ is greater than or equal to the mean analyst forecast, while $EPS_{I/B/E/S}$ is less than the mean analyst forecast; *R&D* = research and development (R&D) costs; *AMORT_DEP* = depreciation and amortization costs (excluding amortization of stock-based compensation); *STOCK_COMP* = stock-based compensation costs; *INTEREST*= interest-related items; *TAX* = tax-related items; *I/B/E/S* = Institutional Brokers' Estimate System.
*Significant at the .10 level. **Significant at the .05 level. ***Significant at the .01 level.

Table 3. Full Sample Analysis: Exclusions Used for Strategic Non-GAAP Earnings Benchmarks.

Panel A: All Pre-SOX Observations (n=2,797)

	Model (1) INCREXCL		Model (2) STREETBEAT	
Variable	*Coefficient*	*t statistic*	*Coefficient*	*t statistic*
INTERCEPT	0.168	2.155 **	0.072	2.478 **
R&D	-0.042	-1.673 *	0.000	0.001
AMORT_DEP	0.214	10.024 ***	0.032	3.425 ***
STOCK_COMP	-0.043	-2.242 **	-0.023	-2.197 **
INTEREST	0.024	0.370	-0.037	-4.526 ***
TAX	-0.042	-2.360 **	-0.008	-0.747
LNSIZE	0.018	2.017 **	-0.003	-0.748
CONTROLS	YES		YES	
Adjusted R^2	0.298		0.020	

Panel B: All Post-SOX Observations (n=5,339)

	Model (1) INCREXCL		Model (2) STREETBEAT	
Variable	*Coefficient*	*t statistic*	*Coefficient*	*t statistic*
INTERCEPT	0.179	3.010 ***	0.060	2.382 **
R&D	-0.069	-3.342 ***	-0.011	-0.914
AMORT_DEP	-0.003	-0.162	0.006	0.670
STOCK_COMP	0.229	11.507 ***	0.038	4.560 ***
INTEREST	-0.005	-0.113	0.012	0.637
TAX	-0.017	-1.126	0.005	0.645
LNSIZE	-0.001	-0.114	-0.002	-0.616
CONTROLS	YES		YES	
Adjusted R^2	0.116		0.020	

Panel C: All Observations (n=8,136)

	Model (1) INCREXCL		Model (2) STREETBEAT	
Variable	*Coefficient*	*t statistic*	*Coefficient*	*t statistic*
INTERCEPT	0.171	3.330 ***	0.066	3.158 ***
R&D	-0.066	-2.581 ***	0.001	0.080
AMORT_DEP	0.235	11.672 ***	0.034	3.780 ***
STOCK_COMP	-0.055	-2.689 ***	-0.020	-1.973 **
INTEREST	0.006	0.091	-0.037	-5.168 ***
TAX	-0.060	-3.389 ***	-0.007	-0.614
R&D×POSTSOX	0.012	0.352	-0.013	-0.730
AMORT_DEP×POSTSOX	-0.240	-9.275 ***	-0.029	-2.360 **
STOCK_COMP×POSTSOX	0.299	11.036 ***	0.058	4.677 ***
INTEREST×POSTSOX	-0.007	-0.091	0.049	2.439 **
TAX×POSTSOX	0.051	2.213 **	0.012	0.959
POSTSOX	-0.026	-1.671 *	-0.006	-0.911
LNSIZE	0.008	1.375	-0.002	-0.984
CONTROLS	YES		YES	
Adjusted R^2	0.173		0.019	

Note. The full sample includes 8,136 observations: 2,797 pre-SOX and 5,339 post-SOX. p values are based on heteroskedasticity robust standard errors clustered by firm; SOX = Sarbanes–Oxley Act; POSTSOX = 1 if the observation occurs in the post-SOX period (all quarters from the third quarter of 2002 through December 2006); LNSIZE = natural log of total assets from the respective quarter. All other variables defined in Tables 1 and 2.
*Significant at the .10 level. **Significant at the .05 level. ***Significant at the .01 level.

Table 4. Continuer Subsample Analysis: Exclusions Used for Strategic Non-GAAP Earnings Benchmarks.

