

The Determinants and Informativeness of Non-GAAP Revenue Disclosures

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Abstract

Nearly all research on non-GAAP measures focuses on earnings or earnings per share. Disclosure of non-GAAP revenue has recently attracted SEC scrutiny. Because revenue, unlike earnings, is a top-line number related primarily to core (i.e., persistent) business activities, it is unclear what adjustments could provide a more useful measure of performance. We present the first archival analysis of non-GAAP revenues based on a large, hand-collected sample of disclosures from 2015-2018. Approximately one in five earnings announcements contains a non-GAAP revenue disclosure, focused on revenue growth. Our evidence suggests that firms disclose non-GAAP revenue when GAAP revenue is incomparable with prior periods, and not to compensate for poor GAAP performance. Furthermore, non-GAAP revenue growth predicts future revenue growth better than GAAP revenue growth, and the market responds to this information. Overall, non-GAAP revenue disclosures are motivated by economic fundamentals rather than opportunism, on average, and they provide investors with relevant information.

I. INTRODUCTION

Financial statement preparers increasingly supplement their GAAP performance measures with non-GAAP measures that they argue provide more decision-useful information about future performance and firm value. Prior research focuses almost exclusively on non-GAAP earnings and earnings per share (hereafter, EPS).¹ While prior research identifies settings where non-GAAP reporting is consistent with opportunism, the collective evidence suggests that non-GAAP earnings disclosures are informative to investors, on average. However, non-GAAP financial measures encompass more than earnings or other subtotals, and evidence on such other non-GAAP measures is scarce.

Recently, several high-profile firms have disclosed non-GAAP revenue measures.² Unlike earnings or other summary measures, revenue is not an agglomeration of distinct line items that are disclosed elsewhere in the financial statements, and it does not incorporate changes in equity related to incidental/peripheral transactions (e.g., losses, gains, or non-operating expenses). Instead, revenues are inflows of assets related to “ongoing major or central operations” (FASB 2008). It is therefore unclear *ex ante* why firms disclose non-GAAP revenue; what about revenue is *not* core to the business and would warrant adjustments? Given this lack of clarity as to their purpose, non-GAAP revenue disclosures have drawn scrutiny from the Securities and Exchange Commission (SEC). In 2016, the SEC’s Chief Accountant warned about the use of adjusted revenue metrics, stating “if you present adjusted revenue, you will likely get a comment” (Bricker 2016), and several firms have received comment letters about their non-GAAP revenue

¹ Exceptions include studies examining free cash flow (Adhikari and Duru 2006; Adame et al. 2020), EBITDA and adjusted EBITDA (Rozenbaum 2019; Brown et al. 2020), and key performance indicators (Givoly et al. 2019). Gee et al. (2021) examine non-GAAP EPS denominator choices.

² Appendix B provides examples of non-GAAP revenue disclosures. Also see <https://fortune.com/2016/11/30/sec-tesla-earnings-cooking-the-books-resale/> and <https://www.marketwatch.com/story/blackberrys-use-of-non-standard-metrics-violates-sec-rules-2019-06-26> for examples of media coverage.

disclosures, prompting further scrutiny from the media (e.g., Tesla, BlackRock, BlackBerry).

We examine the factors associated with firms' use of non-GAAP revenue disclosures, and whether such disclosures appear to be informative. Specifically, we investigate two main research questions. First, do firms provide non-GAAP revenue disclosures when their economic fundamentals make revenues less comparable and/or more important to financial statement users, or do they issue non-GAAP revenue disclosures opportunistically to highlight more favorable performance? Second, do non-GAAP revenue disclosures provide investors with incremental decision-useful information, and do investors incorporate this information into valuation decisions?

The answers to these questions are relevant not only for academics, but also for standard setters, regulators, and investors. Non-GAAP earnings is often informative because it excludes items that are less persistent and therefore less useful in predicting future performance and assessing firm value. However, revenue is a top-line income statement item that relates to core operations. If the motivation for non-GAAP reporting is to exclude transitory items, non-GAAP revenue disclosures may represent particularly misleading information relative to non-GAAP earnings. In addition, given the recent standard-setting activity by the Financial Accounting Standards Board (FASB) related to GAAP revenues (ASC 606) and accounting for acquired deferred revenues (ASC 805), evidence on the properties of voluntarily provided non-GAAP revenue information may be relevant for standard setters.

