Information Environment Consequences of SEC non-GAAP Comment Letters

ENRIQUE A. GOMEZ
Terry College of Business
University of Georgia
gomez@uga.edu

FRANK HEFLIN†
Terry College of Business
University of Georgia
fheflin@uga.edu

JASMINE WANG
Terry College of Business
University of Georgia
jasmine.wang@uga.edu

Abstract This study examines how changes in firms' non-GAAP disclosures, prompted by SEC comment letters, affect information asymmetry and the informativeness of non-GAAP earnings. SEC non-GAAP earnings comments generally address four issues: (1) full non-GAAP income statements, (2) non-GAAP to GAAP reconciliation, (3) explanation of non-GAAP earnings, and (4) presentation of non-GAAP earnings. We find that information asymmetry increases and the informativeness of non-GAAP earnings decreases after firms comply with SEC requests to stop disclosing full non-GAAP income statements. Additional analyses reveal that analyst forecast dispersion and error increase after firms stop disclosing full non-GAAP income statements. Our results are robust to difference-in-difference analyses on a matched control sample and a variety of other robustness checks and falsification analyses. We find little or no evidence of changes in information asymmetry or non-GAAP earnings informativeness following the resolution of comment letters addressing the other three issues. Overall, our evidence is consistent with managers' arguments indicating that non-GAAP income statements provide valuable information to market participants, including analysts.

† Corresponding author. Address correspondence to: Frank Heflin, J.M. Tull School of Accounting, Terry College of Business, The University of Georgia, 610 South Lumpkin Street, Athens, GA 30602. Telephone: 706-542-3501. We thank Dirk Black, Ted Christensen, Bret Johnson, Ben Whipple, seminar participants at the Securities and Exchange Commission Division of Economic and Risk Analysis brown-bag series, Emory University, the BYU Accounting Research Symposium, the GRACE Conference, George Mason University, and the University of Georgia.

Information Environment Consequences of SEC non-GAAP Comment Letters

Abstract This study examines how changes in firms' non-GAAP disclosures, prompted by SEC comment letters, affect information asymmetry and the informativeness of non-GAAP earnings. SEC non-GAAP earnings comments generally address four issues: (1) full non-GAAP income statements, (2) non-GAAP to GAAP reconciliation, (3) explanation of non-GAAP earnings, and (4) presentation of non-GAAP earnings. We find that information asymmetry increases and the informativeness of non-GAAP earnings decreases after firms comply with SEC requests to stop disclosing full non-GAAP income statements. Additional analyses reveal that analyst forecast dispersion and error increase after firms stop disclosing full non-GAAP income statements. Our results are robust to difference-in-difference analyses on a matched control sample and a variety of other robustness checks and falsification analyses. We find little or no evidence of changes in information asymmetry or non-GAAP earnings informativeness following the resolution of comment letters addressing the other three issues. Overall, our evidence is consistent with managers' arguments indicating that non-GAAP income statements provide valuable information to market participants, including analysts.

Keywords: Non-GAAP; SEC; Comment Letters; Regulation.
Data availability: All data are available from the sources cited in the text

1 Introduction

"A lot of people would say there is gamesmanship going on here, but you have to craft a rule that targets the abuses without killing what is valuable information." – Joseph Carcello, member of the SEC's Investor Advisory Committee (Rapoport 2016).

We examine the impact of firm-specific SEC comment letters about non-GAAP disclosures on firms' information environments using a large, comprehensive sample of SEC comment letters addressing non-GAAP issues from 2004 to 2016. We group the issues addressed in these letters into four categories. These four categories consist of letters where the SEC directs the firm to (1) stop providing full non-GAAP income statements, (2) provide a non-GAAP to GAAP reconciliation, (3) provide additional explanation of non-GAAP earnings, and (4) change its presentation of non-GAAP earnings.[1] We provide evidence regarding the effect of SEC comment letters on information asymmetry and non-GAAP earnings informativeness for each of the four categories of comment letters. Our evidence suggests adverse information environment effects following the removal of non-GAAP income statements as requested by the SEC.

This research question is of interest to researchers, regulators, managers, and investors for at least three reasons. First, it is important to understand the effects of comment letters related to non-GAAP earnings given the importance of non-GAAP metrics. Managers disclose and analysts forecast non-GAAP earnings with increasing frequency. Bentley, Christensen, Gee, and Whipple (2018) find that from 2003 to 2013, managers' (analysts') non-GAAP reporting frequency increased from 17 percent (25 percent) to 47 percent (55 percent) of firm-quarters. Prior research on non-GAAP earnings also suggest investors rely on non-GAAP numbers more than their GAAP counterparts (Bradshaw and Sloan 2002; Bhattacharya, Black, Christensen, and Larson 2003; Bradshaw, Christensen, Gee, and Whipple 2018).

Second, the high importance of non-GAAP earnings to managers, analysts, and investors is likely to motivate continuing and possibly increasing interest from regulators. Mark Kronforst, chief accountant

[1] The SEC uses the phrase "full non-GAAP statement" to refer to income statements where multiple line-items on the non-GAAP income statement differ from their GAAP counterparts. See Appendix A for an example of a full non-GAAP income statement.

of the SEC's corporation-finance division, foresees an increased number of comment letters addressing non-GAAP disclosures (Rapoport and Michaels 2016). A July 2016 blog post by Audit Analytics suggests "if non-GAAP reporting isn't topic number one among regulators, it must be close."[2]

Third, prior research in accounting calls for more research on the effectiveness of disclosure regulation. Healy and Palepu (2001) point out that "fundamental questions about the demand for, and effectiveness of, financial reporting and disclosure regulation in the economy remain unanswered." They further suggest that there is a paucity of empirical research on disclosure regulation and little evidence on the potential negative consequences of disclosure regulation. Since Healy and Palepu (2001), most studies on disclosure regulation have focused on Reg FD and Regulation G (e.g., Heflin, Subramanyam, and Zhang 2003; Bailey, Li, Mao, and Zhong 2003; Wang 2007; Marques 2006; Heflin and Hsu 2008; Kolev, Marquardt, and McVay 2008). There is still a lack of research and evidence on the economic consequences of other disclosure regulations. Leuz and Wysocki (2016) conclude that understanding the economic effects of disclosure regulation is of first-order importance beyond just accounting and finance. In this paper, we study a unique type of disclosure regulation, SEC comment letters. Our evidence suggests some adverse information effects of SEC disclosure regulation, which is rare in existing literature.

We hand collect 1,044 SEC comment letters issued from 2004 to 2016 about earnings press releases that contain comments about non-GAAP disclosures. We first examine information environment effects for comment letters where the SEC directs firms to remove full non-GAAP income statements from their earnings press releases. One information environment effect we study is information asymmetry because prior research suggests changes in disclosure are associated with changes in information asymmetry (e.g., Healy, Hutton, and Palepu 1999; Leuz and Verrecchia 2000). The SEC expresses concern that a non-GAAP income statement is potentially confusing or misleading to investors in that it potentially conveys that non-GAAP earnings have been prepared under the same rules and procedures as GAAP earnings and places too

[2] The SEC has expressed concerns regarding the use of non-GAAP metrics. Former SEC Chairman Mary Jo White said, "It's something that we are really looking at—whether we need to rein that in a bit even by regulation. We have a lot of concern in that space" (Rapoport 2016).

much prominence on non-GAAP earnings. Managers often counter that full non-GAAP income statements are useful to analysts and investors, increase transparency, and reduce heterogeneity in estimates and forecasts. We find that bid-ask spreads and Amihud's (2002) illiquidity measure increase for firms that stop providing, at the direction of the SEC, full non-GAAP income statements from their earnings press releases. Our results suggest eliminating full non-GAAP income statements worsens information asymmetry.

We then examine whether the removal of non-GAAP income statements from earnings press releases affects the informativeness of manager-disclosed non-GAAP earnings (i.e. non-GAAP ERC).[3] Changes to the quality or quantity of information about earnings can impact ERCs because such changes can affect either the precision of the market's prior information or the precision of the earnings signal (Holthausen and Verrecchia 1988). We find a decline in non-GAAP ERCs and no evidence of an increase in GAAP ERCs after SEC comment letters prompting the removal of non-GAAP income statements. Thus, our results suggest that removing full non-GAAP income statements impairs the informativeness of non-GAAP earnings and that the observed decline in non-GAAP ERCs is unlikely to be attributable to an increase in investor attention to GAAP earnings.[4]

In additional analyses, we find analyst forecast errors increase, as does the dispersion of their forecasts. As suggested by theory developed in Kim and Verrecchia (1994) and discussion in Amiram, Owens, and Rozenbaum (2016), information asymmetry can arise between the firm and investors and between more and less sophisticated investors. Analysts are likely relatively sophisticated users of accounting information. Therefore, our analyst forecast property results suggest removal of non-GAAP

[3] As we explain in Section 3, we use IBES actual earnings as a proxy for manager disclosed non-GAAP earnings. Bentley, Christensen, Gee, and Whipple (2017) report that, when IBES actual EPS differs from Compustat EPS, the IBES EPS number corresponds to non-GAAP earnings in the earnings press release 73 percent of the time. Eighty-six percent of the cases where the IBES non-GAAP earnings number differs from the earnings press release number are cases where managers disclose only GAAP earnings. Our sample selection process likely completely eliminates this source of error because we know that our sample firms disclosed non-GAAP earnings before receiving a comment letter. We hand-check 50 randomly-selected observations where IBES actual EPS differs from GAAP EPS and find that IBES actual EPS is the same as non-GAAP earnings in the press releases for 49 of those 50 observations and the one non-match is an IBES coding error (misplaced decimal point).

income statements from earnings press releases increases information asymmetry between the firm and *both* sophisticated and unsophisticated investors and not just between more and less sophisticated investors. Overall, our results are consistent with managers' claims that removal of non-GAAP income statements from earnings press releases would reduce information available to both analysts and investors.

Our second category of comment letters is reconciliation. If a firm discloses non-GAAP earnings, Regulation G requires a quantitative reconciliation from non-GAAP to GAAP earnings. Some SEC comment letters note an absence of this reconciliation schedule in some firms' earnings press releases and direct those firms to provide a reconciliation schedule in future earnings press releases. Changing from not providing to providing a reconciliation schedule could influence both information asymmetry and non-GAAP ERCs, as evidence in prior studies suggests that this reconciliation provides investors additional information and reduces earnings mispricing (Elliot 2006; Zhang and Zheng 2011). However, we do not find significant changes in either information asymmetry or non-GAAP ERCs after firms begin providing reconciliation schedules in their earnings press releases. Overall, we do not find evidence that comment letters requesting a non-GAAP-to-GAAP reconciliation schedule benefit (or negatively impact) firms' information environments. However, we note failure to reject the null of no effect can be because our tests are not powerful enough, especially considering the small sample size.

Our third and fourth categories of comment letters require firms to provide additional explanation of non-GAAP numbers and change the presentation of non-GAAP numbers, respectively.[5] We do not find evidence suggesting that these types of comment letters affect either information asymmetry or non-GAAP ERCs. Although failure to reject the null is always subject to the possibility that the tests have insufficient power, we note that our sample sizes for the explanation and presentation sub-samples are similar to our non-GAAP income statement sub-sample. Further, our results concerning additional explanation and

[5] As we explain in Section 2, SEC comments on non-GAAP presentation in earnings press releases include both inadequate labeling of non-GAAP numbers and too much prominence for non-GAAP numbers.

presentation issues are consistent with some analysts' and managers' arguments that these types of non-GAAP disclosure issues are not substantive.[6]

We conduct several robustness analyses on our non-GAAP income statement sub-sample. First, we employ a difference-in-difference design using a control sample matched on industry, non-GAAP reporting, size, and profitability. Second, we collect a sample of firms receiving comment letters that address earnings press release disclosures, but not non-GAAP issues and use this sample for falsification tests. Third, we examine actual earnings press releases to rule out the possibility that firms stop disclosing non-GAAP earnings, change exclusion types, or fail to comply with the SEC's directive to stop providing non-GAAP income statements. Fourth, we conduct additional falsification tests using pseudo-event windows. Fifth, we repeat our analyses after excluding the financial crisis period. Our inference that removal of full non-GAAP income statements deteriorated firms' information environments is robust to all of these analyses.

Our study contributes to existing research in several ways. First, we contribute to research addressing the regulation of non-GAAP disclosures. Prior research on non-GAAP earnings regulation focuses exclusively on the effects of market-wide regulation/intervention by studying the effects of general SEC guidance and regulation. These studies generally conclude that market-wide interventions in non-GAAP reporting improve various properties of non-GAAP earnings. For example, prior research suggests Regulation G precipitated (1) an increase in investor attention to non-GAAP disclosures, (2) less meeting-or-beating analysts' forecasts with non-GAAP earnings, (3) an improvement in exclusion quality, and (4) a reduction in non-GAAP earnings mispricing (Marques 2006; Heflin and Hsu 2008; Kolev, Marquardt, and McVay 2008; Zhang and Zheng 2011; Black, Black, Christensen, and Heninger 2012). Comment letters are a distinct form of intervention, providing firm-specific guidance/instruction regarding SEC constraints on disclosure of non-GAAP earnings and prompting firms to both include and remove information. In contrast to the bulk of the evidence on prior market-wide regulation of non-GAAP disclosures, our results

[6] See Dickerson, Koontz, and Meyers (2016) for a discussion of various non-GAAP disclosure issues some financial professionals argue are not substantive. Examples include order of presentation of GAAP and non-GAAP numbers and scrutinizing certain exclusions such as acquisition-related expenses.

suggest one type of firm-specific non-GAAP disclosure regulation (comment letters resulting in removal of non-GAAP income statements) leads to a deterioration in information properties. An implication of our results, as noted by Black and Christensen (2018), is that the SEC's position regarding full non-GAAP income statements may be too restrictive.

Second, our study extends the growing literature on SEC comment letters. Several recent papers explore the effects of SEC comment letters on firms' information environments (e.g., Johnston and Petacchi 2017; Bozanic, Dietrich, and Johnson 2017; Brown, Tian, and Tucker 2017; Bens, Cheng, and Neamtiu 2015). For example, Johnston and Petacchi (2017) find that that bid-ask spreads decrease and ERCs increase following the comment letter process. Bozanic, Dietrich, and Johnson (2017) find that firms enhance their disclosures following the SEC comment letter process, and that firms' requests for confidential treatment and negotiations to avoid making substantive disclosure changes attenuate this effect. They find that improvements in disclosure in response to SEC comment letters are associated with decreases in information asymmetry and reductions in litigation risk. Our paper differs from prior comment letter research in that prior research generally does not investigate specific reporting and disclosure issues addressed in comment letters and no research to date has investigated SEC comment letters addressing non-GAAP earnings. Also, our study is the first to provide evidence of adverse information environment consequences associated with SEC comment letters.

Third, our paper contributes to the disclosure regulation literature. Leuz and Wysocki (2016) argue that an important limitation in nearly all disclosure regulation research is the alignment of event and calendar time. Leuz and Wysocki (2016) state, "one major issue for empirical studies [of disclosure regulation] is that most regulation is required as of a particular date, which makes the analysis susceptible to confounding effects". Our setting is much less subject to this limitation because each of our sample firms receives non-GAAP comment letters from the SEC at a different date. Additionally, our paper addresses a rare disclosure regulation setting where the SEC directs firms to reduce or remove a disclosure (our non-GAAP income statement subsample), rather than provide additional disclosure.

Fourth, our paper contributes to research on non-GAAP earnings and information asymmetry. Huang and Skantz (2016) study the relationship between non-GAAP disclosure and information asymmetry. They find lower bid-ask spreads for firms reporting non-GAAP earnings. However, as they note, they cannot completely rule out the alternative explanation that firms reporting non-GAAP earnings have better other disclosures or better information environments in general compared to firms with only GAAP earnings. Our analysis is less subject to such a limitation because we compare non-GAAP firms across time. In this sense, we provide stronger evidence that non-GAAP disclosures can influence information asymmetry. However, our evidence is limited to a specific type of non-GAAP disclosure: full non-GAAP income statements.

2. Background

2.1 Prior Literature

2.1.1 Research on non-GAAP numbers

Extant studies suggest that managers have different motivations to report non-GAAP metrics. On one hand, there is evidence that some managers provide non-GAAP numbers to provide investors with better or additional information relative to GAAP earnings. Substantial research documents that non-GAAP disclosures are more value relevant (e.g., Bradshaw and Sloan 2002; Bhattacharya, Black, Christensen, and Larson 2003) and more informative to investors than their GAAP counterpart (Brown and Sivakumar 2003; Johnson and Schwartz 2005; Marques 2006; Bradshaw, Christensen, Gee, and Whipple 2017). On the other hand, there is also evidence suggesting managers' non-GAAP disclosures are sometimes motivated by opportunism such as a desire to meet or beat earnings targets (Black and Christensen 2009; Doyle, Jennings, and Soliman 2013) or to increase investors' perceptions of core operating earnings (Curtis, McVay, and Whipple 2014; Entwistle, Feltham, and Mbagwu 2006). Evidence in Black and Christensen (2009) suggests that sporadic non-GAAP disclosers are more likely to meet earnings targets by excluding recurring items than consistent non-GAAP disclosers, suggesting that opportunistic managers tend to use non-GAAP metrics when necessary to achieve important targets. Other studies provide evidence that both managers'

and analysts' non-GAAP adjustments are associated with future returns, consistent with misleading investors (e.g., Landsman, Wayne, Miller, and Yeh 2007; Doyle, Lundholm, and Soliman 2003; Chen 2010; Zhang and Zheng 2011).

The goal of SEC non-GAAP guidance and regulation has been to mitigate opportunistic non-GAAP reporting while retaining useful non-GAAP information. Consistent with this goal, some studies find a decrease in opportunistic non-GAAP reporting following Regulation G. Heflin and Hsu (2008) find a decline in non-GAAP earnings usage and a decline in meeting or beating analysts' forecasts with non-GAAP earnings after Regulation G. Zhang and Zheng (2011) study the impact of the quality non-GAAP to GAAP reconciliations on mispricing of non-GAAP earnings. They find that prior to Regulation G, mispricing of non-GAAP earnings was limited to firms with low reconciliation quality. They also find no evidence of mispricing after Regulation G, and that there is a reduction of mispricing for firms whose reconciliation quality improves, suggesting that better reconciliations reduce the extent of mispricing. Other studies such as Kolev, Marquardt, and McVay (2008), and Chen (2010) find that while exclusions are more transitory (i.e., higher quality) following Regulation G, the quality of one-time adjustments to GAAP earnings is of lower quality. This suggests that while non-GAAP regulation and guidance can have positive effects, it can also have unintended negative consequences.