Panel A: Pre-SOX Continuers (n=1,850)

	Model (1) INCREXCL		Model (2) STREETBEAT	
Variable	*Coefficient*	*t statistic*	*Coefficient*	*t statistic*
INTERCEPT	0.099	1.133	0.042	1.342
R&D	-0.010	-0.357	0.010	0.613
AMORT_DEP	0.181	7.293 ***	0.028	2.721 ***
STOCK_COMP	-0.041	-1.891 *	-0.019	-1.599
INTEREST	0.007	0.105	-0.036	-3.314 ***
TAX	-0.047	-2.488 **	-0.007	-0.559
LNSIZE	0.018	1.932 *	-0.000	-0.040
CONTROLS	YES		YES	
Adjusted R^2	0.282		0.024	

Panel B: Post-SOX Continuers (n=2,617)

	Model (1) INCREXCL		Model (2) STREETBEAT	
Variable	*Coefficient*	*t statistic*	*Coefficient*	*t statistic*
INTERCEPT	-0.030	-0.418	0.003	0.085
R&D	-0.035	-1.620	-0.011	-0.882
AMORT_DEP	0.032	1.243	0.016	1.367
STOCK_COMP	0.143	5.801 ***	0.018	1.629
INTEREST	-0.036	-0.585	-0.010	-0.476
TAX	-0.028	-1.417	-0.004	-0.353
LNSIZE	0.016	1.889 *	0.004	0.968
CONTROLS	YES		YES	
Adjusted R^2	0.148		0.020	

Panel C: All Continuers (n=4,467)

	Model (1) INCREXCL		Model (2) STREETBEAT	
Variable	*Coefficient*	*t statistic*	*Coefficient*	*t statistic*
INTERCEPT	0.018	0.292	0.018	0.684
R&D	-0.021	-0.741	0.010	0.606
AMORT_DEP	0.188	8.041 ***	0.028	2.848 ***
STOCK_COMP	-0.041	-1.902 *	-0.016	-1.437
INTEREST	0.004	0.062	-0.033	-4.144 ***
TAX	-0.053	-2.771 ***	-0.005	-0.433
R&D×POSTSOX	-0.006	-0.170	-0.021	-1.204
AMORT_DEP×POSTSOX	-0.159	-5.297 ***	-0.015	-1.005
STOCK_COMP×POSTSOX	0.191	6.202 ***	0.034	2.387 **
INTEREST×POSTSOX	-0.034	-0.402	0.025	1.120
TAX×POSTSOX	0.028	1.039	0.002	0.153
POSTSOX	-0.022	-1.069	-0.004	-0.449
LNSIZE	0.019	2.572 **	0.002	0.726
CONTROLS	YES		YES	
Adjusted R^2	0.207		0.022	

Note. The continuer sample includes 4,467 observations: 1,850 pre-SOX and 2,617 post-SOX. p values are based on heteroskedasticity robust standard errors clustered by firm; SOX = Sarbanes–Oxley Act; POSTSOX = 1 if the observation occurs in the post-SOX period (all quarters from the third quarter of 2002 through December 2006); LNSIZE = natural log of total assets from the respective quarter. All other variables defined in Tables 1 and 2.
*Significant at the .10 level. **Significant at the .05 level. ***Significant at the .01 level.

Table 5. Stopper/Starter Subsample Analysis: Exclusions Used for Strategic Non-GAAP Earnings Benchmarks.

Panel A: Pre-SOX Stoppers (n=947)

	Model (1) INCREXCL		Model (2) STREETBEAT	
Variable	*Coefficient*	*t statistic*	*Coefficient*	*t statistic*
INTERCEPT	0.366	2.690 ***	0.141	2.150 **
R&D	-0.148	-3.117 ***	-0.035	-1.160
AMORT_DEP	0.278	7.123 ***	0.042	2.180 **
STOCK_COMP	-0.034	-0.841	-0.031	-1.527
INTEREST	0.171	0.948	-0.043	-2.315 **
TAX	-0.023	-0.524	-0.018	-0.684
LNSIZE	0.011	0.587	-0.008	-1.004
CONTROLS	YES		YES	
Adjusted R^2	0.325		0.004	