We provide the first large-sample analysis of non-GAAP revenue disclosures.³ For a representative sample of 1,255 distinct firms, we hand collect non-GAAP revenue amounts and

³ Our database is publicly available at [link forthcoming]. As noted in the subsection "Determinants of Non-GAAP Revenue Disclosure" in Section IV, I/B/E/S does not generally follow firms' revenue on a non-GAAP basis, even when firms disclose non-GAAP revenue. Therefore, researchers interested in firms' non-GAAP revenue disclosures should rely on data hand-collected from firm disclosures.

adjustment categories from earnings announcement press releases for all quarters during 2015-2018. We find that non-GAAP revenue disclosure occurs in approximately one in five earnings announcements filed with the SEC during 2015-2018, and is typically disclosed as revenue growth (i.e., revenue in quarter q relative to quarter $q-4$). We identify four broad categories of adjustments: (1) differences in foreign exchange rates (i.e., to disclose “constant-currency” revenue growth; hereafter, “FX” adjustments), (2) changes to the reporting entity such as mergers, acquisitions, and divestitures (i.e., to disclose “organic” revenue growth; hereafter, “REP_ENT” adjustments), (3) satisfaction of deferred revenue liabilities assumed in business combinations (i.e., to recognize revenue that is not recognized under GAAP due to purchase accounting; hereafter, “ASC805” adjustments), and (4) other adjustments, which typically reflect ongoing, entity-specific non-GAAP approaches to revenue recognition (hereafter, “OTHER” adjustments). This latter category includes highly tailored adjustments about which the SEC has publicly expressed concern. Firms make FX and REP_ENT adjustments most frequently (73 percent and 50 percent of non-GAAP revenue disclosures, respectively) and ASC805 and OTHER adjustments less frequently (8 percent and 7 percent of disclosures, respectively).⁴

We also find that non-GAAP revenue adjustments are material. The absolute difference in revenue growth percentages between non-GAAP and GAAP is 9 percent on average (e.g., non-GAAP revenue growth is 5% and GAAP revenue growth is 14%, or vice versa). Importantly, non-GAAP revenue growth does not always paint a better picture of performance than GAAP revenue growth; non-GAAP revenue growth is *less* than GAAP revenue growth in 41 percent of observations (untabulated). Non-GAAP revenue disclosures are most common in the consumer

⁴ Supplemental analyses discussed in Section V show that non-GAAP revenue disclosures frequently occur without accompanying non-GAAP EPS disclosures, and significant differences between the determinants of non-GAAP revenue and non-GAAP EPS disclosures underscores that these are distinct reporting decisions.

durables, textiles, apparel, and footwear industries, where approximately 40 percent of firms disclose non-GAAP revenue (most frequently with FX adjustments).

We next examine the determinants of non-GAAP revenue disclosures by regressing an indicator for whether firms disclose non-GAAP revenue growth on several firm characteristics. We classify these characteristics broadly as having an economic basis (i.e., GAAP revenue changes are distorted by economic factors or events), having an opportunistic basis (i.e., managers use adjustments to mislead investors about performance), or reflecting other firm characteristics (e.g., firm fundamentals). We find that the main reason firms disclose non-GAAP revenue is because economic factors and events distort the usefulness of changes in GAAP revenue for assessing firm performance. For example, when a firm's financial statements are affected by changes in foreign exchange rates, the probability of non-GAAP revenue disclosure is about 20 percent higher. Furthermore, the probability that a firm discloses non-GAAP revenue is about 10 percent higher when (1) the firm has a transitory item or acquisition (e.g., a change in reporting entity), (2) I/B/E/S follows the firm's revenue on an adjusted basis, and (3) the firm is larger or operates in a less competitive industry. We find little evidence that firms disclose non-GAAP revenue opportunistically, on average. However, the motives for OTHER revenue adjustments are less clear; the presence of such adjustments is largely unassociated with events or transactions that can inhibit the comparability of GAAP revenue, which supports SEC scrutiny of these adjustments.

Our determinants tests suggest that a firm generally requires economic exposure of a certain type (i.e., foreign currency, a merger/acquisition/reporting entity change, etc.) to report non-GAAP revenue. Additional analyses suggest that this economic exposure must be material enough to impair the comparability of GAAP revenue between periods. However, we also find

that not all material exposure-related events result in a non-GAAP disclosure, as firms appear to exercise at least some discretion about whether to disclose non-GAAP revenue information.