In summary, multiple studies suggest managers' disclosures of non-GAAP earnings numbers both provide additional useful information and are motivated, in part, by opportunism. Market-wide regulation seems to have been generally effective in increasing the quality of non-GAAP reporting. However, existing research has not addressed the efficacy of firm-specific regulation of non-GAAP reporting through individual comment letters.

2.1.2 Research on comment letters

Some studies investigate factors influencing the comment letter process and the likelihood of receiving a comment letter. Cassell, Dreher, and Myers (2013) investigate the factors that influence the probability of receiving a 10-K comment letter, the extent of comments received, and the cost of

remediation. They find that low profitability, high complexity, engaging a small audit firm, and weaknesses in governance are all positively associated with the receipt of a comment letter, the extent of comments, and the cost of remediation. They also find that the probability that the comment letter process ends in restatements is higher for smaller firms. Evidence in Boone, Linthicum, and Poe (2013) suggests that the probability of receiving an SEC comment increases with the rules-based characteristics in an accounting standard, and that standards requiring more extensive estimates generate more comment letters and longer resolution times.

A few papers explore the effects of SEC comment letters on firms' information environments. For example, Johnston and Petacchi (2017) find that bid-ask spreads decrease and ERCs increase following the comment letter process. Bozanic, Dietrich, and Johnson (2017) find that firms enhance their disclosures following the SEC comment letter process, and that firms' requests for confidential treatment and negotiations to avoid making substantive disclosure changes attenuate this effect. They further document that improvements in disclosure in response to SEC comment letters are associated with decreases in information asymmetry and reductions in litigation risk. Brown, Tian, and Tucker (2017) examine the spillover effects of SEC comment letters regarding risk factor disclosures on other firms' qualitative disclosures. They document that firms that do not receive comment letters are more likely to modify their disclosures if the SEC has commented on the risk factor disclosures of an industry leader, a close rival, or numerous industry peers. Bens, Cheng, and Neamtiu (2015) assess whether SEC comment letters regarding fair value disclosures are followed by reductions in uncertainty about firms' fair value estimates. Their findings suggest that the associations between Level 2 and 3 fair value assets and their measures of uncertainty are significantly reduced in the periods following the SEC comment letter process.

In general, existing research suggests SEC comment letters prompt revisions in disclosures by firms receiving comment letters and by same-industry firms. Further, research to date suggests comment letters are followed by improvements in firms' information environments, in that measures of information asymmetry decline and earnings response coefficients increase. However, prior research has not investigated SEC comment letters that address non-GAAP reporting issues.

2.2 The Comment Letter Process

The SEC is concerned that non-GAAP reporting can lend itself to opportunistic manipulation and thus mislead investors. This concern has led to previous regulation with the intent to mitigate opportunistic reporting. Regulation and guidance related to non-GAAP reporting include: a specific provision in the Sarbanes-Oxley Act (SOX) in 2002, Regulation G in 2003, Compliance & Disclosure Interpretations on non-GAAP financial measures in 2010 and 2016, and numerous cautionary warnings, speeches, and exposure drafts over the years providing clarifying guidance and expressing continuing concerns about the use of these metrics. Concern at the SEC regarding non-GAAP earnings continues. Former SEC chair Mary Jo White stated, "It's something that we are really looking at—whether we need to rein that in a bit even by regulation; we have a lot of concern in that space."[7] This has led the SEC to issue a large number of comment letters addressing firms' non-GAAP disclosures in recent years.

Non-GAAP comment letters represent a unique type of regulation. Unlike prior non-GAAP regulation, which has been market-wide, comment letters target firm-specific non-GAAP reporting. Contrary to market-wide guidance and regulation, which can and has been ignored by some firms (as evidenced by the comment letters addressing non-GAAP reconciliation schedules), upon receipt of a comment letter, firms are required to respond within ten days.[8] This is an especially important characteristic of the comment letter process, given that nearly all non-GAAP comment letters prompt firms to modify their disclosures and to comply with past guidance and regulation. This means that nearly all non-GAAP comment letters lead to modifications in firms' disclosures.

The comment letter process begins when the SEC corresponds with a firm regarding issues in a firms' filings (e.g., Forms 8-K, 10-K, 10-Q, DEF 14A, etc.). These letters may, but not necessarily, enumerate more than one disclosure or reporting issue. Letters prompt firms to revise future filings, request

[7] *The Wall Street Journal*, March 16, 2016.

[8] In addition to violations of non-GAAP disclosure regulations evident from perusing SEC non-GAAP comment letters, there are other examples of firms ignoring market-wide disclosure regulations. Ayers, Schwab, and Utke (2014) study firms that violate regulations requiring disclosure of permanently reinvested earnings. Robinson, Xue, and Yu (2011) study firms violating regulations requiring compensation disclosures.

supplemental information, or request an amended filing. A firm's response to a non-GAAP comment letter usually includes a detailed description of how the firm intends to address the issue in their future filings. In other words, the firm submits a proposed solution seeking the SEC's approval. For example, the SEC may send a comment letter to a firm requesting a non-GAAP to GAAP reconciliation in future press releases. The firm's reply to the comment letter might include a sample reconciliation table and a statement indicating they will include a similar table in future press releases. The SEC would then respond back with feedback on the proposed disclosure, if any. This back-and-forth might end after one round of correspondence or might continue with additional rounds until the firm and the SEC reach agreement, completing the review process.[9] Other outcomes, though not common, include firms failing to respond to comment letters or requesting additional consideration of the issue from higher authorities (Bozanic, Dietrich, and Johnson 2017).

2.3 Non-GAAP Disclosure Issues Addressed in SEC Comment Letters

We read the text of all SEC comment letters that (1) addressed earnings announcements, (2) contained the phrase "non-GAAP", and (3) were issued by the SEC between October 2004 and May 2016**.** Our review suggests some commonalities in the non-GAAP reporting topics raised by the SEC. After reviewing all the non-GAAP comment letters, we found that the vast majority of the issues raised in the letters could be placed into four categories: (1) full non-GAAP income statements, (2) no reconciliation schedule, (3) additional explanation, and (4) presentation. We discuss each of these four categories next.

2.3.1 Full Non-GAAP income statements

Many of the comment letters address firms providing full, non-GAAP income statements. In a full non-GAAP income statement, many income statement line items (but not necessarily all) differ from their

[9] The non-GAAP earnings-related comment letters in our sample include a variety of issues other than non-GAAP disclosures. For example, a comment letter requesting a firm to include a non-GAAP to GAAP reconciliation may also request other changes to other filings such as 10-Ks, 10-Qs, etc. that may or may not be non-GAAP related. However, in the majority of cases (in our sample), the non-GAAP issue is the only issue regarding a firm's earnings announcement.

GAAP counterparts. We provide an example of a full non-GAAP statement in Section A.1 of Appendix A. The example is from Cutera, Inc.'s May 8, 2006 earnings press release. Cutera presents GAAP and non-GAAP income statements side-by-side.[10] In this particular example, for all but two lines on the income statement (net revenue and interest and other income, net) the GAAP and corresponding non-GAAP numbers differ. In this case, all of the differences are the result of excluding stock compensation expense, i.e. Cutera excludes only one earnings component.

The SEC did not consider Cutera's presentation of non-GAAP earnings in its May 8, 2006 earnings press release to be in conformance with SEC regulations. SEC regulations stemming from the Sarbanes-Oxley Act (Public Law 107-204) require that when firms disclose non-GAAP earnings numbers, they must (1) include an understandable quantitative reconciliation between the non-GAAP number and the most comparable GAAP number, (2) not present non-GAAP numbers so that they mislead investors, (3) explain why management uses the non-GAAP number and why management believes the non-GAAP number is useful to investors, and (4) present the comparable GAAP number with equal or greater prominence.[11] Section B.1 of Appendix B shows an excerpt from the SEC comment letter to Cutera addressing Cutera's May 8, 2006 earnings press release. The letter notes that Cutera's press release displays several non-GAAP numbers and that Cutera does not explain (1) why each of those non-GAAP measures provides useful information to investors, and (2) why or even whether management uses those non-GAAP measures. The SEC expresses the concern that the presentation format (i.e., full non-GAAP income statement) may be confusing to investors and directs Cutera to "remove the non-GAAP income statement from future filings and only disclose those non-GAAP measures used by management with the appropriate reconciliations."

Section A.2 of Appendix A shows excerpts from Cutera's January 31, 2007 earnings press release which is after resolution of the comment letter. In the January 31, 2007 press release, Cutera provides only

[10] Note that Cutera labels their full non-GAAP income statement a reconciliation schedule. However, SEC comment letters make it clear that SEC staff do not consider full non-GAAP income statements a satisfaction of the reconciliation requirements of Regulation G.

[11] Our summary of non-GAAP disclosure regulations is condensed from Clarke, Sassolos, and Schmitt (2003) and Heflin and Hsu (2008).

a reconciliation of GAAP net income to its (now) single non-GAAP number: non-GAAP net income. For the quarter ending December 31, 2006, Cutera again excludes one item to arrive at non-GAAP net income: stock compensation expense.[12] While the reconciliation schedule provides details about how GAAP and non-GAAP differ, there is clearly information available from the May 6, 2006 non-GAAP income statement that is not available in the January 31, 2007 reconciliation schedule. In particular, how excluded compensation expense affects each income statement line item is not obtainable from the reconciliation schedule.

In all comment letters concerning non-GAAP income statements, the SEC directs the firm to no longer provide a non-GAAP income statement. In general, the SEC expresses the belief that a non-GAAP income statement is potentially confusing or misleading for investors. In some cases, the SEC believes the non-GAAP income statement does not satisfy the reconciliation requirement.[13] In some cases, the SEC notes that management does not actually use all of the income statement non-GAAP numbers nor explain why those numbers are useful to investors. In many cases, the SEC expresses the belief that the non-GAAP income statement draws too much investor attention to non-GAAP numbers. For example, in regards to Apple Inc.'s October 21, 2008 and January 21, 2009 earnings press releases, the SEC commented that a non-GAAP income statement "may create the unwarranted impression to investors that the non-GAAP operating statement has been prepared under a comprehensive set of accounting rules or principles while also conveying undue prominence to a statement based on non-GAAP measures."[14]

---

[12] For the 12 months ending December 31, 2006, Cutera also excludes a litigation settlement.

[13] Not all non-GAAP income statements allow each non-GAAP income statement line item to be as easily reconciled to each GAAP income statement line item as Cutera's. For example, in some cases, there is more than one exclusion and how much of each exclusion is allocated to each line item is unclear. As another example, the tax effects of an exclusion are not easily determined.

[14] The full comment letter to Apple, Inc. can be viewed at https://www.sec.gov/Archives/edgar/data/320193/000119312509022511/filename1.htm.

Managers, however, often argue that full non-GAAP income statements are useful to analysts and investors. For example, NorthWestern Corporation responded with the following to an SEC comment letter requesting removal of full non-GAAP income statements from their earnings press releases:[15]

> "We believe it is beneficial to users to have all the components of non-GAAP adjusted earnings and GAAP reported net income in one place. [W]e know from discussions with our financial statement users that this schedule is informative and they have commented on the usefulness of this reconciliation."

In addition to stating that their full non-GAAP income statement is useful to investors, NorthWestern management stated that not supplying a non-GAAP income statement would reduce transparency and increase heterogeneity in analysts' estimates:

> "[I]f we no longer prepared the non-GAAP income statement format, analysts would undoubtedly attempt to compile it themselves, which would lead to additional confusion and diversity in practice and reduced transparency."

As another example, Energen Corporation responded that, "[W]e concluded that providing a more full disclosure in the prior year comparable would allow for increased transparency to analysts and investors."[16] In general, when managers' respond to comment letters from the SEC about full non-GAAP income statements, they claim that full non-GAAP income statements are useful to investors, analysts, or both.

Thirty percent (312/1,044) of the comment letters in our sample contain requests from the SEC for firms to stop providing full non-GAAP income statements. Our first subsample consists of these 312 cases and we refer to it as the "NG income statement" subsample.[17]

---

[15] NorthWestern's full response can be viewed at https://www.sec.gov/Archives/edgar/data/73088/000007308815000154/filename1.htm

[16] Energen's full response can be found at https://www.sec.gov/Archives/edgar/data/277595/000027759515000046/filename1.htm.

[17] Our four comment letter categories are not mutually exclusive. That is, it is not uncommon for a comment letter to address more than one non-GAAP disclosure issue. Consequently, the percentages that each subsample comprises totals to more than 100%. Later, we report analyses of each subsample with and without the observations where the comment letter also addresses an issue from another category.

2.3.2 No reconciliation schedule

A second common topic addressed in non-GAAP earnings comment letters involves the firm not providing a reconciliation schedule. As mentioned in Section 2.3.1, SEC regulations require that, if a firm discloses a non-GAAP number, that firm must also disclose a quantitative reconciliation of the non-GAAP number to the most comparable GAAP number. The SEC argues that a reconciliation of non-GAAP earnings to the most comparable GAAP metric will "help investors and market professionals to better evaluate the non-GAAP financial measures presented … and to provide the securities markets with additional information to more accurately evaluate companies' securities" (SEC 2003). In comment letters where the SEC contends the firm has not supplied the required non-GAAP-to-GAAP reconciliation schedule, the SEC directs the firm to supply a reconciliation schedule in all future press releases that contain a non-GAAP earnings number.

Section B.2 of Appendix B shows an SEC comment letter to Actuant Corp. regarding Actuant's October 1, 2015 earnings press release. Actuant discussed EBITDA in its earnings press release but did not reconcile EBITDA to GAAP earnings. The SEC requests a reconciliation in all future filings. Cases where the firm does not supply the required reconciliation schedule constitute 22% (226/1,044) of our non-GAAP earnings comment letter sample. Our second subsample consists of these 226 cases and we refer to this subsample as the "no-reconciliation subsample".

2.3.3 Additional explanation

A third common topic addressed in non-GAAP comment letters is additional explanation. These cases consist of the SEC expressing the belief that the company's explanation of how management uses a non-GAAP number or how a non-GAAP number is useful to investors is inadequate. Section B.3 of Appendix B contains an example of this type of comment letter. The SEC requests that in Hawaiian Electric Industries' future filings, the company provide additional explanation of how management uses non-interest income and adjusted non-interest expense to evaluate the company's operating performance. In 44% (462/1,044) of all the comment letters in our sample, the SEC requests additional explanation of a non-

GAAP number. We create a third subsample consisting of these 462 cases refer to this as the "explanation" subsample.

2.3.4 Presentation

In many of the non-GAAP comment letters, the SEC requests a change in how the company presents a non-GAAP number. Many of these cases involve the SEC requesting a company to clearly label a number as non-GAAP. An example of this type of comment letter is in Section B.4 of Appendix B. The SEC expressed that Crown Crafts, Inc., in its February 10, 2010 earnings press release, did not clearly label adjusted EBITDA as a non-GAAP number and requested the company to more clearly label that number as a non-GAAP number in future public disclosures.

The other common issue addressed in comment letters regarding presentation is prominence. In these cases, the SEC believes the company is not adhering to regulations requiring that, when a non-GAAP number is presented, the most directly comparable GAAP number must be presented with equal or greater prominence. Section B.5 of Appendix B displays an example of a comment letter about prominence. Federal-Mogul's October 25, 2015 earnings press release contained a highlights section at the beginning of the press release that highlighted operational EBITDA and adjusted net income. The SEC noted that Federal-Mogul did not present the most comparable GAAP numbers in that same highlights section. The SEC directed Federal-Mogul to present corresponding GAAP numbers with equal or greater prominence and, in fact, directs Federal-Mogul to present GAAP net income before presenting non-GAAP numbers.

Because both clearly labeling non-GAAP numbers as non-GAAP and presenting GAAP numbers with equal or greater prominence as non-GAAP numbers are issues regarding presentation of non-GAAP numbers, we place these two issues in the same category. Twenty-seven percent (278/1,044) of our non-GAAP comment letter sample contain comments by the SEC relating to presentation. Out of the 278 presentation-related comment letters, 163 address labeling issues and 123 address prominence issues. We place these 278 cases into our fourth subsample and label it "presentation".

Some comment letters in our initial comment letter sample address miscellaneous issues that do not clearly fit any of our four subsamples and we do not see enough similarity in the remaining observations to create any other meaningful subsamples. Therefore, we do not analyze these various miscellaneous issues separately. Seventeen percent (181 comment letters) of our total comment letter sample address miscellaneous issues and 88 comment letters address only miscellaneous issues.

3. Data and Research Design

3.1 Data

We limit our sample to SEC comment letters commenting on non-GAAP disclosure issues in earnings announcements. We focus on comment letters addressing non-GAAP disclosures in earnings announcements two reasons. First, prior studies suggest investors process information in earnings announcements more efficiently and generate a larger market response compared to 10-K/Qs (e.g., Louis, Robinson, and Sbaraglia 2008; Davis and Tama-Sweet 2012). Second, prior research on non-GAAP reporting primarily explores the earnings announcement setting (see Black, Christensen, Ciesielski, and Whipple, 2017 for a review). We first identified all SEC comment letters in Audit Analytics addressing non-GAAP disclosure issues.[18] Our earliest comment letters are from October 2004 because that is the first date the SEC made comment letters public. We end our comment letter sample in May 2016 to ensure we have enough post-comment letter data to conduct our post-comment letter analysis. From October 2004 through May 2016, 1,109 comment letter conversations mention at least one non-GAAP reporting issue in a firm's earnings announcement. We are unable to match 65 using GVKEY, resulting in a final sample of 1,044.[19]

[18] Audit Analytics contains various filters for issues addressed in comment letters. We filtered to "Other Disclosure Matters" and then "Non-GAAP Measures".

[19] Many comment letter conversations contain multiple correspondences between the SEC and the firm. These correspondences include the SEC's initial comment letter, the firm's response, the SEC's response to the firm's response, etc. Each conversation constitutes one observation in our sample.