Panel B: Post-SOX Starters (n=2,722)

	Model (1) INCREXCL		Model (2) STREETBEAT	
Variable	*Coefficient*	*t statistic*	*Coefficient*	*t statistic*
INTERCEPT	0.306	3.669 ***	0.105	3.141 ***
R&D	-0.099	-2.377 **	-0.006	-0.245
AMORT_DEP	-0.028	-0.986	-0.001	-0.074
STOCK_COMP	0.306	10.629 ***	0.057	4.608 ***
INTEREST	0.027	0.498	0.034	1.128
TAX	-0.015	-0.648	0.012	0.901
LNSIZE	-0.007	-0.781	-0.006	-1.246
CONTROLS	YES		YES	
Adjusted R^2	0.139		0.026	

Panel C: All Stoppers/Starters (n=3,669)

	Model (1) INCREXCL		Model (2) STREETBEAT	
Variable	*Coefficient*	*t statistic*	*Coefficient*	*t statistic*
INTERCEPT	0.336	4.539 ***	0.125	4.034 ***
R&D	-0.205	-4.335 ***	-0.030	-1.037
AMORT_DEP	0.318	8.461 ***	0.041	2.315 **
STOCK_COMP	-0.068	-1.609	-0.023	-1.182
INTEREST	0.142	0.793	-0.049	-2.870 ***
TAX	-0.067	-1.575	-0.015	-0.592
R&D×POSTSOX	0.122	1.917 *	0.023	0.584
AMORT_DEP×POSTSOX	-0.347	-7.527 ***	-0.043	-1.919 *
STOCK_COMP×POSTSOX	0.395	7.865 ***	0.077	3.402 ***
INTEREST×POSTSOX	-0.112	-0.600	0.084	2.437 **
TAX×POSTSOX	0.061	1.263	0.026	0.944
POSTSOX	-0.053	-2.085 **	-0.013	-0.991
LNSIZE	0.002	0.189	-0.007	-1.802 *
CONTROLS	YES		YES	
Adjusted R^2	0.182		0.022	

Note. The stopper/starter sample includes 3,669 observations: 947 pre-SOX and 2,722 post-SOX. p values are based on heteroscedasticity robust standard errors clustered by firm; SOX = Sarbanes–Oxley Act; POSTSOX = 1 if the observation occurs in the post-SOX period (all quarters from the third quarter of 2002 through December 2006); LNSIZE = natural log of total assets from the respective quarter. All other variables defined in Tables 1 and 2.
*Significant at the .10 level. **Significant at the .05 level. ***Significant at the .01 level.

[1] "In response to a loss of confidence among American investors reminiscent of the Great Depression, President George W. Bush signed the Sarbanes-Oxley Act into law on July 30, 2002" Welytok (2006, p. 9). As an indication of its significance, then Securities and Exchange Commission (SEC) chairman, William Donaldson, called it the most important securities legislation since the original federal securities laws of the 1930s (SEC, 2003).

[2] Chen, Krishnan, & Pevzner (2012) lend credibility to the SEC's recent concerns, noting that it is quite unclear how Reg. G has influenced non-GAAP disclosures.

[3] These results corroborate those reported by Lobo and Zhou (2010) that SOX resulted in more conservative earnings practices.

[4] Bhattacharya, Black, Christensen and Larson (2003) indicate that while Institutional Brokers' Estimate System (I/B/E/S) earnings and manager-adjusted non-GAAP earnings are the same about two thirds of the time, they are statistically different from one another. Using I/B/E/S as a proxy for non-GAAP earnings implies that some firms that do not voluntarily disclose non-GAAP numbers may be included in the sample. In addition, managers sometimes exclude recurring expenses in calculating non-GAAP earnings that analysts do not exclude. See Bhattacharya et al. (2003) and Easton (2003) for a detailed discussion of these issues.

[5] See Young (2014) for a comprehensive review of this literature.