Next, we examine the extent to which non-GAAP revenue provides information about future revenues. We find that, on average, non-GAAP revenue growth is more positively related to future revenue growth than GAAP revenue growth, and that this relation appears to be driven by FX and/or REP_ENT adjustments. This finding suggests that non-GAAP revenue provides information about future revenue growth that is incremental to GAAP revenue.

To determine whether investors incorporate the information provided by non-GAAP revenue disclosures, we examine the market reaction around non-GAAP revenue disclosures. After controlling for unexpected earnings and revenue growth, earnings announcement returns are positively associated with firms' non-GAAP revenue growth. This suggests that investors recognize the incremental information in firms' non-GAAP revenue disclosures at the disclosure date. However, investors only respond to non-GAAP revenue disclosures involving FX adjustments, as we find no short-window stock price reaction to non-GAAP revenue disclosures involving REP_ENT, ASC805, and OTHER adjustments.

To understand why investors respond only to FX related non-GAAP revenue disclosures at the disclosure date, we consider whether non-FX adjustment types confirm investors' expectations rather than providing new information. For example, other disclosures regarding a business combination could allow investors to estimate REP_ENT or ASC805 adjustments prior to their disclosure, which could explain the absence of a market response to non-GAAP revenue with such adjustments despite its usefulness for predicting future revenue growth. We test whether investors incorporate the information in non-GAAP revenue growth prior to its disclosure by examining the association between non-GAAP revenue growth and contemporaneous stock

returns prior to the earnings announcement date. We find a positive association between non-GAAP revenue growth and returns for disclosures involving FX, REP_ENT, and ASC805 adjustments. Thus, investors incorporate some of the information in these non-GAAP revenue measures prior to their disclosure, suggesting that the absence of an market response to disclosures involving REP_ENT and ASC805 adjustments is because they confirm expectations investors have already formed.

Collectively, our evidence suggests that non-GAAP revenue measures involving FX, REP_ENT, and ASC805 adjustments are decision useful based on their relations with future revenue growth and stock prices. However, our tests suggest that non-GAAP revenue involving OTHER adjustments offers no incremental decision-useful information for investors. Thus, the SEC's concerns with these adjustments appear warranted.

While non-GAAP revenue disclosure appears to be useful on average, in supplemental analyses we attempt to identify instances where non-GAAP revenue disclosure may be used opportunistically to manage investors' perceptions of firm performance. First, we examine SEC comment letters about non-GAAP revenue reporting and find that comment letters are more likely when non-GAAP revenue disclosures involving OTHER adjustments, but not more likely for FX, REP_ENT, and ASC805 adjustments. These results provide further evidence that OTHER adjustments potentially reflect opportunism. Second, we investigate the possibility that firms initiate non-GAAP revenue disclosures for opportunistic reasons. After determining the initiation dates of non-GAAP revenue reporting for a subset of firms, we find that initiation is slightly more likely in the presence of foreign exchange losses than gains. This provides some weak evidence that firms initiate non-GAAP revenue disclosures to present more favorable information.

Our study makes several contributions. First, we contribute to the literature on the use of non-GAAP financial measures. Prior research focuses on non-GAAP earnings and EPS, and little is known about other non-GAAP financial measures. We fill this void in the literature by hand collecting a large sample of non-GAAP revenue adjustments. We provide evidence that non-GAAP revenue disclosures are common, involve many distinct types of adjustments, and typically provide useful information to investors. While non-GAAP revenue disclosures may prompt concern and skepticism *ex ante*, most non-GAAP revenue disclosures are relevant for investors.

Second, we contribute to the literature on the informativeness of revenues. Prior research finds that revenues reflect persistent components of earnings, and that disaggregating earnings into its revenue and expense components provides incremental information (e.g., Swaminathan and Weintrop 1991; Zhang 2005, Srivastava 2014). However, other studies show that revenues are used in earnings management (Altamuro et al. 2005; Stubben 2010), and revenue recognition is one of the most common reasons for restatements (Scholz 2008; Callen et al. 2008). While it is plausible that managers might use non-GAAP revenues to manage perceptions of performance rather than engaging in actual revenue manipulation, we fail to find consistent evidence that firms disclose non-GAAP revenue to mislead investors.