Recall from Section II that we place the comment letters into four categories. We read each of the 1,044 comment letters to identify the specific non-GAAP disclosure issues on which the SEC commented. We report the number of comment letters in each of the four categories in Table 1. Of the 1,044 comment letters, 312 request the firm to remove non-GAAP income statements, 226 request the firm provide or revise a reconciliation of GAAP to non-GAAP earnings, 462 ask the firm to provide further explanation regarding the usefulness of non-GAAP earnings or exclusions, and 278 request presentation changes. Because some comment letters address more than one issue, the total across the four categories exceeds 1,044 (312+226+462+278=1,278). Table 1 displays the number of cases in each of the four categories that overlaps with each of the other three categories. Using only the non-overlapping observations for our analyses avoids potentially contaminating the effect on the information environment of one category with the effect of another category. However, eliminating the overlapping observations reduces the number of observations in each analysis and sacrifices statistical power in an otherwise unbiased test if the overlapping observations have (little or) no effect on the information environment. For example, if non-GAAP income statements, explanation, and presentation comment letters do not affect the information environment, but reconciliation comment letters do, using all 226 reconciliation comment letters does not bias our tests of the effects of reconciliation comment letters and eliminating the 159 (6+69+83) overlapping observations would needlessly sacrifice statistical power. For these reasons, we conduct our analyses with and without overlapping observations.

We obtain earnings announcement dates, actual and forecasted non-GAAP earnings (EPS), and actual and forecasted GAAP earnings (GPS) from IBES. Stock price, return, and volume data are from CRSP. We obtain data for control variables, which we discuss in more detail later, from IBES, Compustat, CRSP, and Thomson Reuters. Our design (described in subsequent sections) involves comparing values of information environment variables from a pre-comment letter period to a post-comment letter period. In general, our pre-comment letter period is the eight quarters prior to the resolution of the comment letter issue and our post-comment letter period is the eight quarters after the resolution of the comment letter issue, but the exact identification of pre- and post-quarters varies slightly across our different analyses and

we explain this in detail for each analysis.[20] In cases where a firm receives more than one comment letter during our sample period, we exclude firm-quarters that are pre-comment letter observations for one comment letter and post-comment letter observations for another comment letter received by the same firm. Table 2 shows descriptive statistics for all variables used in our tests. We winsorize all variables at 1% and 99%.

3.2 Information Asymmetry Analysis

Because the non-GAAP comment letter process can result in the inclusion and/or exclusion of additional information, we expect this process to influence information asymmetry. A wealth of prior theoretical and empirical research suggests managers' provision of additional information can change information asymmetry.[21] These studies suggest that if more disclosure can reduce the costs of processing firm-specific information, it can reduce information asymmetry by providing information to less informed investors and by decreasing the incentives for private information search (Brown and Hillegeist 2007).[22] However, more disclosure can increase information asymmetry if managers disclose less relevant information that obscures more relevant information from at least some investors (Loughran and McDonald 2014; Li 2008).

We use two measures of information asymmetry. Following much prior research (e.g., Amiram, Owens, and Rozenbaum 2016; Blankespoor, Miller, and White 2014; Bushee, Core, Guay, and Hamm 2010; Welker 1995), we use bid-ask spreads to measure information asymmetry. Also following much prior research (e.g. Fu, Kraft, and Zhang 2012; Haggard, Howe, and Lynch 2015; Schoenfeld 2017), we use

[20] We repeat our analyses using four quarters prior to and following comment letter resolution. Results using four pre- and post-quarters are similar to those using eight pre- and post-quarters.

[21] An exhaustive list is impractical. Theoretical models can be found in Amihud and Mendleson (1986) and Diamond and Verrecchia (1991). Representative empirical evidence is in Welker (1995), Coller and Yohn (1997), Healy, Hutton, and Palepu (1999), Leuz and Verrecchia (2000), Easley and O'Hara (2004), Heflin, Shaw, and Wild (2005), and Huang and Skanz (2016).

[22] Prior literature also suggests there is a link between informativeness and information asymmetry. Specifically, improving the precision of, or including new and credible disclosures should lead to increased informativeness and to decreases in information asymmetry (Bartov and Bodnar 1996).

Amihud's (2002) illiquidity measure. We compare our information asymmetry measures after the resolution of comment letters addressing non-GAAP issues to information asymmetry measures before resolution of non-GAAP comment letters. We estimate Equation (1) for each of our four subsamples (i.e., non-GAAP income statement, reconciliation, explanation, and presentation).

$$\begin{aligned} INFOASY_{i,q} = {} & \beta_0 + \beta_1 POST_{i,q} + \beta_2 MTB_{i,q} + \beta_3 SIZE_{i,q} + \beta_4 ANALYST_{i,q} \\ & + \beta_5 VOLATILITY_{i,q} + \beta_6 TURNOVER_{i,q} + \beta_7 IO_{i,q} + \beta_8 PRICE_{i,q} \\ & + \beta_9 AVG\_SPREAD_t + \varepsilon \end{aligned} \tag{1}$$

The dependent variable, *INFOASY,* is the either *SPREAD* or *ILLIQ*. *SPREAD* is the quarterly average of daily closing bid-ask spreads. We compute daily spread as the closing ask minus the closing bid scaled by the midpoint of the closing ask and bid. Following Amihud (2002), *ILLIQ* is the quarterly average of the daily absolute value of the stock return divided by the dollar value of trading volume. *POST* equals one if the fiscal quarter begins after the last comment letter date and zero otherwise. Our variable of interest is β_1, which captures the difference in information asymmetry between post-quarters and pre-quarters. If information asymmetry changes from before to after non-GAAP comment letters, we expect $\beta_1$to differ from zero.

We control for size (*SIZE*) because larger firms tend to have better information environments and therefore less information asymmetry and to control for inventory risk (e.g. Amiram, Owens, and Rozenbaum 2016; Heflin, Shaw, and Wild 2005). *SIZE* is the natural logarithm of the market value of equity at the end of the quarter. We include market-to-book ratio (MTB; ratio of market value to book value of equity at the end of quarter *q*) because firms with more growth opportunities provide more incentives for private information search (Van Ness et al. 2001). Several studies (e.g., Brennan and Subrahmanyam 1995; Yohn 1998) document a negative association between information asymmetry and analyst coverage. Therefore, we control for analyst coverage (*ANALYST*), which is the natural logarithm of the number of analysts issuing earnings forecasts during the quarter. Van Ness et al. (2001) find that share turnover (*TURNOVER*) and return volatility (*VOLATILITY*) are important determinants of bid-ask spreads. *TURNOVER* is the quarterly average of daily trading volume divided by total shares outstanding.

VOLATILITY is the standard deviation of the daily stock return during the quarter. Following prior research (e.g. Amiram, Owens, and Rozenbaum 2016; Welker 1995), we include price (*PRICE*) which the firm's stock price firm at the beginning of the quarter. We control for institutional ownership (*IO*), as prior research documents less informed trading in firms with higher proportions of institutional ownership (O'Neill and Swisher 2003). *IO* is the percentage of the firm's shares held by institutions as of the end of the quarter. Prior research suggest that the information environment of U.S. public firms has evolved over time (Beaver, McNichols, and Wang 2016). A trend in the information environment could affect our inferences because, although our comment letters are spread across calendar time, the post-comment letter period is always later in calendar time than the pre-comment letter period for a given firm. Similar to Leuz and Verrecchia (2000), we use the average spread of all firms to control for possible over-time changes in information asymmetry. Specifically, we include the average annual bid-ask spread (*AVG_SPREAD*) for the CRSP universe of firms for the calendar year in which quarter *q* falls.[23] We compute *AVG_SPREAD* by computing the average spread across all firm-days of the year. We include firm fixed effects. We cluster standard errors by firm to control for potential time-series dependence in our residuals.

3.3 ERC Analysis

Another factor potentially influenced by information environment changes is the earnings response coefficient (ERC). In general, changes to the quality or quantity of information about earnings can change the ERC because such changes can affect either the precision of the market's prior information or the precision of the earnings signal (Holthausen and Verrecchia 1988). Because non-GAAP comment letters prompt changes to the information set about earnings by resulting in either more or less information about non-GAAP earnings, we examine changes in the non-GAAP ERC following the comment letter process.

[23] Leuz and Verrecchia (2000) study information asymmetry consequences of disclosure changes and use the average bid-ask spread of all firms traded on either the DAX or MDAX exchanges in the pre- and (separately) post-disclosure-change periods to control index-wide changes in information asymmetry. They choose to scale by the index-wide average spread instead of include it as a control variable in a regression.

To investigate whether SEC comment letters affect the informativeness of non-GAAP earnings, we examine the change in the non-GAAP ERC following the resolution of comment letters for each of our four subsamples. Specifically, we estimate Equation (1) following the ERC model used in Bradshaw, Christensen, Gee, and Whipple (2017)[24].

$$\begin{aligned} CAR_{i,q} = \beta_0 + \beta_1 UE\_NG_{i,q} + \beta_2 UE\_EX_{i,q} + \beta_3 POST_{i,q} + \beta_4 POST_{i,q} \times UE\_NG_{i,q} \\ + \beta_5 POST_{i,q} \times UE\_EX_{i,q} + \beta_6 Controls_{i,q} + \beta_7 Controls_{i,q} \times UE\_NG_{i,q} \\ + \beta_8 Controls_{i,q} \times UE\_EX_{i,q} + \varepsilon \end{aligned} \quad (2)$$

where *CAR* is the three-day size-adjusted cumulative abnormal return where day zero is the firm's quarterly earnings announcement date.

Because our objective is to assess the effect of SEC comment letters requesting inclusion/removal of non-GAAP information on non-GAAP earnings informativeness, we require a measure of non-GAAP earnings disclosed in earnings press releases. We identify non-GAAP earnings numbers in earnings press releases by retaining only those observations where IBES actual EPS differs from IBES GAAP earnings per share (GPS). Bentley, Christensen, Gee, and Whipple (2018) address correspondence between IBES provided non-GAAP earnings and manager provided non-GAAP earnings in earnings press releases. They report that, when IBES actual EPS differs from Compustat EPS, the IBES EPS number corresponds to non-GAAP earnings in the earnings press release 73 percent of the time. However, most (86 percent) of those cases where the IBES non-GAAP earnings number differs from the earnings press release number are cases where managers disclose only GAAP earnings. Our sample selection process largely eliminates this source of error because we know that, at least prior to receiving a comment letter, our sample firms disclosed non-GAAP earnings. Further, we read all of the firms' responses to the comment letters and our reading strongly suggests that all of our sample firms intended to continue to disclose non-GAAP earnings after resolution

[24] Alternatively, we can regress cumulative abnormal return on non-GAAP unexpected earnings and GAAP unexpected earnings following some prior studies (e.g., Bhattarcharya, Black, Christensen, and Larson 2003). However, this research design will generate a nested model. The coefficient on non-GAAP unexpected earnings should be interpreted as the incremental pricing of non-GAAP unexpected earnings beyond exclusions. Since we are interested in the overall pricing of non-GAAP unexpected earnings, we choose to estimate Equation (1) to facilitate easier interpretation of coefficients.

of the comment letter process. To assess the error rate in non-GAAP earnings in our sample, we randomly selected 50 observations, from our combined pre- and post-comment letter quarters, where IBES actual EPS differs from IBES GPS and read the earnings press releases for those 50 observations.[25] We find that IBES actual EPS is the same as non-GAAP earnings in press releases for 49 out of those 50 observations.[26] This suggests that, in our specific setting, IBES actual EPS is a good proxy for non-GAAP earnings in earnings press releases.

In equation (2), *UE_NG* is non-GAAP unexpected earnings, which is the difference between IBES actual EPS and the most recent consensus analyst non-GAAP earnings forecast deflated by stock price two days before the earnings announcement. *UE_EX* is unexpected exclusions, which is the difference between GAAP unexpected earnings and non-GAAP unexpected earnings (i.e., UE_NG). GAAP unexpected earnings is the difference between IBES actual GPS and the most recent consensus analyst GAAP earnings forecast deflated by stock price two days before the earnings announcement. *POST* equals one if the fiscal quarter end is after the date last comment letter date and zero otherwise. We include eight quarters after the comment letter resolution and eight quarters prior to the comment letter resolution.[27] We interact *UE_NG* and *UE_EX* with *POST* to test for changes in ERC from before to after comment letter resolution. β_4 captures the change in ERC for non-GAAP earnings from before to after comment letter resolution.

Subramanyam and Venkatachalam (2007) note that the price-earnings relation is unspecified for losses. In Hayn's (1995) framework, earnings are unrelated to price when earnings are low enough that liquidation is a more valuable option. Further, prior research suggests an anomalous positive relation between losses and market value (i.e. market value is higher when losses are larger). Therefore, control for losses is important in ERC analyses. One option is to include a loss indicator variable and interact it with

[25] We use IBES GPS instead of Compustat EPS as a proxy for GAAP earnings because Compustat EPS reflects restatements, while IBES GPS is the originally reported GAAP earnings. Using IBES GPS eliminates restatements as a source of difference between IBES EPS and GAAP EPS.

[26] The one case that did not match was because the decimal point in the IBES number was off by one digit.

[27] In those cases where the comment letter receipt quarter differs from the comment letter resolution quarter, we use the eight quarters prior to comment letter resolution because firms do not change their disclosure practice until resolution.

unexpected earnings (e.g. Johnston and Petacchi, 2017) which is equivalent to estimating separate slopes (i.e. regression equations) for profit firm-quarters and loss firm-quarters. A second option is to throw out firm-quarters where earnings are negative (e.g. Core, Guay, and Kothari 2002), which estimates a regression equation only for profit firm-quarters. Under either option, inferences are based only on profit firm-quarters. We choose the latter option (throw out loss firm-quarters) because (1) introducing a loss indicator and interacting it with our two unexpected earnings variables and *POST* results in high multicollinearity, (2) fewer interactions make interpretation less burdensome, and (3) with either approach, inferences are based only on profit firm-quarters.[28]

We include control variables following prior ERC literature. Collins and Kothari (1989) find that ERC varies positively with growth prospects and earnings persistence. We control for growth opportunities and persistence using market-to-book ratio (*MTB*), as Collins and Kothari (1989) suggest that market-to-book reflects growth opportunities and earnings are more persistent for growth firms.[29] *MTB* is the ratio of market to book value of equity at the end of the fiscal quarter. Evidence in Collins and Kothari (1989) also suggests that ERC is negatively associated with systematic risk. Accordingly, we include beta (*BETA*), which we estimate with the market model using the 60 trading days prior to the earnings announcement. Prior studies suggest that interim quarter announcements have greater explanatory power of return than fourth quarter or annual earnings announcements (e.g., Hagerman, Zmijewski, and Shah 1984). Therefore, we include *FOURTH*, which equals one if the earnings announcement is for the fourth quarter, and zero otherwise. We include an indicator variable (*EXTREME_UE*) for extreme unexpected earnings to control for the non-linearity in the relation between abnormal returns and unexpected earnings (e.g. Freeman and

[28] Variance inflation factors (VIFs) are approximately 70 when we introduce a loss indicator and interactions into equation (2). Note that our research question necessitates two unexpected earnings variables (non-GAAP earnings and exclusions) because the two sum to GAAP earnings and controlling for unexpected GAAP earnings is important. That is, non-GAAP earnings is correlated with GAAP earnings, so an estimate of a non-GAAP ERC would be biased without including either unexpected GAAP earnings or unexpected excluded earnings components. See also Bradshaw, Christensen, Gee, and Whipple (2017).

[29] We Follow Teoh and Wong (1993) and choose not to include a separate persistence measure because the estimation of earnings persistence requires a long time-series of data. This data constraint would eliminate a considerable number of observations from our sample.

Tse 1992; Lobo, Song, and Stanford 2017). *EXTREME_UE* equals one for unexpected GAAP earnings in either the top or bottom decile of the unexpected GAAP earnings distribution. We interact all control variables with *UE_NG* and *UE_EX*. We do not control for firm size, as our dependent variable, *CAR*, is size-adjusted using each firm's size decile. We include firm fixed effects and we cluster standard errors by firm.

4. Results

4.1 Non-GAAP Income Statement Subsample

4.1.1 Information asymmetry results

As we note in Section 3.2, prior research indicates that changes in firms' provision of information can affect information asymmetry. For our non-GAAP income statement subsample, SEC comment letters result in the removal of full non-GAAP income statements. As we explain in Section 2.3.1, the SEC argues that full non-GAAP income statements have the potential to confuse investors and conveys that non-GAAP earnings are based on similar rules and procedures to GAAP earnings. If full non-GAAP income statements confuse investors, insiders (and potentially some skilled outside investors or outside investors with access to inside information) would be better informed than other investors, and removing non-GAAP income statements would reduce information asymmetry. In contrast, managers argue that full non-GAAP income statements better inform investors and analysts and that removing them will lead to confusion and greater diversity in estimates (see Section 2.3.1). Managers' arguments imply removing full non-GAAP income statements will *increase* information asymmetry.

Table 3 displays results from estimating equation (1) for our non-GAAP income statement subsample. In Columns (1) and (3), we include all observations in the non-GAAP income statement category. The positive and statistically significant coefficient on *POST* when both *SPREAD* (column 1) and *ILLIQ* (column 3) are the dependent variable indicates that removal of full non-GAAP income statements because of SEC comment letters is associated with an increase in information asymmetry. In columns (2) and (4), we repeat the estimation of equation (1) using just those observations that do not overlap with any

other of the three subsamples. Columns (2) and (4) suggest a similar inference as Columns (1) and (3). That is, bid-ask spreads and Amihud's illiquidity measure both increase after removal of full non-GAAP income statements suggesting an increase in information asymmetry.[30]

Overall, results from our analysis of information asymmetry measures in our non-GAAP income statement subsample suggest that the removal of non-GAAP income statements as requested by the SEC leads to a loss of valuable information and therefore to an increase in information asymmetry. However, our analysis to this point does not address whether the increase in overall information asymmetry is caused by an increase in information asymmetry between managers and investors or between more and less sophisticated investors. We address this question in Section 5.

4.1.2 ERC results

If full non-GAAP income statements convey valuable information, as our bid-ask spread results suggest, removal of full non-GAAP income statements could reduce the precision of the non-GAAP earnings signal and, therefore, the non-GAAP ERC (Holthausen and Verrecchia 1988). As we note in Section 2.3.1, managers argue that full non-GAAP income statements help analysts and investors better understand GAAP earnings. Their arguments suggest removal of full non-GAAP income statements could reduce non-GAAP earnings precision and the non-GAAP ERC.