[6] More recently, Whipple (2015) explores patterns in analyst-adjusted non-GAAP earnings metrics that exclude recurring items. His evidence suggests that all recurring items are not equal. In particular, his results imply that it is inappropriate to conclude that all recurring item exclusions are opportunistic. However, Whipple uses I/B/E/S earnings data and thus cannot address the *incremental* recurring exclusions managers make above and beyond what analysts exclude, which is the focus of our study. We contend that when managers exclude more than what analysts are willing to exclude, then there is more scope for opportunistic reporting.

[7] An alternative, non-mutually exclusive reason for intervention was to harmonize the reporting of non-GAAP numbers aiming to enhance comparability and the usefulness of these numbers (Halsey & Soybel, 2002). We thank the associate editor for this insight.

[8] For example, Andersson and Hellman (2007) find that the way firm performance is presented has an impact on analysts' earnings forecasts. Analysts may also be inclined to endorse managers' non-GAAP exclusions to curry favor with managers (Feng & McVay, 2010).

[9] We have also performed analyses comparing pre-Sarbanes-Oxley Act (SOX) continuers with firms that stopped reporting non-GAAP earnings, and we find that stoppers have marginally higher incremental managerial exclusions beyond those endorsed by analysts. We also compare post-SOX continuers with firms that started reporting non-GAAP earnings in the post-SOX period, and we find that starters have significantly higher incremental managerial exclusions, non-GAAP earnings per share (EPS), I/B/E/S unadjusted actual earnings, operating earnings, earnings before extraordinary items, and net earnings.

[10] It is possible these firms began to report non-GAAP earnings in response to accounting rule changes, such as the recognition of stock option compensation expense. We explore these accounting rule changes, specifically stock compensation expense from the adoption of SFAS 123R, and their effects on our results.

[11] Our expanded search string is "earnings excluding," "net income excluding," "adjusted net income," "adjusted loss," "cash earnings," "earnings before," "free cash flow," "normalized EPS," "normalized earnings," "recurring earnings," "distributable cash flow," "GAAP one-time adjusted," "GAAP adjusted," "cash loss," AND NOT "pro forma," "pro-forma," or "proforma." We exclude earnings before interest and taxes (EBIT) or earnings before interest, taxes, depreciation and amortization (EBITDA) as these are reported as standard income statement items; also, these figures were reported long before the non-GAAP reporting trend began in the late 1990s.

[12] We require continuers to have reported non-GAAP earnings in at least four quarters: two pre- and two post-SOX. Requiring starter and stopper firms to have at least two non-GAAP observations improves the likelihood that the various groups are comparable. As mentioned previously, it is possible that firms labeled as starters or stoppers did not react to SOX, but legitimately decided to either voluntarily disclose a non-GAAP earnings number in one of the two subperiods or started reporting non-GAAP numbers in response to accounting rule changes. Requiring at least two observations for each firm reduces the likelihood of this issue affecting our results. Excluding observations with only one non-GAAP report in either the pre- or post-SOX period eliminates 378 continuer firm-quarters, 415 pre-SOX firm quarters and 397 post-SOX firm quarters.

[13] This requirement ensures that we do not add noise to our analyses by comparing original non-GAAP earnings figures (obtained from historical press releases) with potentially restated data from Compustat. We thank the associate editor for this suggestion.

[14] Although managers are required to provide a reconciliation between GAAP and non-GAAP earnings under Reg. G, I/B/E/S does not specify what analysts exclude. Hence, it is not always possible to clearly identify the differences between what analysts and managers exclude. However, we hand-checked a random sample of firms that report non-GAAP earnings that are higher than the earnings provided by I/B/E/S. Although we are not able to identify which items cause the difference in every case, in many instances it is possible to verify the disparities. For example, the difference is attributable primarily to managers' exclusion of stock-based compensation (when it is not excluded by analysts) for (1) Nike in the 1st quarter of 2006, (2) Colgate-Palmolive in the 3rd quarter of 2006, and (3) Netflix in the 4th quarter of 2006. While stock-based compensation is one example of an incremental recurring-item exclusion, others include the amortization of intangibles (Medco Health Solutions in the 3rd quarter of 2005) and taxes (1-800-Flowers.com in the 4th quarter of 2005).