Third, our evidence is relevant for regulators and standard setters given the attention on non-GAAP revenue disclosures in recent years. We find little evidence that non-GAAP revenue provides incremental useful information when adjustments are highly entity-specific and involve individually tailored revenue recognition practices (i.e., OTHER adjustments), consistent with recent commentary by the SEC and the financial press. Of the firms providing non-GAAP revenue disclosures, this group may merit the closest investigation. Furthermore, the FASB recently issued ASU 2021-08 requiring firms to measure acquired deferred revenue at its original transaction price

rather than at fair value, which is consistent with firms' non-GAAP revenue disclosures involving ASC805 adjustments.⁵ Our findings suggest that the new standard will increase the relevance of GAAP revenue for investors. Finally, some argue that non-GAAP reporting is evidence that disaggregation in GAAP reporting does not meet investors' needs (Linsmeier 2016, Leung and Veenman 2018). Our findings may inform standard setters about potential disaggregation methods.

II. BACKGROUND AND RESEARCH QUESTIONS

Background

In the United States, non-GAAP financial measures have become increasingly common over the past three decades (Black et al. 2018; Bentley et al. 2018). Prior research focuses on whether firms provide non-GAAP financial measures that either (a) convey improved information about the firm's performance (and therefore its fundamental value) or (b) mislead capital market participants about fundamental economic performance. On one hand, proponents of non-GAAP reporting argue that GAAP net income frequently includes transitory or non-core items that are not useful in predicting future cash flows (and should thus be excluded). On the other hand, critics contend that non-GAAP reporting affords managers the latitude to behave opportunistically by selectively excluding GAAP items to enhance perceptions of firm value.

As described by Black et al. (2018) in their review of the non-GAAP literature, most non-GAAP measures are variations of earnings, and prior research provides comprehensive evidence on the determinants and properties of non-GAAP earnings. While non-GAAP earnings that exclude recurring items can reflect an attempt to mislead investors (Doyle et al. 2003; Frankel et al. 2011; Black et al. 2017; Bentley et al. 2018), most non-GAAP earnings adjustments reflect a

⁵ On October 28, 2021, the FASB issued ASU 2021-08 titled "Business Combinations (Topic 805): Accounting for Contract Assets and Contract Liabilities from Contracts with Customers." Paragraph BC.21 of the ASU states that this change was prompted in part by investors' use of non-GAAP revenue adjustments (i.e., the adjustments we classify as ASC805 adjustments) and that the accounting change will eliminate the need for entities and investors to rely on this type of non-GAAP revenue disclosure.

screening of income statement items to remove one-time or non-operating items that are less value relevant, such as gains, losses, and non-cash expenses (Bradshaw and Sloan 2002; Bhattacharya et al. 2003; Lougee and Marquardt 2004; Curtis et al. 2014; Black et al. 2018, Black et al. 2021). Recent research also finds that firms with GAAP losses report profitable non-GAAP earnings when the GAAP loss is especially less relevant for investors (Leung and Veenman 2018), and that firms present more relevant non-GAAP EPS measures more prominently (Chen et al. 2021).

However, non-GAAP disclosure and the regulation of non-GAAP reporting encompass more than earnings or similar summary measures of performance. Black et al. (2018) note the lack of evidence on non-GAAP reporting outside of adjusted earnings or EPS. Data on firms' non-GAAP financial measures is not widely available from data service providers and vendors, which necessitates that research on such reporting practices use hand collected data extracted directly from firms' disclosures. Black et al. (2018) explicitly call for future research on "whether results related to non-GAAP earnings apply to other non-GAAP performance metrics...and whether these other measures incrementally inform financial statement users" (p. 285).

Relative to non-GAAP earnings, the rationale for reporting an adjusted revenue number is more ambiguous. Whereas GAAP net income includes many changes in equity that result from incidental and peripheral transactions, revenues relate to "activities that constitute the entity's ongoing major or central operations" (FASB 2008). Furthermore, prior research suggests that revenues are more persistent than expenses (e.g., Lipe 1986; Ertimur et al. 2003). As such, it is less clear what components of GAAP revenue could merit adjustments. Regulators have expressed concern that some non-GAAP revenue adjustments are merely made to accelerate revenue recognition, and the SEC has indicated that it will look "closely, and skeptically" at non-GAAP revenue disclosures (Conners 2019). Despite these concerns, some firms respond to SEC scrutiny

by providing investors and analysts with the “recipe” to calculate non-GAAP revenues, perhaps because non-GAAP revenue provides useful information beyond GAAP revenues (McKenna 2019).