Table 4 reports results from estimating equation (2) for our non-GAAP income statement sample. Because prior research (e.g., Bhattacharya, Black, Christensen, and Larson 2003) estimates non-GAAP ERCs without control variables, we tabulate results without control variables in Columns (1) and (3) and with control variables in Columns (2) and (4). Column (1) and (2) present results using all observations

[30] Regarding bid-ask spreads, based on the *POST* coefficient estimate of 0.0005, on average, comment letters about full non-GAAP income statements increase spreads from a mean of 0.2 percent of stock price (Table 1) to 0.25 percent of stock price. Johnston and Petacchi (2017) report a reduction in bid-ask spreads of 9.38% percent after comment letter resolution. However, they analyze all comment letters (not just non-GAAP). We focus not only on just non-GAAP comments, but also on a specific type of non-GAAP comment that results in a reduction of available information. Thus, our effect is in the opposite direction from Johnston and Petacchi (2017) and larger possibly because Johnston and Petacchi's pooling of all types of comment letters results in some offsetting of comment letters with opposite effects.

(i.e., including overlaps with the other three subsamples). In both columns (1) and (2), the coefficient on *POST*UE_NG* is significantly negative at better than the one percent level. Columns (3) and (4) include just those comment letters that comment only on non-GAAP income statements (i.e., no overlaps with other subsamples). Again, the coefficient on *POST×UE_NG* is negative and significant (five percent level or better) in both columns. Overall, the results in Table 4 suggest that the removal of full non-GAAP income statements impairs the informativeness of non-GAAP earnings. This provides support for managers' argument that non-GAAP income statements provide useful information to investors.

As we note in Section 2.3.1, the SEC generally often argues that full non-GAAP income statements convey too much prominence to non-GAAP earnings. Thus, one question is whether removal of non-GAAP income statements increases investor valuation attention on GAAP earnings. Recall that non-GAAP earnings and exclusions sum to GAAP earnings. Thus, we can assess whether investors increase valuation attention to GAAP earnings by examining the change in the exclusion ERC from before to after firms remove full non-GAAP income statements. That is, if investors increase valuation of GAAP earnings, they will place more valuation weight on exclusions. In terms, of equation (2), *POST×UE_EX* captures the change in the exclusion ERC. However, results in Columns (1) and (2) in Table 4, which include comment letters that overlap with other subsamples, suggest the exclusion ERC decreases after removal of full non-GAAP income statement. When we exclude comment letters that overlap with other subsamples (Columns (3) and (4)), the coefficient on *POST×UE_EX* is insignificant. Overall, we find no evidence that investors increase valuation of GAAP earnings as a result of firms removing full non-GAAP income statements because of SEC comment letters.[31]

[31] Using Column 2 of Table 4, the non-GAAP ERC declines by 15.7 percent after firms stop disclosing full non-GAAP income statements as directed by the SEC. Johntson and Petacchi (2017) report an increase in ERC of 13.7 percent after SEC comment letters. As we note in Section 4.1.1, Johnston and Petacchi (2017) analyze all comment letters as one pool, not just non-GAAP comment letters and not just non-GAAP comments that result in a reduction in information. Our focus on one specific type of comment letter may account for our slightly larger ERC change.

Combining the results from our information asymmetry and ERC tests, we conclude that the removal of non-GAAP income statements weakens firms' information environments and reduces the usefulness of non-GAAP earnings.

4.2 Reconciliation Subsample

4.2.1 Information asymmetry results

Prior research suggests that reconciliation schedule required under Regulation G is useful to investors in that it reduced mispricing of non-GAAP earnings. Thus, prior research suggests the reconciliation provided at least some investors with information they otherwise did not have. If either managers or other (perhaps more sophisticated) investors have that information without the reconciliation schedule, providing the schedule would reduce information asymmetry. Thus, SEC comment letters that result in firms providing a reconciliation schedule that were not previously providing the schedule could reduce information asymmetry.

We report results from estimating Equation (1) for our reconciliation sample in Table 5. We include both earnings-related reconciliations (e.g., EPS) and non-earnings-related reconciliations (e.g., book value of equity) in our sample. We make this research design choice because non-earnings-related reconciliation in earnings announcements may also provide investors with useful information and in turn enhance firms' information environments. Columns (1) and (3) tabulate results for all reconciliation observations and Columns (2) and (4) present results for observations that do not overlap with any of the other three subsamples. The coefficient on *POST* is insignificantly different from zero in all four columns in Table 5. Thus, our tests are unable to provide evidence that non-GAAP comment letters that require firms to provide the Regulation G-required significantly impact information asymmetry. We note that our test may lack sufficient power to reject the null of no effect because of our reconciliation sample is relatively small.

4.2.2 ERC results

The provision of a non-GAAP reconciliation schedule could affect the non-GAAP ERC for at least two reasons. First, evidence in Elliot (2006) suggests a non-GAAP reconciliation schedule increases

analysts' reliance on non-GAAP earnings. To the extent analysts are a proxy for investors, the evidence in Elliot (2006) suggests a reconciliation schedule would increase the valuation weight investors place on non-GAAP earnings and increase the non-GAAP ERC. However, evidence in Zhang and Zheng (2011) suggests that the reconciliation schedule reduces overpricing of non-GAAP earnings. This suggests that, after firms start providing a reconciliation as a result of a non-GAAP comment letter, investor valuation weight on non-GAAP earnings would decline as would the non-GAAP ERC. Finally, non-GAAP comment letters directing a firm to begin supplying a non-GAAP to GAAP reconciliation could bring to investors' attention that the firm has not been complying with Regulation G. Awareness of non-compliance with SEC regulations could create concern among investors that the firm is not complying with other reporting and disclosure regulations and increase uncertainty about the credibility of the firm's earnings (i.e., reduce perceived precision of both current earnings and prior information), which would reduce the ERC.

Table 6 tabulates results from estimating Equation (2) for our reconciliation subsample. For our reconciliation ERC analysis, we include only observations with earnings-related reconciliation issues (e.g., EPS, revenue, expense, and cash flow), because reconciliation of non-earnings metrics (e.g., book value of equity) is less likely to influence investors' pricing of non-GAAP earnings. However, our inferences are not affected if we include non-earnings reconciliation observations. Columns (1) (without control variables) and (2) (with control variables) show results including observations that overlap with our other subsamples and columns (3) (without control variables) and (4) (with control variables) show results excluding observations that overlap with our other subsamples. The coefficient on *POST*UE_NG* is insignificantly different from zero in all four columns. Thus, the results from Table 6 do not support the argument that reconciliation-related non-GAAP comment letters improve the informativeness of non-GAAP earnings. However, we must offer the notable caveat that our sample size for reconciliation comment letters is small (575 with overlaps and 314 without overlaps). Therefore, the lack of change we observe in non-GAAP

ERCs from before to after SEC comment letters requesting reconciliation schedules could be due to lack of power in our tests.[32, 33]

4.3 Explanation Subsample

For reasons we discuss in Sections 4.1 and 4.2, SEC non-GAAP comment letters requesting additional explanation of non-GAAP disclosures can affect information asymmetry and ERCs by changing the information available to investors, in this case by providing more information. Columns (1) and (3) (overlap) and (2) and (4) (no overlap) of Table 7 present results from estimating equation (1) with bid-ask spreads and Amihud's illiquidity measure as the dependent variable for our explanation subsample. The coefficient on *POST* is positive but insignificant in all four columns. Thus, we find no evidence that SEC comment letters requesting additional explanation of non-GAAP numbers significantly affect information asymmetry.

Table 8 presents results from estimating Equation (2) (ERCs) for our explanation subsample. We report results with and without control variables for all observations in Columns (1) and (2) and for observations that do not overlap with any other subsample in Columns (3) and (4). The coefficient on *POST*UE_NG* is negative and insignificant in Columns (1) and (2) but marginally significant in Column (3) and positive and marginally significant in Column (4). The coefficient on *POST×UE_EX* is positive and significant in Column (3) (no controls), but negative and (marginally) significant in Column (4) (with controls). Based on the results in Table 8, we conclude that there is no strong evidence that SEC comment

[32] We note an additional caveat. The results in Table 6 exclude one influential observation with Cook's D of 17. If we include this observation, the coefficient on *POST*UE_NG* is positive and significant (p-value =0.002). Rather than draw inferences driven by one observation, we chose to tabulate and discuss results without this one observation. We checked for influential observations for all other analyses we present and discuss in this paper and found none with a Cook's D above 1, which is the rule commonly applied in the literature. We also perform robust regression for all of our ERC analysis and find similar results.

[33] Again, a possibility is that the comment letters increase investors' valuation weighting on GAAP earnings, which would imply an increase in the coefficient on *POST×UE_EX*. However, Table 6 reveals that the *POST×UE_EX* does not increase and, in fact, generally decreases. One possible explanation for the decrease in valuation of exclusions after SEC prompted reconciliations is that these exclusions are generally less valuation relevant and the reconciliation confirms their lower valuation relevance to investors. However, we note any such interpretation should be made with caution, especially considering the small sample size.

letters requiring additional explanation of non-GAAP numbers significantly affect the informativeness of non-GAAP earnings or increase investor valuation of GAAP earnings.

4.4 Presentation Sample

SEC comment letters about presentation issues request either clearer labeling of non-GAAP numbers or request an increase in the prominence of GAAP numbers relative to non-GAAP numbers. The extent to which changes in disclosure prompted by these affect information asymmetry and ERCs is unclear because these are relatively minor changes in disclosure. Table 9 presents bid-ask spread and Amihud's illiquidity results. The coefficient on *POST* is not significantly different from zero in any of the four columns. Table 10 presents results from estimating Equation (2) (ERCs). Neither the *POST*×*UE_NG* nor the *POST*×*UE_EX* coefficients are significantly different from zero in any column. Thus, we find no evidence that comment letters change the informativeness of either non-GAAP or GAAP earnings.

5. Additional Analyses: Analyst Forecast Properties

Recall that our results in Section 4.1.1 suggest that SEC comment letters requiring removal of full non-GAAP income statements increase information asymmetry. In this section, we attempt to provide more insight into the increase in information asymmetry.

There are two (non-mutually exclusive) types of information asymmetry. Information asymmetry can arise because managers have more information than outside investors. Alternatively, information asymmetry can arise because some outside investors are better informed than others (e.g., Kim and Verrecchia 1994). Thus, there are two possible reasons the removal of full non-GAAP income statements increases information asymmetry. First, removal of non-GAAP income statements may withdraw information from all investors, so that managers remain informed but outside investors are less informed. This increase in information asymmetry is alluded to by some managers in their responses to SEC comment letters. For example, as we note in Section 2.3.1, Energen Corp. management argued that full non-GAAP income statements increase transparency to analysts and investors. Second, sophisticated/skilled investors may be able to largely compile non-GAAP income statements on their own even if the SEC prevents

managers from providing non-GAAP income statements. This can result in information asymmetry between more and less sophisticated investors.

We provide evidence on whether removal of non-GAAP income statements increases information asymmetry because of reduced information flow to all investors (i.e., increased information asymmetry between managers and investors) or because more sophisticated investors gain an advantage over less sophisticated investors (i.e., increased information asymmetry between investors). Following prior research (e.g., Amiram, Owens, and Rozenbaum 2016), we use analysts as a proxy for more sophisticated investors. Specifically, we study the effects of the removal of full non-GAAP income statements on the accuracy and dispersion of non-GAAP earnings forecasts. If removal of non-GAAP income statements reduces information to all investors, including relatively sophisticated analysts, analysts' forecast accuracy should decline. Further, as analysts try to generate that information on their own (e.g., by self-constructing non-GAAP income statements) their differential abilities to do so likely increases dispersion in their forecasts.

To assess the effect of the removal of non-GAAP income statements on analyst forecast accuracy and dispersion, we estimate equation (3) for our non-GAAP income statement subsample.

$$AF_{i,q} = \beta_0 + \beta_1 POST_{i,q} + \beta_2 ANALYST_{i,q} + \beta_3 BTM_{i,q} + \beta_4 LNASSET_{i,q} + \beta_5 GROWTH_{i,q} + \beta_6 LNAGE_{i,q} + \beta_7 INTAN_{i,q} + \beta_8 SDROA_{i,q} + \beta_9 LOSS_{i,q} + \beta_{10} FOURTH_{i,q} + \varepsilon \quad (3)$$

AF is either *AF_ERROR* or *AF_DISP*. *AF_ERROR* is the absolute value of the difference between actual non-GAAP earnings and the most recent analyst consensus forecast of non-GAAP earnings, scaled by end-of-quarter stock price. *AF_DISP* is the standard deviation of analyst non-GAAP earnings forecasts divided by stock price at the end of quarter. We multiply both dependent variables by 100 for presentation purposes. Similar to ERC analysis in Section 3.3, we only keep observations where IBES actual EPS differs from IBES actual GPS, since analysts are more likely forecasting non-GAAP earnings in these cases. *POST* equals one if the fiscal quarter begins after the last comment letter date and zero otherwise. We include eight pre-comment letter quarters and eight post-quarters. Our coefficient of interest is β_1, which captures the change in analyst forecast error or dispersion from pre-quarters to post-quarters.

We control for other determinants of analyst forecast properties following Heflin, Hsu, and Jin (2015), who also study analyst forecast accuracy and non-GAAP earnings. *ANALYST* is the natural log of number of analysts following the firm in quarter q. *MTB* is the ratio of market to book values of equity and *SIZE* is the natural logarithm of the market value of equity, both at the end of the quarter. *GROWTH* is the percentage change in sales relative to the same quarter one year ago. *LNAGE* the natural log of the number of years since the firm first appeared on Compustat. *INTAN* is noncurrent assets excluding property, plant, and equipment divided by total assets at the end of the quarter. *SDROA* is the standard deviation of return on assets calculated over the previous 24 quarters requiring a minimum of eight quarters. *LOSS* equals one for firms with negative EPS for the current quarter and zero otherwise. *FOURTH* equals one if quarter q is a fourth fiscal quarter and zero otherwise.

Table 11 displays results. Column (1) presents results when *AF_ERROR* is the dependent variable. The coefficient on *POST*, β_1, is positive and significant at the five percent level, suggesting a decrease in analyst non-GAAP forecast accuracy following resolution of SEC comment letters prompting firms to remove non-GAAP income statements. Column (2) of Table 11 shows results when *AF_DISP* is the dependent variable. The coefficient on *POST* is again positive and significant at the one percent level, suggesting an increase in analyst forecast dispersion after SEC directed removal of non-GAAP income statements.

Overall, our analyst forecast property tests are consistent with our information asymmetry and ERC tests suggesting that removing non-GAAP income statements has adverse consequences for firms' information environments. Further, our analyst forecast property tests suggest the removal of full non-GAAP income statements increased information asymmetry by making both more and less sophisticated investors less informed, rather than just less sophisticated investors. This is consistent with managers' claims that removing these statements would reduce transparency and increase heterogeneity in analysts' estimates.

6. Robustness Checks

In this section, we perform several robustness checks to provide assurance that our results are indeed due to SEC comment letters. In brief, our robustness checks include the following: (1) a difference-in-difference design using a matched control sample, (2) SEC comment letters on issues other than non-GAAP earnings, (3) examination of pre- and post-comment letter earnings press releases, (4) pseudo-events, (5) and dropping the financial crisis period. We perform our robustness checks for our non-GAAP income statement subsample only because that is the only subsample for which our results suggest SEC comment letters affect firms' information environments.

6.1 Difference-in-Difference Analysis

We perform a difference-in-difference analysis using a matched control sample. Our control sample is matched on industry, non-GAAP reporting, size, and profitability. We first select control firms from the universe of firms that report non-GAAP earnings but have not received SEC comment letters related to non-GAAP issues during our sample period. To select a matched control firm for each non-GAAP income statement sub-sample firm (i.e., a treatment firm), we first identify all non-GAAP reporting firms in the same 2-digit SIC industry. We then select all firms in the same CRSP size decile as the treatment firms in an industry. If there are no potential matches in the same size decile, we choose firms from the closest size decile to the treatment firm. From the potential industry and size-matched firms, we choose the firm with the closest ROA to the treatment firm as that treatment firm's matched firm. We drop treatment firms for which we are unable to obtain a match.[34] We re-estimate equations (1) through (3) separately for our non-GAAP income statement sub-sample and matched control samples.

We tabulate our results in Table 12. The coefficient on *POST* is significantly positive for the treatment sample for our spread, analysts' forecast error, and analysts' forecast dispersion analyses and the *POST*UE_NG* coefficient for the treatment firms is significantly negative. For our control firms, none of

[34] The number of observations in our treatment and control groups differ because these groups have different data availability over 16 quarters.

the *POST* coefficients are significantly different from zero nor is the *POST*UE_NG* coefficient. In the row labeled "Diff-in-diff", we report the difference-in-difference coefficient from a regression that combines the treatment and control samples. The difference-in-difference coefficient is significant across all analyses. Overall, our difference-in-difference analyses generate qualitatively the same inferences as our main tests. Comment letters that request firms remove non-GAAP income statements weaken firms' information environments relative to matched firms that also report non-GAAP earnings but do not receive SEC comment letters.

6.2 Other 8-K Comment Letters

Most SEC comment letters comment on multiple issues. We conduct two analyses to address the possibility that our full non-GAAP income statement results are attributable to other issues the SEC comments on in our full non-GAAP income statement subsample comment letters. First, we randomly select 30 comment letters from our non-GAAP income statement subsample. We read each letter and identified all issues the SEC commented on in each letter. We find a wide variety of other issues mentioned in non-GAAP comment letters which are randomly distributed across the different letters. No issue emerges as one the SEC commonly comments on when commenting on full non-GAAP income statements. Because the other issues the SEC comments on in full non-GAAP income statements are randomly distributed across letters, any information environment effects they might have likely cancel each other out. Further, in only one comment letter did the SEC request the firm reduce disclosure. Thus, even if the other issues did have some effect, that effect would likely be opposite to the effect of the SEC's requests to remove full non-GAAP income statements.

Second, we conduct a falsification analysis. We obtain a sample of 8-K comment letters from 2004-2016 that do not comment on non-GAAP issues. We refer to this sample as our "other 8-K comment letter sample". We conduct our bid-ask spread, non-GAAP ERC, and analyst forecast properties analyses on our other 8-K comment letter sample. We perform this analysis to rule out the alternative explanation that firms receiving comment letters in general experience a deterioration in the information environment regardless

of the specific topic. Results are presented in Table 13. We find no evidence of significant changes in bid-ask spreads, non-GAAP ERC, analyst forecast error, or analyst forecast dispersion for this sample.