[15] Even though our second indicator of aggressive reporting is similar to the variable used in prior research, we employ a slightly different definition. In particular, prior studies define this measure relative to GAAP operating earnings (i.e., a firm is able to meet or beat the consensus forecast based on the non-GAAP number, but fails to meet expectations based on GAAP operating earnings – Black & Christensen, 2009; Brown, Christensen, & Elliott, 2012, Brown, Christensen, Elliott, & Mergenthaler, 2012; Christensen, 2007), while we define this indicator by replacing GAAP operating earnings with the I/B/E/S actual EPS number, which allows us to focus on managers' incremental exclusions (beyond analysts') used to achieve this target. We thank the associate editor and the anonymous reviewer for this suggestion.

[16] Several published studies provide evidence that when managers exclude recurring items that analysts are not willing to exclude, their motives are more likely to be opportunistic. For example, Marques (2006) finds that the market reaction to earnings exclusions on which managers and analysts disagree is significantly lower than the reaction to exclusions on which managers and analysts agree. This result suggests that investors view managers' incremental exclusions (beyond those made by analysts) as an inappropriate elimination of recurring expenses. More recently, Brown, Christensen, Elliott, and Mergenthaler (2012) find similar evidence. We follow their method for calculating incremental manager exclusions.

[17] For each firm-quarter, we define the consensus estimate as the mean analyst forecast using all split-unadjusted forecasts issued within 90 days prior to the earnings announcement date.

[18] $MGREXCL_{INCREMENTAL}$ also decreases in the post-SOX period for the subsample of observations with non-zero incremental exclusions. In particular, the mean (median) values of $MGREXCL_{INCREMENTAL}$ is 0.052 (0.050) in the pre-SOX and 0.026 (0.030) in the post-SOX period and the differences are statistically different when using a t-test and a Wilcoxon test. We thank the reviewer for this insight.

[19] We thank the associate editor for suggesting this analysis.

[20] We note that we use a linear probability model (LPM) measured by ordinary least squares rather than a logit or probit model, despite the fact that our dependent variables are binary. One of the primary shortcomings of the LPM model is the problem that the predicted probabilities are not constrained to be between 0 and 1. However, in our setting, we are interested in the estimated coefficients on the explanatory variables, not the predicted probabilities. In addition, many nonlinear panel data models suffer from an "incidental parameters problem" when fixed effects are included; this results in the estimated coefficients of the fixed effects and other control variables being estimated inconsistently in "large but narrow panels" (see Greene, 2008, p. 566; Puri, Rocholl, & Steffen, 2011; Wooldridge, 2010). In addition, the interpretation of interaction terms can be complicated in nonlinear models (Ai & Norton, 2003; Karaca-Mandic, Norton, & Dowd, 2010), making it difficult to interpret results in our primary specifications that interact exclusion variables with a post-SOX indicator. Moreover, Wooldridge (2010) states,

> If the main purpose of estimating a binary response model is to approximate the partial effects of the explanatory variables, averaged across the distribution of [the explanatory variables], then the LPM often does a very good job…The case for the LPM is even stronger if most of the [explanatory variables] are discrete and take on only a few values" (pp. 563-564)

Thus, we believe the LPM is more appropriate than a probit or logit model in our setting. See Puri et al. (2011) for a recent example of an empirical paper that discusses the LPM model versus the probit model. We cluster heteroskedasticity-robust standard errors by firm in our regression analyses.

[21] As this result may be influenced by the introduction of SFAS 123R, we explore this alternative explanation in the Additional Analyses Section.

[22] We note that the interpretation of the marginally positive coefficients on R&D in Model 1 and interest in Model 2 is somewhat difficult because the Model 1 R&D coefficient is significantly negative in both the pre-SOX (Panel A) and

post-SOX (Panel B) periods, and the Model 2 interest coefficient is significantly negative in the pre-SOX period (Panel A) and insignificant in the post-SOX period (Panel B).

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