The proliferation of non-GAAP revenue disclosures (about one in five earnings announcements include such disclosures), and the accompanying regulatory attention, make it important for academic research to offer empirical evidence on the determinants and informativeness of non-GAAP revenue. No evidence currently exists as to the prevalence of non-GAAP revenue disclosures, the types of adjustments made in calculating non-GAAP revenues, or the properties of non-GAAP revenues relative to GAAP revenues. Such evidence can inform the academic literature about the motivations for non-GAAP reporting while providing large-sample descriptive facts for regulators and standard setters to consider in their decision making.

Research Questions

To provide a holistic understanding of non-GAAP revenue reporting, we examine several research questions. First, we examine the cross-sectional determinants of non-GAAP revenues, and the types of adjustments made in calculating non-GAAP revenues, to shed light on whether non-GAAP revenue disclosures appear to be motivated by an effort to inform or to mislead financial statement users. Because the nature and purposes of adjustments to GAAP revenues are unknown *ex ante*, non-GAAP revenue disclosures could be motivated by managerial opportunism, on average, as is the case with non-GAAP earnings that exclude recurring items (Black et al. 2017; Bentley et al. 2018). On the other hand, it could be that these adjustments are provided to mitigate conditions that reduce the comparability of revenues or the timeliness of revenue recognition, such that changes in GAAP revenues are a noisy measure of growth. Indeed, prior research on non-GAAP earnings finds that firms’ non-GAAP adjustments improve the consistency and

comparability of earnings (Black et al. 2021), and this motivation could apply to non-GAAP revenue reporting. Our first set of research questions follows:

RQ1a: What are the determinants of non-GAAP revenue disclosure?

RQ1b: What types of adjustments are made in calculating non-GAAP revenues?

Next, we ask whether non-GAAP revenue provides decision-useful information for financial statement users, both itself and beyond the information provided by GAAP revenue and earnings. Specifically, we ask whether non-GAAP revenue helps in estimating future performance and whether financial statement users rely on non-GAAP revenue when making resource allocation decisions. Our second research question follows:

RQ2: Does non-GAAP revenue exhibit characteristics of decision-useful information?

III. SAMPLE AND DESCRIPTIVE STATISTICS

Hand-Collected Sample

We hand collect firms' quarterly non-GAAP revenue disclosures from earnings announcements filed with the SEC in 8-Ks on EDGAR. Because we wish to assess consistency in reporting over time for each firm in our sample, we limit the universe of Compustat, CRSP, and I/B/E/S to firms for which we can identify an 8-K earnings announcement for all 16 quarters between January 1, 2015 and December 31, 2018. Due to the burdensome nature of hand collection, from this set of firms we randomly select an initial 1,700 firms (out of 2,662 firms) for inclusion in our sample.⁶ Table 1 summarizes our sample selection procedures, while details of our hand collection process can be found in the online appendix. Our hand-collected sample covers earnings announcements of 19,445 firm-quarters, which represent 1,255 distinct firms. This sample serves as the starting point for all analyses in the paper.

⁶ Given the resources available at the time of data collection, we estimated that 1,700 firms represented the largest sample for which we could collect all 16 quarters in a timely manner.

Descriptive Statistics on Non-GAAP Revenue Disclosure

Table 2 presents descriptive statistics about non-GAAP revenue disclosures from our hand-collected sample. Panel A reveals that approximately 19 percent of our sample firms disclose non-GAAP revenue. Of the 1,255 firms in our final sample, 414 (approximately 33 percent) disclose non-GAAP revenue at least once (untabulated).

Panel A also presents statistics on the categories of items firms adjust for when calculating non-GAAP revenue. Firms commonly make multiple types of adjustments in the same disclosure. Conditional on a non-GAAP revenue disclosure, approximately 73 percent of non-GAAP revenue disclosures adjust for changes in foreign exchange rates (FX adjustments) between quarter $q-4$ and quarter q , often using the term “constant currency” to describe these measures. These adjustments relate to the ASC 830 requirement that revenues received in foreign currencies be converted to an entity’s functional currency based on current exchange rates, which can fluctuate and make prior period sales incomparable with current period sales.⁷ Approximately 50 percent of non-GAAP revenue disclosures adjust for changes to the reporting entity such as mergers, acquisitions, and divestitures (REP_ENT adjustments), often using the label “organic”.⁸ Appendix B, Example 1, presents an example of a firm disclosing non-GAAP revenue with FX and REP_ENT adjustments.⁹

Approximately 8 percent of non-GAAP revenue measures involve adjustments for deferred revenue liabilities assumed in business combinations (ASC805 adjustments). These adjustments

⁷ These FX adjustments are distinct from removing the effects of translating the financial statements of an entity’s foreign subsidiaries from their functional foreign currencies to U.S. dollars (based on current spot rates for Balance Sheet items and weighted-average exchange rates for Income Statement items). Instead, these FX adjustments remove the effects of changes in exchange rates relative to the prior period to present a measure of changes in revenue that is exclusive of any impacts of exchange rate fluctuations.