6.3 Pre- and Post-Comment Letter Earnings Press Releases

We examine non-GAAP disclosures in pre- and post-comment letter earnings press releases. First, to determine whether full non-GAAP income statement subsample firms continue to disclose non-GAAP earnings after the comment letter process is resolved, we performed textual analysis using Python on earnings press releases for all of our eight pre and eight post quarters. We find that at least one non-GAAP key word is mentioned in 86.9 percent of the pre-comment letter quarters and 90.8 percent of the post-comment letter quarters. Thus, our textual analysis suggests firms in our full non-GAAP income statement subsample did not stop disclosing or reduce the frequency with which they disclose non-GAAP earnings after resolving an SEC comment letter.

Second, we assess the extent to which firms comply with the SEC's request to stop disclosing non-GAAP income statements. We randomly select 50 firms from the non-GAAP income statement sub-sample and read one randomly selected pre- and one randomly selected post-comment letter earnings press release for each of the 50 firms. We find that 90 percent of the firms no longer provide a full non-GAAP income statement after resolution of the comment letter process. The remaining 10 percent make only minor modifications to their disclosures of non-GAAP income statements. Thus, the vast majority of the firms comply with the SEC's request and stop providing non-GAAP income statements.

Third, one factor that could at least partially explain changes in firms' information environments from pre- to post-comment letter is a change in the items firms exclude to arrive at non-GAAP earnings. If the types of exclusions change from pre- to post-comment letter, such changes might potentially affect firms' information environments. To provide insight into managers' exclusion choices pre- and post-comment letter, we randomly select 50 firms from the non-GAAP income statement sub-sample and tabulate, in Appendix C, the exclusions from one randomly selected pre-comment letter earnings press release and one randomly selected post-comment letter earnings press release. Stock compensation is the

most frequent exclusion both pre and post and the percentage of the total is very similar pre to post (13.0% pre and 12.4% post). Further, the top five exclusions pre-comment letter are the same five exclusions post-comment letter. Overall, we see no clear changes in exclusions from pre- to post-comment letter.

6.4 Pseudo Event Windows

We perform falsification tests using pseudo-event windows to ensure that our results are not driven by time trends. We first move the event quarter backward eight quarters. That is, let q equal the quarter of comment letter resolution. Then, q-8 is the pseudo-event quarter. We then select the eight quarters before and eight quarters after q-8 as the pseudo-event window. We define *PSEUDO_POST* to equal one if the observation is after quarter q-8. We then re-estimate equations (1)-(3) for our non-GAAP subsample. In this estimation, all observations for each firm precede the actual event quarter, q. If the results we report in Sections 4 and 5 are due to SEC non-GAAP comment letters, we expect the coefficients on *PSEUDO_POST* and *PSEUDO_POST*×*UE_NG* to be insignificantly different from zero. We repeat this process, moving the event quarter forward eight quarters.[35] In none of these estimations is the coefficient on *PSEUDO_POST* or *PSEUDO_POST*×*UE_NG* significantly different from zero.

6.5 Robustness Test Excluding the Financial Crisis Period

We examine whether our results are robust to excluding the financial crisis period (i.e., 2008 and 2009), in case the information environment changed during that period. In untabulated results, we find that the changes in non-GAAP ERC, bid-ask spread, analyst forecast error, and analyst forecast dispersion for our non-GAAP income statement sample are robust to excluding the financial crisis period.

7. Conclusion

In this paper, we study the consequences of SEC comment letters addressing non-GAAP reporting issues in firms' earnings press releases. More specifically, we examine whether the comment letter process

[35] For some firms, q is too close enough to the end of our sample period that there are not eight quarters after q+8. In these cases, we use the quarters that are available after q+8. Thus, not all firms have eight pseudo-post-quarters when we use q+8 as the pseudo-event quarters.

affects information asymmetry and the informativeness of non-GAAP earnings. We begin by reading the conversations between the SEC and firms receiving non-GAAP comment letters between 2004 and 2016 and assign each comment letter into one of four categories: (1) non-GAAP income statement, (2) reconciliation, (3) explanation, and (4) presentation. We then study whether the comment letter process affects information asymmetry and non-GAAP ERCs for each of our four categories.

The SEC has expressed concerns about non-GAAP disclosures misleading investors because these unaudited metrics are subject to managerial discretion. This is important because firms' use of non-GAAP metrics has increased dramatically in the last decade (Bentley, Christensen, Gee, and Whipple 2018). Because one way the SEC attempts to regulate and improve firms' non-GAAP reporting is through the comment letter process, it is important for us not only to understand whether this process effectively regulates firms' non-GAAP disclosures, but whether it improves non-GAAP reporting without killing useful information.

Consistent with managers' claims that full non-GAAP income statements provide useful information to the market, we document increases (decreases) in information asymmetry (informativeness of non-GAAP earnings) after firms stop providing full non-GAAP income statements in earnings press releases, as directed by the SEC in comment letters. Furthermore, we provide evidence suggesting that analyst accuracy (dispersion) decreases (increases) after firms remove full non-GAAP income statements from press releases. In contrast, we do not find strong evidence of benefits or adverse consequences (to information asymmetry and informativeness of non-GAAP earnings) of comment letters prompting firms to provide a non-GAAP to GAAP reconciliation, more detailed explanation of the usefulness of non-GAAP metrics, and presentation issues such prominence and clearly labeling non-GAAP metrics.

Results from our analysis of bid-ask spreads, Amihud's (2002) illiquidity measure, analyst accuracy, and analyst dispersion in our non-GAAP income statement subsample suggest that the removal of full non-GAAP income statements as requested by the SEC leads to a loss of valuable information and therefore to an increase in information asymmetry between the firm and investors. In addition, results from our analysis of ERCs indicate that the removal of full non-GAAP income statements impairs the

informativeness of non-GAAP earnings. This evidence is consistent with managers' claims suggesting that non-GAAP income statements contain useful information to market participants. The little to no significance of our analyses for our reconciliation, explanation, and presentation subsamples are consistent with the non-GAAP comment letter process having no impact on firms' information environments, although our results related to some of our subsamples are subject to the caveat of small sample size.

References

Amihud, Y. and Mendelson, H. (1986). Asset pricing and the bid-ask spread. *Journal of Financial Economics* 17, 223-249.

Amihud, Y. (2002). Illiquidity and stock returns: cross-section and time-series effects. *Journal of Financial Markets* 5, 31-56.

Amiram, D., Owens, E., Rozenbaum, O. (2016). "Do information releases increase or decrease information asymmetry? New evidence from analyst forecast announcements." *Journal of Accounting and Economics* 62, 121-138.

Ayers, B.C., Schwab, C.M. and Utke, S. (2014). Noncompliance with mandatory disclosure requirements: The magnitude and determinants of undisclosed permanently reinvested earnings. *The Accounting Review* 90, 59-93.

Bailey, W., Li, H., Mao, C.X. and Zhong, R. (2003). Regulation fair disclosure and earnings information: Market, analyst, and corporate responses. *The Journal of Finance* 58, 2487-2514.

Bartov, E. and Bodnar, G.M. (1996). Alternative accounting methods, information asymmetry and liquidity: Theory and evidence. *The Accounting Review*, 397-418.

Beaver, W.H., McNichols, M.F. and Wang, Z.Z. (2016). The Information Content of Earnings Announcements: New Insights on Intertemporal and Cross-Sectional Behavior. Working paper.

Bens, D.A., Cheng, M. and Neamtiu, M. (2015). The impact of SEC disclosure monitoring on the uncertainty of fair value estimates. *The Accounting Review* 91, 349-375.

Bentley, J.W., Christensen, T.E., Gee, K.H., Whipple, B.C. (2018). Disentangling managers' and analysts' non-GAAP reporting incentives. Forthcoming, *Journal of Accounting Research*.

Bhattacharya, N., Black, E.L., Christensen, T.E., Larson, C.R. (2003). Assessing the relative informativeness and permanence of pro forma earnings and GAAP operating earnings. *Journal of Accounting and Economics* 36, 285-319.

Black, D.E., Black, E.L., Christensen, T.E. and Heninger, W.G. (2012). Has the regulation of pro forma reporting in the US changed investors' perceptions of pro forma earnings disclosures?. *Journal of Business Finance & Accounting*, *39*(7-8), pp.876-904.

Black, D.E. and Christensen, T.E. (2009). US managers' use of 'pro forma' adjustments to meet strategic earnings targets. *Journal of Business Finance & Accounting* 36, 297-326.

Black, D.E. and Christensen, T.E. (2018). Policy implications of Research on Non-GAAP Reporting. Forthcoming, *Research in Accounting Regulation*.

Black, D. E., Christensen, T. E., Ciesielski, J. T., & Whipple, B. C. (2017). Non-GAAP Reporting: Evidence from academia and current practice. *Journal of Business Finance & Accounting*.

Blankespoor, E., Miller, G.S. and White, H.D. (2013). The role of dissemination in market liquidity: Evidence from firms' use of Twitter. *The Accounting Review*, 89, 79-112.

Boone, J.P., Linthicum, C.L. and Poe, A. (2013). Characteristics of accounting standards and SEC review comments. *Accounting Horizons* 27, 711-736.

Bozanic, Z., Dietrich, J.R. and Johnson, B.A. (2017). SEC comment letters and firm disclosure. *Journal of Accounting and Public Policy*.

Bradshaw, M., T. Christensen, K. Gee, and B. Whipple. (2018). Analysts' GAAP earnings forecasts and their implications for accounting research. Forthcoming, *Journal of Accounting and Economics*.

Bradshaw, M.T. and Sloan, R.G. (2002). GAAP versus the street: An empirical assessment of two alternative definitions of earnings. *Journal of Accounting Research* 40, 41-66.

Brennan, M.J. and Subrahmanyam, A. (1995). Investment analysis and price formation in securities markets. *Journal of Financial Economics* 38, 361-381.

Brown, L.D. and Sivakumar, K. (2003). Comparing the value relevance of two operating income measures. *Review of Accounting Studies* 8, 561-572.

Brown, S. and Hillegeist, S.A. (2007). How disclosure quality affects the level of information asymmetry. *Review of Accounting Studies* 12, 443-477.

Brown, S.V., Tian, X.S. and Tucker, J.W. (2017). The spillover effect of SEC comment letters on qualitative corporate disclosure: Evidence from the risk factor disclosure. Working paper.

Bushee, B.J., Core, J.E., Guay, W. and Hamm, S.J. (2010). The role of the business press as an information intermediary. *Journal of Accounting Research* 48, 1-19.

Cassell, C.A., Dreher, L.M. and Myers, L.A. (2013). Reviewing the SEC's review process: 10-K comment letters and the cost of remediation. *The Accounting Review* 88, 1875-1908.

Chen, C.Y. (2010). Do analysts and investors fully understand the persistence of the items excluded from Street earnings? *Review of Accounting Studies* 15, 32-69.

Clarke, D., Sassalos, P. and Schmitt, K. (2003). The SEC's new disclosure requirements for non-GAAP financial information. *Insights: The Corporate & Securities Law Advisor* 17, 2-2.

Coller, M. and Yohn, T.L. (1997). Management forecasts and information asymmetry: An examination of bid-ask spreads. *Journal of Accounting Research* 35,181-191.

Collins, D.W. and Kothari, S.P. (1989). An analysis of intertemporal and cross-sectional determinants of earnings response coefficients. *Journal of Accounting and Economics* 11, 143-181.

Core, J.E., Guay, W.R. and Kothari, S.P. (2002). The economic dilution of employee stock options: Diluted EPS for valuation and financial reporting. *The Accounting Review* 77, 627-652.

Curtis, A.B., McVay, S.E. and Whipple, B.C. (2013). The disclosure of non-GAAP earnings information in the presence of transitory gains. *The Accounting Review* 89, 933-958.

Davis, A. K., & Tama-Sweet, I. (2012). Managers' use of language across alternative disclosure outlets: Earnings press releases versus MD&A. *Contemporary Accounting Research*, *29*(3), 804-837.

Diamond, D.W. and Verrecchia, R.E. (1991). Disclosure, liquidity, and the cost of capital. *The Journal of Finance* 46, 1325-1359.

Dickerson, B., Koontz, E., & Meyers, D. (2016). "SEC Misses the Mark with Non-GAAP Guidance and Comments. *News & Knowledge*. Troutman Sanders LLP.

Doyle, J.T., Jennings, J.N. & Soliman, M.T. (2013). Do managers define non-GAAP earnings to meet or beat analyst forecasts? *Journal of Accounting and Economics* 56, 40-56.

Doyle, J.T., Lundholm, R.J. &Soliman, M.T. (2003). The predictive value of expenses excluded from pro forma earnings. *Review of Accounting Studies* 8, 145-174.

Easley, D. and O'hara, M. (2004). Information and the cost of capital. *The Journal of Finance* 59, 1553-1583.

Elliott, W.B. (2006). Are investors influenced by pro forma emphasis and reconciliations in earnings announcements? *The Accounting Review* 81,113-133.

Entwistle, G., Feltham, G. and Mbagwu, C. (2004). Voluntary disclosure practices: the use of pro forma reporting. *Journal of Applied Corporate Finance* 16, 73-80.

Frederickson, J.R. and Miller, J.S. (2004). The effects of pro forma earnings disclosures on analysts' and nonprofessional investors' equity valuation judgments. *The Accounting Review* 79, 667-686.

Freeman, R. N., & Tse, S. Y. (1992). A nonlinear model of security price responses to unexpected earnings. *Journal of Accounting research*, 185-209.

Fu, R., Kraft, A., and Zhang, H. (2012). Financial reporting frequency, information asymmetry, and the cost of equity. *Journal of Accounting and Economics* 54, 132-149.

Hagerman, R.L., Zmijewski, M.E. and Shah, P. (1984). The association between the magnitude of quarterly earnings forecast errors and risk-adjusted stock returns. *Journal of Accounting Research* 22, 526-540.

Haggard, S.K., Howe, J.S. and Lynch, A.A. (2015). Do baths muddy the waters or clear the air. *Journal of Accounting and Economics* 59, 105-117.

Hayn, C. (1995). The information content of losses. *Journal of Accounting and Economics* 20,125-153.

Healy, P.M. and Palepu, K.G. (2001). Information asymmetry, corporate disclosure, and the capital markets: A review of the empirical disclosure literature. *Journal of Accounting and Economics* 31, 405-440.

Healy, P.M., Hutton, A.P. and Palepu, K.G. (1999). Stock performance and intermediation changes surrounding sustained increases in disclosure. *Contemporary Accounting Research* 16, 485-520.

Heflin, F. and Hsu, C. (2008). The impact of the SEC's regulation of non-GAAP disclosures. *Journal of Accounting and Economics* 46, 349-365.

Heflin, F., Hsu, C. and Jin, Q. (2015). Accounting conservatism and street earnings. *Review of Accounting Studies* 20, 674-709.

Heflin, F., Subramanyam, K.R. and Zhang, Y. (2003). Regulation FD and the financial information environment: Early evidence. *The Accounting Review* 78, 1-37.

Heflin, F.L., Shaw, K.W. and Wild, J.J. (2005). Disclosure policy and market liquidity: Impact of depth quotes and order sizes. *Contemporary Accounting Research* 22, 829-865.

Holthausen, R.W. and Verrecchia, R.E. (1988). The effect of sequential information releases on the variance of price changes in an intertemporal multi-asset market. *Journal of Accounting Research*, 82-106.

Huang, Q. and Skantz, T.R. (2016). The informativeness of pro forma and street earnings: an examination of information asymmetry around earnings announcements. *Review of Accounting Studies* 21,198-250.

Johnson, W.B. and Schwartz, W.C. (2005). Are investors misled by "pro forma" earnings? *Contemporary Accounting Research* 22, pp.915-963.

Johnston, R. and Petacchi, R. (2017). Regulatory oversight of financial reporting: Securities and Exchange Commission comment letters. *Contemporary Accounting Research* 34, 1128-1155.

Kim, O. and Verrecchia, R.E. (1994). Market liquidity and volume around earnings announcements. *Journal of Accounting and Economics* 17, 41-67.

Kolev, K., Marquardt, C.A. and McVay, S.E. (2008). SEC scrutiny and the evolution of non-GAAP reporting. *The Accounting Review* 83, 157-184.

Landsman, W.R., Miller, B.L. and Yeh, S. (2007). Implications of components of income excluded from pro forma earnings for future profitability and equity valuation. *Journal of Business Finance & Accounting* 34, 650-675.

Leuz, C. and Verrecchia, R.E. (2000). The economic consequences of increased disclosure. *Journal of Accounting Research*, 91-124.

Leuz, C. and Wysocki, P.D. (2016). The economics of disclosure and financial reporting regulation: Evidence and suggestions for future research. *Journal of Accounting Research* 54, 525-622.

Li, F. (2008). Annual report readability, current earnings, and earnings persistence. *Journal of Accounting and Economics* 45, 221-247.

Lobo, G. J., Song, M., & Stanford, M. H. (2016). The Effect of Analyst Forecasts during Earnings Announcements on Investor Responses to Reported Earnings. *The Accounting Review*, *92*(3), 239-263.

Loughran, T. and McDonald, B. (2014). Measuring readability in financial disclosures. *The Journal of Finance* 69, 1643-1671.

Louis, H., Robinson, D., and Sbaraglia, A. (2008). An integrated analysis of the association between accrual disclosure and the abnormal accrual anomaly. *Review of Accounting Studies*, *13*(1), 23-54.

Marques, A. (2006). SEC interventions and the frequency and usefulness of non-GAAP financial measures. *Review of Accounting Studies* 11, 549-574.

O'Neill, M. and Swisher, J. (2003). Institutional Investors and Information Asymmetry: An Event Study of SelfTender Offers. *Financial Review* 38, 197-211.

Rapoport, M. (2016). SEC Signals It Could Curb Use of Adjusted Earnings Figures. *The Wall Street Journal*. [online] Available at: https://www.wsj.com/articles/sec-scrutinizing-use-of-non-gaap-measures-by-public-companies-1458139473 [Accessed 13 Sep. 2017].

Rapoport, M., Michaels, D. (2016). SEC Tightens Crackdown on 'Adjusted' Accounting Measures. The *Wall Street Journal*. [online] Available at: https://www.wsj.com/articles/sec-tightens-crackdown-on-adjusted-accounting-measures-1463608923 [Accessed 13 Sep. 2017].

Robinson, J.R., Xue, Y. and Yu, Y. (2011). Determinants of disclosure noncompliance and the effect of the SEC review: Evidence from the 2006 mandated compensation disclosure regulations. *The Accounting Review* 86, 1415-1444.

Schoenfeld J. (2017). The effect of voluntary disclosure on stock liquidity; New evidence from index funds. *Journal of Accounting and Economics* 63, 51-74.

Stoll, H. (1978). The pricing of security dealer services: An empirical study of NASDAQ stocks. *The Journal of Finance* 33, 1153-1172.

Subramanyam, K.R. and Venkatachalam, M. (2007). Earnings, cash flows, and ex post intrinsic value of equity. *The Accounting Review* 82, 457-481.

Teoh, S.H. and Wong, T.J. (1993). Perceived auditor quality and the earnings response coefficient. *The Accounting Review*, 346-366.

U.S. Securities and Exchange Commission (SEC) (2003). Final rule: Conditions for use of non-GAAP financial measures (Releases 33-8176, 34-47226, FR-65, File No. S7-43-02). https://www.sec.gov/rules/final/33-8176.htm.

U.S. Securities and Exchange Commission (SEC) (2016). Compliance and Disclosure Interpretations: Non-GAAP Financial Measures. https://www.sec.gov/divisions/corpfin/guidance/nongaapinterp.htm.

U.S. Securities and Exchange Commission (SEC) (2016). Agency Financial Report Fiscal Year 2016. https://www.sec.gov/about/secpar/secafr2016.pdf.

Van Ness, B.F., Van Ness, R.A. and Warr, R.S. (2001). How well do adverse selection components measure adverse selection? *Financial Management*, 77-98.

Wang, I.Y. (2007). Private earnings guidance and its implications for disclosure regulation. *The Accounting Review*, 82 1299-1332.

Welker, M. (1995). Disclosure policy, information asymmetry, and liquidity in equity markets. *Contemporary accounting research* 11, 801-827.

Yohn, T.L. (1998). Information asymmetry around earnings announcements. *Review of Quantitative Finance and Accounting* 11, 165-182.

Zhang, H. and Zheng, L. (2011). The valuation impact of reconciling pro forma earnings to GAAP earnings. *Journal of Accounting and Economics* 51, 186-202.

Appendix A: Examples of non-GAAP income statements and non-GAAP to GAAP reconciliations.

A.1. Example of a non-GAAP income statement before receiving an SEC comment letter requesting removal of the non-GAAP income statement

From Cutera, Inc. May 8, 2006 earnings press release (full press release available at https://www.sec.gov/Archives/edgar/data/1162461/000119312506103516/dex991.htm):

CUTERA, INC.
RECONCILIATION OF GAAP RESULTS
TO PRO-FORMA RESULTS OF OPERATIONS
(in thousands, except per share data)
(unaudited)

	ACTUALS Three Months Ended 3/31/2006		
	GAAP*	Adjustment	Non-GAAP Pro-forma*
Net revenue	$20,757	$ —	$ 20,757
Cost of revenue	5,811	(143)(a)	5,668
Gross profit	14,946	143	15,089
Operating expenses:			
Sales and marketing	8,547	(343)(a)	8,204
Research and development	1,307	(112)(a)	1,195
General and administrative	4,374	(257)(a)	4,117
Total operating expenses	14,228	(712)	13,516
Income from operations	718	855(a)	1,573
Interest and other income, net	956	—	956
Income before income taxes	1,674	855	2,529
Provision for income taxes	(567)	(268)(b)	(835)
Net income	$ 1,107	$ 587	$ 1,694
Net income per diluted share	$ 0.08	$ 0.04	$ 0.12
Weighted-average number of shares used in diluted per share calculations:	14,174		14,174

(a)- Stock-based compensation charges resulting from adopting SFAS 123(R) with effect from January 1, 2006.
(b)- Reduced tax benefit related to the stock-based compensation charges resulting from adopting SFAS 123(R) with effect from January 1, 2006.
* Non-GAAP pro-forma includes the effect of compensation expense related to discounted options and restricted stock units recognized under APB 25. GAAP financials include the aforementioned expense plus the impact of stock-based compensation recognized under SFAS 123(R).

A.2. Example of a reconciliation schedule after receiving after SEC comment letter requesting removal of non-GAAP income statement (January 31, 2007).

From Cutera, Inc. January 31, 2007 earnings press release (full press release available at https://www.sec.gov/Archives/edgar/data/1162461/000119312507017394/dex991.htm):

CUTERA, INC.
NON-GAAP RECONCILIATION OF NET INCOME AND NET INCOME PER SHARE
(in thousands, except per share data)
(unaudited)

	Three Months Ended 12/31/2006	Twelve Months Ended 12/31/2006
GAAP net income	$ 7,115	$ 2,123
Non-GAAP adjustments to net income		
Litigation settlement (a)	—	18,935
Income tax effect of litigation settlement (c)	—	(7,199)
Stock-based compensation (b)	1,311	4,542
Income tax effect of stock-based compensation (c)	(534)	(1,568)
Total non-GAAP adjustments to net loss	777	14,710
Non-GAAP net income	$ 7,892	$ 16,833
GAAP diluted income per share	$ 0.50	$ 0.15
Non-GAAP adjustments to diluted income per share		
Litigation settlement, net of income tax effect (a)(c)	—	0.82
Stock-based compensation, net of income tax effect (b)(c)	0.05	0.21
Non-GAAP diluted net income per share	$ 0.55	$ 1.18
Weighted-average shares used to compute both GAAP and non-GAAP diluted net income per share	14,346	14,278

Appendix B: Examples of non-GAAP comment letters.

B.1. Example of request to remove non-GAAP income statements.

From comment letter to Cutera, Inc. on June 29, 2006 (full letter available at https://www.sec.gov/Archives/edgar/data/1162461/000000000006048647/filename1.pdf).

Form 8-K dated May 8, 2006

3. We note that you present your non-GAAP measures and reconciliation in the form of a statement of operations. This format may be confusing to investors as it also reflects several non-GAAP measures, including adjusted cost of revenue, adjusted gross profit, adjusted sales and marketing expenses, adjusted research and development expenses, adjusted general and administrative expenses, adjusted total operating expenses, adjusted income from operations, adjusted interest and other income, net, adjusted income before income taxes, adjusted provision for income taxes, adjusted net income, and adjusted net income per diluted share, which have not been identified or described to investors. In fact, it appears that management does not use all of these non-GAAP measures but they are shown here as a result of the presentation format. Please note that Instruction 2 to Item 2.02 of Form 8-K requires that when furnishing information under this item you must provide all the disclosures required by paragraph (e)(1)(i) of Item 10 of Regulation S-K and FAQ 8 Regarding the Use of Non-GAAP Financial Measures dated June 13, 2003 for each non-GAAP measure presented. In addition, you should explain why you believe each measure provides useful information to investors.

   - To eliminate investor confusion, please remove the non-GAAP statements of operations format from future filings and only disclose those non-GAAP measures used by management with the appropriate reconciliations.

B.2. Example of request to provide non-GAAP to GAAP reconciliation.

From comment letter to Actuant Corporation on February 5, 2016 (full letter available at https://www.sec.gov/Archives/edgar/data/6955/000000000016064026/filename1.pdf).

Form 8-K Filed October 1, 2015

7. Footnote (2) states that Actuant has presented EBITDA because it regularly reviews this as a measure of the Company's ability to incur and service debt. However, it does not appear that you have presented this measure in your reconciliations of GAAP Measure to Non-GAAP Measures tabular presentation. As such, please present and reconcile this measure. In addition, based on your disclosure, it is unclear if EBITDA is presented as a liquidity measure or as a material covenant to your debt agreements. To the extent that you are presenting EBITDA as a liquidity measure, please reconcile it to your operating cash flows. If it is a material covenant, please address the guidance in Question 102.09 of the Non-GAAP Measures Compliance & Disclosure Interpretations.

B.3. Example of request to provide more detailed explanation.

From comment letter to Hawaiian Electric Industries, Inc. on September 11, 2009 concerning Hawaiian Electric's subsidiary, American Savings Bank (full letter available at https://www.sec.gov/Archives/edgar/data/354707/000000000009050592/filename1.pdf).

Form 8-K filed August 7, 2009

18. We note your use of non-GAAP financial measures adjusted noninterest income and adjusted non-interest expense. We read that you believe the presentations of such financial measures on this basis provide useful supplemental information and a clearer picture of the bank's operating performance, and are a better indicator of the bank's ongoing core operating activities. Please explain to us how you considered each item in Question 8 of our Frequently Asked Questions Regarding the Use of Non-GAAP Financial Measures. In future filings, please expand your disclosure to explain in better detail the purposes for which management uses these measures to evaluate your operating performance. For example, if these measures are used to determine employees' bonuses or other compensation, you should disclose that. As another example, if you use these measures solely for informational purposes when comparing yourself to your competitors, you should disclose that. Refer to Instruction 2 to Item 2.02 of Form 8-K and Item 10(e)(1)(i)(C) and (D) of Regulation S-K.

B.4. Example of request for clear labeling of non-GAAP metrics.

From comment letter to Crown Crafts, Inc. on March 2, 2010 (full comment letter available at https://www.sec.gov/Archives/edgar/data/25895/000000000010011897/filename1.pdf).

Form 8-K Filed February 10, 2010

10. We note that your calculation of EBITDA in the press release furnished as an exhibit includes an adjustment for goodwill impairment charges. As such, the non-GAAP measure should not be characterized as EBITDA. When you include an adjustment that is not included in the definition of EBITDA as set forth in Item 10(e) of Regulation S-K please revise the title of the non-GAAP measure to clearly identify the earnings measure being used and all adjustments. Refer to question 103.01 of the Division's Compliance & Disclosure Interpretations on the use of non-GAAP measures available on our website at http://sec.gov/divisions/corpfin/guidance/nongaapinterp.htm.

B.5. Example of a request to present GAAP metrics with equal or greater prominence.

From comment letter to Federal-Mogul Holdings Corporation on November 10, 2015 (full letter available at https://www.sec.gov/Archives/edgar/data/1419581/000000000015053512/filename1.pdf)

8-K filed October 28, 2015

5. We note that you present certain non-GAAP measures in your third quarter highlights at the beginning of your earnings release, including operational EBITDA and adjusted net income, without providing the most directly comparable GAAP measurement in this section. As required by Instruction 2 of Item 2.02 of Form 8-K and Item 10(e)(1)(i)(A) of Regulation S-K, please revise your presentations and discussions to include, with equal or greater prominence, the most directly comparable financial measure or measures calculated and presented in accordance with GAAP. In this regard, your net (loss) income should precede non-GAAP measures.

Appendix C: Non-GAAP exclusions – Full non-GAAP income statement sub-sample

	Pre Comment Letter		Post Comment Letter	
Exclusion	# of Occurrences	% of Total	# of Occurrences	% of Total
Stock Compensation	28	13.0%	32	12.4%
Amortization	19	8.8%	25	9.7%
Restructuring Charges	19	8.8%	25	9.7%
Tax Effects	16	7.4%	19	7.3%
Acquisition-related revenue/charges	15	6.9%	20	7.7%
Impairment Charges	12	5.6%	13	5.0%
R/D	9	4.2%	10	3.9%
Legal Costs	8	3.7%	13	5.0%
Fair Value Adjustments	7	3.2%	7	2.7%
Other Gains/Losses	7	3.2%	8	3.1%
Tax Adjustments	7	3.2%	8	3.1%
Severance	5	2.3%	2	0.8%
Depreciation	4	1.9%	3	1.2%
Discontinued operations	4	1.9%	6	2.3%
Gain/Loss of sale of assets	4	1.9%	6	2.3%
Facility Reorganization	3	1.4%	2	0.8%
Unusual tax benefit	3	1.4%	5	1.9%
Accounting Guidance Changes	2	0.9%		
CFO transition	2	0.9%		
Foreign Currency Adjustment	2	0.9%	3	1.2%
Interest	2	0.9%	2	0.8%
Non-cash expenses	2	0.9%	3	1.2%
Purchase accounting adjustments	2	0.9%	3	1.2%
Warrant expense	2	0.9%		
Write offs	2	0.9%		
Early Extinguishment of Debt			5	1.9%
Other non-recurring charges			3	1.2%
Gains on investments			2	0.8%
Start-up costs			2	0.8%
Separation costs			4	1.5%
Other	30	13.9%	28	10.8%
Total	**216**	**100%**	**259**	**100%**

Table 1 Comment letter categories

Panel A: Number of letters by category

Category	# of Comment Letters	Overlap with NG Income Statement	Overlap with Reconciliation	Overlap with Explanation	Overlap with Presentation
NG Income Statement	312	NA	7	95	33
Reconciliation	226	7	NA	69	83
Explanation	462	95	69	NA	75
Presentation	278	33	83	75	NA

Panel B: Number of letters by category over time

Year	NG Income Statement	Reconciliation	Explanation	Presentation
2004	4	1	7	0
2005	31	12	61	24
2006	73	26	122	36
2007	45	15	54	15
2008	22	16	35	25
2009	22	49	68	42
2010	14	19	19	23
2011	21	15	25	19
2012	30	19	21	31
2013	22	20	15	11
2014	9	17	8	15
2015	14	11	19	21
2016	5	6	8	16
Total	312	226	462	278

This table provides information regarding the number of non-GAAP comment letters by category and throughout time. Column 2 of Panel A reports the total number of comment letters in each category (i.e., non-GAAP income statement, reconciliation, explanation, and presentation) for our full sample. The last four columns of Panel A report the number of observations that overlap with each of the other categories. Panel B reports number of comment letters (by category) over time.

Table 2 Descriptive statistics

Variable	*N*	*Mean*	*STD*	*P10*	*P25*	*Median*	*P75*	*P90*
Primary Variables:								
SPREAD	9,223	0.002	0.004	0.000	0.001	0.001	0.002	0.004
ILLIQ	9,225	0.045	0.361	0.000	0.000	0.001	0.007	0.040
POST	9,223	0.483	0.500	0.000	0.000	0.000	1.000	1.000
CAR	4,079	0.006	0.078	-0.085	-0.035	0.006	0.050	0.099
UE_NG	4,079	0.001	0.009	-0.001	0.000	0.001	0.002	0.004
UE_EX	4,079	0.001	0.000	-0.006	-0.002	0.000	0.001	0.005
Other Variables:								
AF_DISP	6,687	0.321	1.103	0.008	0.027	0.068	0.175	0.517
AF_ERROR	7,163	0.741	2.786	0.000	0.043	0.126	0.347	1.103
ANALYST	9,223	2.021	0.794	1.099	1.609	2.079	2.639	2.996
AVG_SPREAD	9,223	0.009	0.004	0.006	0.006	0.007	0.008	0.016
BETA	4,074	1.202	0.510	0.623	0.849	1.130	1.489	1.882
EXTREME_UE	4,079	0.172	0.377	0.000	0.000	0.000	0.000	1.000
FOURTH	7,163	0.245	0.430	0.000	0.000	0.000	0.000	1.000
GROWTH	7,163	0.133	0.312	-0.137	-0.014	0.082	0.213	0.449
HORIZON	7,163	3.613	0.999	2.197	3.091	3.932	4.419	4.500
INTAN	7,163	0.329	0.203	0.063	0.165	0.304	0.482	0.617
IO	9,223	0.716	0.217	0.385	0.595	0.762	0.878	0.972
LNAGE	7,163	2.962	0.632	2.197	2.485	2.833	3.367	3.970
LOSS	7,163	0.232	0.422	0.000	0.000	0.000	0.000	1.000
MTB	9,223	2.931	3.397	0.896	1.342	2.148	3.607	5.757
PRICE	9,223	29.038	26.803	5.000	10.440	21.250	38.770	61.700
SDROA	7,163	0.038	0.051	0.006	0.010	0.020	0.044	0.090
SIZE	9,223	7.338	1.724	5.148	6.071	7.277	8.447	9.678
TURNOVER	9,223	0.011	0.008	0.003	0.005	0.009	0.014	0.021
VOLATILITY	9,223	0.027	0.015	0.012	0.016	0.023	0.032	0.046

Our sample includes firm-quarter observations from 2002 to 2016. *SPREAD* is the quarterly average of daily closing bid-ask spreads. *ILLIQ* is the quarterly average of the daily absolute value of the stock return divided by the dollar value of trading volume. *POST* equals one for the eight quarters after the comment letter resolution and zero for the eight quarters prior to the comment letter resolution. *CAR* is the three-day size-adjusted cumulative abnormal return around each firm's quarterly earnings announcement. *UE_NG* is the difference between IBES actual EPS and the most recent consensus analyst EPS forecast deflated by stock price two days before the earnings announcement. *UE_EX* is unexpected exclusions, the difference between GAAP unexpected earnings and non-GAAP unexpected earnings deflated by stock price two days before the earnings announcement. *AF_DISP* is the standard deviation of analyst non-GAAP earnings forecasts divided by stock price at the end of quarter and multiplied by 100. *AF_ERROR* is the absolute difference between actual non-GAAP earnings and most recent analyst consensus forecast scaled by stock price at the end of the quarter and multiplied by 100. *ANALYST* is the natural logarithm of the number of analysts issuing earnings forecasts during the quarter. *AVG_SPREAD* is the average of daily bid-ask spreads of the CRSP universe calculated over a given calendar year. *BETA* is estimated with the market model for each firm-quarter using 60 trading days prior to the earnings announcement. *EXTREME_UE* equals one for top and bottom deciles of unexpected non-GAAP earnings and zero otherwise. *FOURTH* is an indicator variable equal to one for the fourth fiscal quarter. *GROWTH* is the percentage change in sales relative to the same quarter last year. *INTAN* is noncurrent assets excluding properties, plant and equipment divided by total assets at the end of the quarter. *IO* is the percentage of the firm's shares held by institutions at the end of the quarter. *LNAGE* is the natural logarithm of the number of years since a firm first appeared on Compustat. *LOSS* is an indicator variable for firms with negative EPS for the current quarter. *MTB* is the ratio of market to book values of equity at the end of the quarter. *PRICE* is the price of each firm at the beginning of the quarter. *SDROA* is the standard deviation of ROA over the previous 24 quarters requiring at least 8 quarters. *SIZE* is the natural logarithm of the market value of equity at the end of the quarter. *TURNOVER* is the quarterly average of daily trading volume divided by total shares outstanding. *VOLATILITY* is the standard deviation of the daily stock return during the quarter.

Table 3 Information asymmetry analysis: non-GAAP income statement sample

Dependent Variable	*SPREAD*		*ILLIQ*	
	(1)	(2)	(3)	(4)
	All obs	Exclude other categories	All obs	Exclude other categories
Intercept	0.0228***	0.0225***	0.4674***	0.4194***
	(6.4940)	(6.5017)	(3.7406)	(3.7587)
POST	**0.0005*** **	**0.0005*** **	**0.0094*** **	**0.0139** **
	(4.1052)	**(3.0076)**	**(2.8282)**	**(2.5359)**
MTB	0.0001***	0.0001**	0.0017***	0.0012**
	(2.9813)	(2.3461)	(2.6576)	(2.2155)
SIZE	-0.0028***	-0.0026***	-0.0620***	-0.0537***
	(-5.7065)	(-5.5285)	(-3.2375)	(-2.9671)
ANALYST	-0.0004***	-0.0006***	-0.0084	-0.0237**
	(-2.8911)	(-3.2715)	(-1.1900)	(-2.6062)
VOLATILITY	0.0282**	0.0266	1.0653	1.5998
	(2.3246)	(1.4752)	(1.6151)	(1.4660)
TURNOVER	-0.0479***	-0.0489***	-1.5342***	-1.9326**
	(-3.8320)	(-2.6353)	(-3.1143)	(-2.2950)
IO	-0.0013*	-0.0019	0.0059	0.0257
	(-1.7046)	(-1.4195)	(0.2242)	(0.5870)
PRICE	0.0000***	0.0000***	0.0010***	0.0009***
	(3.8280)	(3.5018)	(3.1819)	(2.7068)
AVG_SPREAD	0.0068	0.0426*	-0.1515	0.8741
	(0.3749)	(1.8560)	(-0.3042)	(1.1096)
Clustering	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Observations	2,216	1,336	2,216	1,336
Adjusted R^2	0.353	0.354	0.0547	0.0553

This table presents results for $INFOASY_{i,q} = \beta_0 + \beta_1 POST_{i,q} + \beta_2 MTB_{i,q} + \beta_3 SIZE_{i,q} + \beta_4 ANALYST_{i,q} + \beta_5 VOLATILITY_{i,q} + \beta_6 TURNOVER_{i,q} + \beta_7 IO_{i,q} + \beta_8 PRICE_{i,q} + \beta_9 AVG\_SPREAD_t + \varepsilon$, or changes in bid-ask spreads and illiquidity after receiving non-GAAP comment letters for the non-GAAP income statement sample (Column 1 and 3), and its subsample that does not overlap with other categories (Column 2 and 4). *SPREAD* is the quarterly average of the daily closing bid-ask spreads and *ILLIQ* is Amihud's illiquidity measure. *POST* equals one for the eight quarters after the comment letter resolution starting from the first quarter beginning after the last letter date and zero for the eight quarters prior to the comment letter resolution. *SIZE* is the natural logarithm of the market value of equity at the end of the quarter. *MTB* is the ratio of market to book values of equity at the end of the quarter. *ANALYST* is the natural logarithm of the number of analysts issuing earnings forecasts during the quarter. *VOLATILITY* is the standard deviation of the daily stock return during the quarter. *TURNOVER* is the quarterly average of daily trading volume divided by total shares outstanding. *IO* is the percentage of the firm's shares held by institutions at the end of the quarter. *PRICE* is the price of the firm at the beginning of the quarter. *AVG_SPREAD* is the average of daily bid-ask spreads of the CRSP universe calculated over a given calendar year. *, **, *** Denote statistical significance at the 10%, 5%, and 1% levels (two-sided), respectively.

Table 4 ERC analysis: non-GAAP income statement sample

	Dependent Variable: *CAR*			
	(1)	(2)	(3)	(4)
	All obs	All obs with controls	Exclude other categories	Exclude other categories with controls
Intercept	-0.000	-0.009	0.000	-0.025*
	(-0.077)	(-0.861)	(0.036)	(-1.800)
UE_NG	3.850***	20.942***	3.372***	23.283***
	(3.945)	(6.503)	(3.598)	(5.348)
UE_EX	0.271	-1.061*	0.083	-0.611
	(1.208)	(-1.912)	(0.344)	(-0.934)
POST	0.003	0.002	0.001	0.002
	(0.703)	(0.542)	(0.281)	(0.394)
POST×UE_NG	**-3.514*** **	**-3.290*** **	**-3.378*** **	**-3.539*** **
	(-5.378)	**(-3.864)**	**(-4.687)**	**(-4.036)**
POST×UE_EX	-0.347	-0.418	0.123	-0.133
	(-0.800)	(-1.317)	(0.277)	(-0.384)
Firm FE	Yes	Yes	Yes	Yes
Clustering	Yes	Yes	Yes	Yes
Observations	1,547	1,545	957	955
Adjusted R-squared	0.0364	0.0922	0.0369	0.0890

This table presents results for $CAR_{i,q} = \beta_0 + \beta_1 UE_{NG\,i,q} + \beta_2 UE_{EX\,i,q} + \beta_3 POST_{i,q} + \beta_4 POST_{i,q} \times UE_{NG\,i,q} + \beta_5 POST_{i,q} \times UE_{EX\,i,q} + \beta_6 Controls_{i,q} + \beta_7 Controls_{i,q} \times UE\_NG_{i,q} + \beta_8 Controls_{i,q} \times UE\_EX_{i,q} + \varepsilon$, or changes in ERCs after receiving non-GAAP comment letters for the non-GAAP income statement sample. Column (1) presents results without controls, and Column (2) includes controls. Columns (3) and (4) estimate similar equations for subsamples that do not overlap with other categories with and without controls, respectively. The dependent variable *CAR* is the three-day size-adjusted cumulative abnormal return around each firm's quarterly earnings announcement. *UE_NG* is the difference between IBES actual EPS and the most recent consensus analyst EPS forecast deflated by stock price two days before the earnings announcement. *UE_EX* is unexpected exclusions, the difference between GAAP unexpected earnings and non-GAAP unexpected earnings deflated by stock price two days before the earnings announcement. *POST* equals one for the eight quarters after the comment letter resolution starting from the first quarter that ends after the last comment letter and zero for the eight quarters prior to the comment letter resolution. *MTB* is the ratio of market to book values of equity at the end of the quarter. *BETA* is estimated with the market model for each firm-quarter using 60 trading days prior to the earnings announcement. *FOURTH* equals one if the earnings announcement is for the fiscal fourth quarter, and zero otherwise. *EXTREME_UE* equals one for top and bottom deciles of unexpected non-GAAP earnings and zero otherwise. *, **, *** Denote statistical significance at the 10%, 5%, and 1% levels (two-sided), respectively.

Table 5 Information asymmetry analysis: reconciliation sample

Dependent Variable	*SPREAD*		*ILLIQ*	
	(1)	(2)	(3)	(4)
	All obs	Exclude other categories	All obs	Exclude other categories
Intercept	0.0118***	0.0134***	0.1184	0.1552
	(3.8207)	(2.7488)	(1.3217)	(1.1949)
POST	**0.0000**	**0.0002**	**0.0054**	**0.0173**
	(0.0227)	**(0.6996)**	**(0.7082)**	**(1.3179)**
MTB	0.0000	-0.0000	0.0003	-0.0004
	(0.5311)	(-0.3089)	(0.6559)	(-1.0204)
SIZE	-0.0012***	-0.0015***	-0.0150*	-0.0200*
	(-3.5956)	(-2.8212)	(-1.7015)	(-1.6730)
ANALYST	-0.0004*	-0.0004	-0.0058	0.0033
	(-1.7886)	(-0.9621)	(-0.9288)	(0.2307)
VOLATILITY	0.0437***	0.0358**	1.5635*	0.6613
	(3.6757)	(2.3432)	(1.6984)	(1.2470)
TURNOVER	-0.0503***	-0.0650***	-1.8647*	-1.7015*
	(-3.1842)	(-3.1027)	(-1.8183)	(-1.6773)
INST_OWN	-0.0020*	-0.0018	-0.0129	-0.0470
	(-1.8885)	(-1.2354)	(-0.3297)	(-1.0155)
PRICE	0.0000***	0.0000*	0.0003	0.0001
	(2.8689)	(1.7092)	(1.5316)	(0.2649)
AVG_SPREAD	0.0498	0.1302*	0.6126	4.8764*
	(1.6174)	(1.8894)	(0.3501)	(1.6824)
Clustering	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Observations	1,033	568	1,033	568
Adjusted R	0.287	0.305	0.0434	0.105

This table presents results for $INFOASY_{i,q} = \beta_0 + \beta_1 POST_{i,q} + \beta_2 MTB_{i,q} + \beta_3 SIZE_{i,q} + \beta_4 ANALYST_{i,q} + \beta_5 VOLATILITY_{i,q} + \beta_6 TURNOVER_{i,q} + \beta_7 IO_{i,q} + \beta_8 PRICE_{i,q} + \beta_9 AVG\_SPREAD_t + \varepsilon$, or changes in bid-ask spreads and illiquidity after receiving non-GAAP comment letters for the non-GAAP income statement sample (Column 1 and 3), and its subsample that does not overlap with other categories (Column 2 and 4). *SPREAD* is the quarterly average of the daily closing bid-ask spreads and *ILLIQ* is Amihud's illiquidity measure. *POST* equals one for the eight quarters after the comment letter resolution starting from the first quarter beginning after the last letter date and zero for the eight quarters prior to the comment letter resolution. *SIZE* is the natural logarithm of the market value of equity at the end of the quarter. *MTB* is the ratio of market to book values of equity at the end of the quarter. *ANALYST* is the natural logarithm of the number of analysts issuing earnings forecasts during the quarter. *VOLATILITY* is the standard deviation of the daily stock return during the quarter. *TURNOVER* is the quarterly average of daily trading volume divided by total shares outstanding. *IO* is the percentage of the firm's shares held by institutions at the end of the quarter. *PRICE* is the price of the firm at the beginning of the quarter. *AVG_SPREAD* is the average of daily bid-ask spreads of the CRSP universe calculated over a given calendar year. *, **, *** Denote statistical significance at the 10%, 5%, and 1% levels (two-sided), respectively.

Table 6 ERC analysis: Reconciliation sample

	Dependent Variable: *CAR*			
	(1)	(2)	(3)	(4)
	All obs	All obs with controls	Exclude other categories	Exclude other categories with controls
Intercept	0.012***	0.024	0.016**	0.019
	(2.771)	(1.588)	(2.637)	(1.109)
UE_NG	0.903	14.322***	0.508	14.885***
	(0.969)	(3.467)	(0.781)	(3.399)
UE_EX	1.345***	1.347	1.636*	4.734**
	(2.921)	(1.375)	(1.907)	(2.351)
POST	-0.009	-0.004	-0.017	-0.009
	(-1.051)	(-0.523)	(-1.480)	(-0.888)
POST×UE_NG	**-0.343**	**1.054**	**-0.153**	**2.314**
	(-0.504)	**(0.816)**	**(-0.234)**	**(1.441)**
POST×UE_EX	-1.252	-1.651***	-1.517	-2.390**
	(-1.508)	(-2.687)	(-1.097)	(-2.684)
Firm FE	Yes	Yes	Yes	Yes
Clustering	Yes	Yes	Yes	Yes
Observations	575	575	314	314
Adjusted R-squared	0.0259	0.168	0.0291	0.248

This table presents results for $CAR_{i,q} = \beta_0 + \beta_1 UE_{NG\,i,q} + \beta_2 UE_{EX\,i,q} + \beta_3 POST_{i,q} + \beta_4 POST_{i,q} \times UE_{NG\,i,q} + \beta_5 POST_{i,q} \times UE_{EX\,i,q} + \beta_6 Controls_{i,q} + \beta_7 Controls_{i,q} \times UE\_NG_{i,q} + \beta_8 Controls_{i,q} \times UE\_EX_{i,q} + \varepsilon$, or changes in ERCs after receiving non-GAAP comment letters for the non-GAAP income statement sample. Column (1) presents results without controls, and Column (2) includes controls. Columns (3) and (4) estimate similar equations for subsamples that do not overlap with other categories with and without controls, respectively. The dependent variable *CAR* is the three-day size-adjusted cumulative abnormal return around each firm's quarterly earnings announcement. *UE_NG* is the difference between IBES actual EPS and the most recent consensus analyst EPS forecast deflated by stock price two days before the earnings announcement. *UE_EX* is unexpected exclusions, the difference between GAAP unexpected earnings and non-GAAP unexpected earnings deflated by stock price two days before the earnings announcement. *POST* equals one for the eight quarters after the comment letter resolution starting from the first quarter that ends after the last comment letter and zero for the eight quarters prior to the comment letter resolution. *MTB* is the ratio of market to book values of equity at the end of the quarter. *BETA* is estimated with the market model for each firm-quarter using 60 trading days prior to the earnings announcement. *FOURTH* equals one if the earnings announcement is for the fiscal fourth quarter, and zero otherwise. *EXTREME_UE* equals one for top and bottom deciles of unexpected non-GAAP earnings and zero otherwise. *, **, *** Denote statistical significance at the 10%, 5%, and 1% levels (two-sided), respectively.

Table 7 Information asymmetry analysis: explanation sample

Dependent Variable	*SPREAD*		*ILLIQ*	
	(1)	(2)	(3)	(4)
	All obs	Exclude other categories	All obs	Exclude other categories
Intercept	0.0154***	0.0163***	0.4670*	0.5132
	(4.2110)	(4.3078)	(1.8217)	(1.3709)
POST	**0.0001**	**0.0000**	**0.0031**	**-0.0002**
	(0.9843)	**(0.0184)**	**(0.5250)**	**(-0.0476)**
MTB	0.0000	0.0000	0.0006	-0.0000
	(1.3272)	(0.1271)	(1.0681)	(-0.0580)
SIZE	-0.0018***	-0.0018***	-0.0642*	-0.0606
	(-3.5757)	(-3.9602)	(-1.7574)	(-1.2197)
ANALYST	-0.0001	-0.0000	0.0008	0.0012
	(-1.5302)	(-0.0319)	(0.2267)	(0.2400)
VOLATILITY	0.0386***	0.0489***	1.9591**	2.7391**
	(4.2396)	(3.7294)	(2.3291)	(2.3860)
TURNOVER	-0.0857***	-0.1072***	-3.6737***	-5.2524***
	(-4.9410)	(-4.4255)	(-2.8798)	(-2.7207)
INST_OWN	-0.0011	-0.0032**	0.0002	-0.0906**
	(-1.3215)	(-2.4006)	(0.0042)	(-2.2695)
PRICE	0.0000***	0.0000***	0.0011*	0.0011
	(3.2300)	(2.8384)	(1.8610)	(1.3971)
AVG_SPREAD	0.0289**	0.0227	-1.2054	-2.0118
	(2.1678)	(1.3245)	(-1.2608)	(-1.3216)
Clustering	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Observations	2,431	1,270	2,432	1,271
Adjusted R	0.323	0.362	0.0643	0.0847

This table presents results for $INFOASY_{i,q} = \beta_0 + \beta_1 POST_{i,q} + \beta_2 MTB_{i,q} + \beta_3 SIZE_{i,q} + \beta_4 ANALYST_{i,q} + \beta_5 VOLATILITY_{i,q} + \beta_6 TURNOVER_{i,q} + \beta_7 IO_{i,q} + \beta_8 PRICE_{i,q} + \beta_9 AVG\_SPREAD_t + \varepsilon$, or changes in bid-ask spreads and illiquidity after receiving non-GAAP comment letters for the non-GAAP income statement sample (Column 1 and 3), and its subsample that does not overlap with other categories (Column 2 and 4). *SPREAD* is the quarterly average of the daily closing bid-ask spreads and *ILLIQ* is Amihud's illiquidity measure. *POST* equals one for the eight quarters after the comment letter resolution starting from the first quarter beginning after the last letter date and zero for the eight quarters prior to the comment letter resolution. *SIZE* is the natural logarithm of the market value of equity at the end of the quarter. *MTB* is the ratio of market to book values of equity at the end of the quarter. *ANALYST* is the natural logarithm of the number of analysts issuing earnings forecasts during the quarter. *VOLATILITY* is the standard deviation of the daily stock return during the quarter. *TURNOVER* is the quarterly average of daily trading volume divided by total shares outstanding. *IO* is the percentage of the firm's shares held by institutions at the end of the quarter. *PRICE* is the price of the firm at the beginning of the quarter. *AVG_SPREAD* is the average of daily bid-ask spreads of the CRSP universe calculated over a given calendar year. *, **, *** Denote statistical significance at the 10%, 5%, and 1% levels (two-sided), respectively.

Table 8 ERC analysis: explanation sample

	Dependent Variable: *CAR*			
	(1)	(2)	(3)	(4)
	All obs	All obs with controls	Exclude other categories	Exclude other categories with controls
Intercept	0.002	0.003	0.000	-0.011
	(0.707)	(0.311)	(0.081)	(-0.972)
UE_NG	3.067***	18.449***	2.361***	20.695***
	(3.632)	(6.945)	(3.540)	(6.388)
UE_EX	0.399	0.081	-0.447	0.514
	(1.223)	(0.132)	(-1.368)	(0.483)
POST	0.008*	0.004	0.008	0.001
	(1.826)	(0.981)	(1.311)	(0.217)
POST×UE_NG	**-1.521***	**-0.335**	**-0.746**	**2.448***
	(-1.945)	**(-0.248)**	**(-1.405)**	**(1.714)**
POST×UE_EX	-0.505	-0.677*	0.748*	0.604
	(-1.186)	(-1.919)	(1.855)	(1.065)
Firm FE	Yes	Yes	Yes	Yes
Clustering	Yes	Yes	Yes	Yes
Observations	1,674	1,672	889	887
Adjusted R-squared	0.0262	0.0695	0.0237	0.0702

This table presents results for $CAR_{i,q} = \beta_0 + \beta_1 UE_{NG_{i,q}} + \beta_2 UE_{EX_{i,q}} + \beta_3 POST_{i,q} + \beta_4 POST_{i,q} \times UE_{NG_{i,q}} + \beta_5 POST_{i,q} \times UE_{EX_{i,q}} + \beta_6 Controls_{i,q} + \beta_7 Controls_{i,q} \times UE\_NG_{i,q} + \beta_8 Controls_{i,q} \times UE\_EX_{i,q} + \varepsilon$, or changes in ERCs after receiving non-GAAP comment letters for the non-GAAP income statement sample. Column (1) presents results without controls, and Column (2) includes controls. Columns (3) and (4) estimate similar equations for subsamples that do not overlap with other categories with and without controls, respectively. The dependent variable *CAR* is the three-day size-adjusted cumulative abnormal return around each firm's quarterly earnings announcement. *UE_NG* is the difference between IBES actual EPS and the most recent consensus analyst EPS forecast deflated by stock price two days before the earnings announcement. *UE_EX* is unexpected exclusions, the difference between GAAP unexpected earnings and non-GAAP unexpected earnings deflated by stock price two days before the earnings announcement. *POST* equals one for the eight quarters after the comment letter resolution starting from the first quarter that ends after the last comment letter and zero for the eight quarters prior to the comment letter resolution. *MTB* is the ratio of market to book values of equity at the end of the quarter. *BETA* is estimated with the market model for each firm-quarter using 60 trading days prior to the earnings announcement. *FOURTH* equals one if the earnings announcement is for the fiscal fourth quarter, and zero otherwise. *EXTREME_UE* equals one for top and bottom deciles of unexpected non-GAAP earnings and zero otherwise. *, **, *** Denote statistical significance at the 10%, 5%, and 1% levels (two-sided), respectively.

Table 9 Information asymmetry analysis: presentation sample

Dependent Variable	*SPREAD*		*ILLIQ*	
	(1)	(2)	(3)	(4)
	All obs	Exclude other categories	All obs	Exclude other categories
Intercept	0.0159***	0.0135***	0.2329***	0.3119*
	(4.4094)	(3.7206)	(3.0168)	(1.7705)
POST	**-0.0000**	**-0.0001**	**0.0002**	**0.0060**
	(-0.2269)	**(-0.7715)**	**(0.0589)**	**(1.2459)**
MTB	0.0001	0.0000	0.0014	0.0005
	(1.5152)	(0.6166)	(1.0532)	(0.3067)
SIZE	-0.0020***	-0.0017***	-0.0388***	-0.0490
	(-3.6998)	(-2.9633)	(-2.6063)	(-1.5100)
ANALYST	-0.0002	-0.0001	0.0014	-0.0051
	(-0.9789)	(-0.6538)	(0.2290)	(-0.6062)
VOLATILITY	0.0555***	0.0632**	2.3090**	2.6738*
	(3.7406)	(2.4191)	(2.2578)	(1.7747)
TURNOVER	-0.0839***	-0.1340***	-2.9368**	-4.2838**
	(-2.9627)	(-2.8292)	(-2.5215)	(-2.2775)
INST_OWN	-0.0006	-0.0001	0.0488	0.0559
	(-0.9050)	(-0.1294)	(1.1710)	(0.8878)
PRICE	0.0000***	0.0000**	0.0007**	0.0009
	(3.1153)	(2.3885)	(2.3018)	(1.4620)
AVG_SPREAD	0.0288	0.0794**	-1.0425	0.2390
	(1.5868)	(2.4234)	(-0.8872)	(0.1944)
Clustering	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Observations	1,582	862	1,582	862
Adjusted R	0.315	0.329	0.0805	0.121

This table presents results for $INFOASY_{i,q} = \beta_0 + \beta_1 POST_{i,q} + \beta_2 MTB_{i,q} + \beta_3 SIZE_{i,q} + \beta_4 ANALYST_{i,q} + \beta_5 VOLATILITY_{i,q} + \beta_6 TURNOVER_{i,q} + \beta_7 IO_{i,q} + \beta_8 PRICE_{i,q} + \beta_9 AVG\_SPREAD_t + \varepsilon$, or changes in bid-ask spreads and illiquidity after receiving non-GAAP comment letters for the non-GAAP income statement sample (Column 1 and 3), and its subsample that does not overlap with other categories (Column 2 and 4). *SPREAD* is the quarterly average of the daily closing bid-ask spreads and *ILLIQ* is Amihud's illiquidity measure. *POST* equals one for the eight quarters after the comment letter resolution starting from the first quarter beginning after the last letter date and zero for the eight quarters prior to the comment letter resolution. *SIZE* is the natural logarithm of the market value of equity at the end of the quarter. *MTB* is the ratio of market to book values of equity at the end of the quarter. *ANALYST* is the natural logarithm of the number of analysts issuing earnings forecasts during the quarter. *VOLATILITY* is the standard deviation of the daily stock return during the quarter. *TURNOVER* is the quarterly average of daily trading volume divided by total shares outstanding. *IO* is the percentage of the firm's shares held by institutions at the end of the quarter. *PRICE* is the price of the firm at the beginning of the quarter. *AVG_SPREAD* is the average of daily bid-ask spreads of the CRSP universe calculated over a given calendar year. *, **, *** Denote statistical significance at the 10%, 5%, and 1% levels (two-sided), respectively.

Table 10 ERC analysis: presentation sample

	Dependent Variable: *CAR*			
	(1)	(2)	(3)	(4)
	All obs	All obs with controls	Exclude other categories	Exclude other categories with controls
Intercept	0.007**	0.004	0.011***	-0.002
	(2.215)	(0.425)	(2.898)	(-0.106)
UE_NG	1.592*	22.829***	1.379	20.348***
	(1.896)	(7.204)	(1.630)	(6.586)
UE_EX	0.175	0.156	0.180	1.129
	(0.699)	(0.295)	(0.668)	(1.618)
POST	-0.006	-0.002	-0.013*	-0.007
	(-1.048)	(-0.438)	(-1.828)	(-0.925)
POST×UE_NG	**0.611**	**-0.267**	**1.621****	**-0.011**
	(0.647)	**(-0.447)**	**(2.243)**	**(-0.021)**
POST×UE_EX	-0.162	-0.415	0.140	-0.323
	(-0.340)	(-0.896)	(0.361)	(-0.668)
Firm FE	Yes	Yes	Yes	Yes
Clustering	Yes	Yes	Yes	Yes
Observations	1,078	1,077	666	665
Adjusted R-squared	0.0337	0.136	0.0446	0.130

This table presents results for $CAR_{i,q} = \beta_0 + \beta_1 UE_{NG\,i,q} + \beta_2 UE_{EX\,i,q} + \beta_3 POST_{i,q} + \beta_4 POST_{i,q} \times UE_{NG\,i,q} + \beta_5 POST_{i,q} \times UE_{EX\,i,q} + \beta_6 Controls_{i,q} + \beta_7 Controls_{i,q} \times UE\_NG_{i,q} + \beta_8 Controls_{i,q} \times UE\_EX_{i,q} + \varepsilon$, or changes in ERCs after receiving non-GAAP comment letters for the non-GAAP income statement sample. Column (1) presents results without controls, and Column (2) includes controls. Columns (3) and (4) estimate similar equations for subsamples that do not overlap with other categories with and without controls, respectively. The dependent variable *CAR* is the three-day size-adjusted cumulative abnormal return around each firm's quarterly earnings announcement. *UE_NG* is the difference between IBES actual EPS and the most recent consensus analyst EPS forecast deflated by stock price two days before the earnings announcement. *UE_EX* is unexpected exclusions, the difference between GAAP unexpected earnings and non-GAAP unexpected earnings deflated by stock price two days before the earnings announcement. *POST* equals one for the eight quarters after the comment letter resolution starting from the first quarter that ends after the last comment letter and zero for the eight quarters prior to the comment letter resolution. *MTB* is the ratio of market to book values of equity at the end of the quarter. *BETA* is estimated with the market model for each firm-quarter using 60 trading days prior to the earnings announcement. *FOURTH* equals one if the earnings announcement is for the fiscal fourth quarter, and zero otherwise. EXTREME_UE equals one for top and bottom deciles of unexpected non-GAAP earnings and zero otherwise. *, **, *** Denote statistical significance at the 10%, 5%, and 1% levels (two-sided), respectively.

Table 11 Analyst forecast tests: non-GAAP income statement sample

	AF_ERROR	*AF_DISP*
	(1)	(2)
	Non-GAAP I/S	Non-GAAP I/S
Intercept	10.5623***	5.4760**
	(2.6327)	(2.4677)
POST	**0.2181****	**0.1612*****
	(1.9738)	**(2.6897)**
ANALYST	0.0273	0.0870
	(0.2603)	(0.9016)
HORIZON	0.0064	-0.0127
	(0.2524)	(-0.7924)
MTB	0.0040	0.0161
	(0.0884)	(0.8653)
SIZE	-1.2257***	-0.8205***
	(-3.0356)	(-3.2729)
GROWTH	0.1089	-0.0619
	(0.5746)	(-0.5723)
LNAGE	-0.2328	0.2726
	(-0.3416)	(0.7109)
INTAN	-0.0868	0.3547
	(-0.2482)	(1.0425)
SDROA	-1.3372	-1.2790
	(-1.0289)	(-1.6264)
LOSS	0.1467	-0.0206
	(1.1388)	(-0.2303)
FOURTH	0.0931	-0.0068
	(1.5391)	(-0.1791)
Clustering	Yes	Yes
Firm and Year FE	Yes	Yes
Observations	1,918	1,498
Adjusted R-squared	0.108	0.162

This table reports estimates of $AF = \beta_0 + \beta_1 POST_{i,q} + \beta_2 ANALYST_{i,q} + \beta_3 BTM_{i,q} + \beta_4 LNASSET_{i,q} + \beta_5 GROWTH_{i,q} + \beta_6 LNAGE_{i,q} + \beta_7 INTAN_{i,q} + \beta_8 SDROA_{i,q} + \beta_9 LOSS_{i,q} + \beta_{10} FOURTH_{i,q} + \varepsilon$ for our non-GAAP income statement sample. AF is either *AF_ERROR* or *AF_DISP*. *AF_ERROR* is the absolute difference between actual non-GAAP earnings and the most recent analyst consensus non-GAAP earnings forecast scaled by stock price at the end of the quarter and multiplied by 100. *AF_DISP* is the standard deviation of analyst forecasts of non-GAAP earnings scaled by stock price at the end of the quarter and multiplied by 100. *POST* equals one (zero) for the eight quarters after (before) comment letter resolution. *ANALYST* is the natural logarithm of the number of analysts issuing earnings forecasts during the quarter. *MTB* is the ratio of market to book values of equity at the end of the quarter. *SIZE* is the natural logarithm of the market value of equity at the end of the quarter. *GROWTH* is the percentage change in sales relative to the same quarter last year. *LNAGE* is the natural logarithm of the number of years since the firm first appeared on Compustat. *INTAN* is noncurrent assets excluding property, plant, and equipment divided by total assets at the end of the quarter. *SDROA* is the standard deviation of ROA over the previous 24 quarters requiring at least 8 quarters. *LOSS* equals one (zero) for firms with negative (zero or positive) EPS for the current quarter. *FOURTH* is an indicator variable for fourth quarters. *, **, *** Denote statistical significance at the 10%, 5%, and 1% levels (two-sided), respectively.

Table 12 Difference-in-difference analyses: non-GAAP income statement sample

	Spread		*ERC*		*AF_Error*		*AF_Disp*	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Treatment	Control	Treatment	Control	Treatment	Control	Treatment	Control
Intercept	0.0214***	0.0202***	-0.0047	0.0274***	10.5106**	2.3692	4.8593**	-0.7757
	(6.4893)	(7.1755)	(-0.4302)	(2.6323)	(2.5057)	(0.6046)	(2.3176)	(-0.3224)
POST	**0.0005*** **	**0.0001**	0.0018	-0.0081*	**0.2355** **	**-0.0567**	**0.1374** **	**-0.0385**
	(4.1721)	**(0.6209)**	(0.4640)	(-1.6661)	**(2.0498)**	**(-0.4529)**	**(2.4701)**	**(-0.6198)**
UE_NG			19.9517***	15.6434***				
			(5.1436)	(5.2821)				
UE_EX			1.2326*	0.6730				
			(1.7620)	(1.2678)				
POST*UE_NG			**-3.2730*** **	**-0.2442**				
			(-3.6042)	**(-0.2627)**				
*POST*UE_EX*			0.3984	-0.2782				
			(1.0951)	(-1.3234)				
Diff-in-Diff:		**0.0003***		**-2.9768** **		**0.2882** **		**0.2008*** **
		(1.8669)		**(-2.2308)**		**(2.1492)**		**(2.8168)**
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE & Cluster	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	2,202	1,479	3,681	1,497	910	2,407	1,858	1,125

This table presents results of difference-in-difference tests for our non-GAAP income statement sample. Columns 1 and 2 present estimates of $SPREAD_{i,q} = \beta_0 + \beta_1 POST_{i,q} + \beta_2 MTB_{i,q} + \beta_3 SIZE_{i,q} + \beta_4 ANALYST_{i,q} + \beta_5 VOLATILITY_{i,q} + \beta_6 TURNOVER_{i,q} + \beta_7 IO_{i,q} + \beta_8 PRICE_{i,q} + \beta_9 AVG\_SPREAD_t + \varepsilon$. *SPREAD* is the quarterly average of the daily closing bid-ask spreads. *POST* equals one for the eight quarters prior to the comment letter resolution and zero otherwise. Columns 3 and 4 present estimates of $CAR_{i,q} = \beta_0 + \beta_1 UE_{NG\,i,q} + \beta_2 UE_{EX\,i,q} + \beta_3 POST_{i,q} + \beta_4 POST_{i,q} \times UE_{NG\,i,q} + \beta_5 POST_{i,q} \times UE_{EX\,i,q} + \beta_6 Controls_{i,q} + \beta_7 Controls_{i,q} \times UE\_NG_{i,q} + \beta_8 Controls_{i,q} \times UE\_EX_{i,q} + \varepsilon$. *CAR* is the three-day size-adjusted cumulative abnormal return around each firm's quarterly earnings announcement. *UE_NG* is the difference between IBES actual EPS and the most recent consensus analyst EPS forecast deflated by stock price two days before the earnings announcement. *UE_EX* is unexpected exclusions, the difference between GAAP unexpected earnings and non-GAAP unexpected earnings deflated by stock price two days before the earnings announcement. *POST* equals one for the eight quarters after the comment letter resolution starting from the first quarter that ends after the last comment letter and zero for the eight quarters prior to the comment letter resolution. Columns 6 through 8 report estimates of $AF = \beta_0 + \beta_1 POST_{i,q} + \beta_2 ANALYST_{i,q} + \beta_3 BTM_{i,q} + \beta_4 LNASSET_{i,q} + \beta_5 GROWTH_{i,q} + \beta_6 LNAGE_{i,q} + \beta_7 INTAN_{i,q} + \beta_8 SDROA_{i,q} + \beta_9 LOSS_{i,q} + \beta_{10} FOURTH_{i,q} + \varepsilon$. AF is either *AF_ERROR* or *AF_DISP*. *AF_ERROR* is the absolute difference between actual non-GAAP earnings and the most recent analyst consensus non-GAAP earnings forecast scaled by stock price at the end of the quarter and multiplied by 100. *AF_DISP* is the standard deviation of analyst forecasts of non-GAAP earnings scaled by stock price at the end of the quarter and multiplied by 100. POST equals one (zero) for the eight quarters after (before) comment letter resolution. Our "Diff-in-Diff row presents the difference-in-difference coefficients for each analysis. *, **, *** Denote statistical significance at the 10%, 5%, and 1% levels (two-sided), respectively.

Table 13 Other 8-K comment letters analyses

	(1) *Spread*	(2) *ERC*	(3) *AF_Error*	(4) *AF_Disp*
Intercept	0.0149***	-0.008	25.1637	8.5993*
	(8.9449)	(-1.073)	(1.1084)	(1.8429)
POST	**-0.0001**	-0.002	**-0.0575**	**0.0258**
	(-1.0860)	(-0.552)	**(-0.1077)**	**(0.1774)**
UE_NG		14.690***		
		(10.880)		
UE_EX		-0.024		
		(-0.084)		
POST*UE_NG		**0.154**		
		(0.491)		
*POST*UE_EX*		0.326		
		(1.435)		
Controls	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Clustering	Yes	Yes	Yes	Yes
Observations	4,904	2,523	3,392	2,515
Adjusted R-squared	0.313	0.0962	0.134	0.254

This table presents the results of falsification tests for a sample of firms receiving comment letters regarding other issues in their 8-K filings (other than non-GAAP issues). Columns 1 presents estimates of $SPREAD_{i,q} = \beta_0 + \beta_1 POST_{i,q} + \beta_2 MTB_{i,q} + \beta_3 SIZE_{i,q} + \beta_4 ANALYST_{i,q} + \beta_5 VOLATILITY_{i,q} + \beta_6 TURNOVER_{i,q} + \beta_7 IO_{i,q} + \beta_8 PRICE_{i,q} + \beta_9 AVG\_SPREAD_t + \varepsilon$. The dependent variable *SPREAD* is the quarterly average of the daily closing bid-ask spreads. *POST* equals one for eight quarters prior to the comment letter resolution and zero for eight quarters after the comment letter resolution. Column 2 presents estimates of $CAR_{i,q} = \beta_0 + \beta_1 UE_{NG\,i,q} + \beta_2 UE_{EX\,i,q} + \beta_3 POST_{i,q} + \beta_4 POST_{i,q} \times UE_{NG\,i,q} + \beta_5 POST_{i,q} \times UE_{EX\,i,q} + \beta_6 Controls_{i,q} + \beta_7 Controls_{i,q} \times UE\_NG_{i,q} + \beta_8 Controls_{i,q} \times UE\_EX_{i,q} + \varepsilon$. *CAR* is the three-day size-adjusted cumulative abnormal return around each firm's quarterly earnings announcement. *UE_NG* is the difference between IBES actual EPS and the most recent consensus analyst EPS forecast deflated by stock price two days before the earnings announcement. *UE_EX* is unexpected exclusions, the difference between GAAP unexpected earnings and non-GAAP unexpected earnings deflated by stock price two days before the earnings announcement. *POST* equals one for the eight quarters after the comment letter resolution starting from the first quarter that ends after the last comment letter and zero for the eight quarters prior to the comment letter resolution. Columns 3 and 4 report estimates of $AF = \beta_0 + \beta_1 POST_{i,q} + \beta_2 ANALYST_{i,q} + \beta_3 BTM_{i,q} + \beta_4 LNASSET_{i,q} + \beta_5 GROWTH_{i,q} + \beta_6 LNAGE_{i,q} + \beta_7 INTAN_{i,q} + \beta_8 SDROA_{i,q} + \beta_9 LOSS_{i,q} + \beta_{10} FOURTH_{i,q} + \varepsilon$. AF is either *AF_ERROR* (column 3) or *AF_DISP* (column 4). *AF_ERROR* is the absolute difference between actual non-GAAP earnings and the most recent analyst consensus non-GAAP earnings forecast scaled by stock price at the end of the quarter and multiplied by 100. *AF_DISP* is the standard deviation of analyst forecasts of non-GAAP earnings scaled by stock price at the end of the quarter and multiplied by 100. POST equals one (zero) for the eight quarters after (before) comment letter resolution. *, **, *** Denote statistical significance at the 10%, 5%, and 1% levels (two-sided), respectively.