⁸ Three percent of the adjustments in this category reflects firms reporting revenue adjusted for adoption of ASU 2014-09: Revenue Recognition from Contracts with Customers (ASC 606) towards the end of our sample period.

⁹ One potential explanation for the prevalence of FX and REP_ENT adjustments is that the SEC requires firms to provide similar information periodically in mandatory disclosures. For example, Section 9220.5 of the SEC Financial Reporting Manual instructs firms to consider the impact of currency fluctuations when discussing changes in the price and volume components of sales in the Management Discussion and Analysis (MD&A) of periodic filings, and Sections 9220.6 and 9220.7 address suggested MD&A disclosures related to inconsistency in the reporting of financial results due to material acquisitions.

relate to the requirements in ASC 805 that an acquirer in a business combination measure assumed deferred revenue liabilities at their acquisition date fair values. Under some valuation approaches, the fair value of deferred revenue can be less than the consideration received from the customer, such that some consideration is never recognized as revenue. As such, acquisitive firms sometimes adjust GAAP revenue to include revenue that was not recognized due to fair value re-measurement of deferred revenue under ASC 805. Appendix B, Example 2, presents an example of a firm disclosing non-GAAP revenue with ASC805 adjustments.¹⁰

Finally, approximately 7 percent of non-GAAP revenue measures involve other adjustments (OTHER adjustments). The measures in this category are highly variable and entity-specific, including among them the types of individually tailored revenue recognition approaches that have drawn SEC criticism.¹¹ In Appendix B, Example 3, Tesla’s measure of adjusted revenue adds back deferred revenue for cars sold with resale value guarantees, despite GAAP requiring that sales related to such buy-back arrangements be deferred and amortized under lease accounting. In Appendix B, Example 4, Microchip Technology reports non-GAAP net sales that approximates “End-Market Demand” by excluding the effect of distributors increasing or decreasing their inventory holdings, although these inventory decreases directly impact operating cash flows. Appendix B also includes comment letters from the SEC related to these two disclosures.

Panel B reveals that non-GAAP revenue growth and GAAP revenue growth differ by approximately 9 percentage points, on average (e.g., non-GAAP growth is 5% and GAAP revenue growth is -4%, or vice versa), with the largest differences present when firms make OTHER adjustments (17 percentage point difference, on average). Overall, these statistics indicate that

¹⁰ In October 2021, the FASB issued ASU 2021-08 which states that acquired deferred revenue shall be instead measured based on the consideration received from a customer, not fair value. Adoption of this ASU will preclude firms from having to make these ASC805 non-GAAP revenue adjustments.

¹¹ Discussions with SEC staff as of June 2020 reveal that the scrutiny of adjusted revenue measures is ongoing, and that the SEC is particularly suspicious of non-GAAP revenue metrics that appear to be individually tailored.

differences between GAAP and non-GAAP revenue growth are material. Panel C reveals that the proportion of firms disclosing non-GAAP revenue is relatively stable over our sample period, with an increase in the prevalence of REP_ENT adjustments over the period. Panel D reveals that non-GAAP revenues are common across a wide range of industries, but most frequently disclosed in the Textiles, Apparel & Footware and Consumer Durables industries. ASC805 and OTHER adjustments exhibit more variation in frequency across industries, with some industries having no disclosures making these adjustments and other industries making primarily these adjustments.

IV. ANALYSES

Determinants of Non-GAAP Revenue Disclosure

We begin by examining the factors that are associated with the disclosure of non-GAAP revenue. We group factors into three sets: (1) factors reflecting a firm's fundamentals and its information environment, (2) factors representing economic conditions that could impair the decision usefulness of GAAP revenue (e.g., non-recurring items), and (3) factors related to potential opportunism. We detail the motivation and prediction for each factor in the online appendix. Measures for factors reflecting a firm's fundamentals and its information environment include: (i) the natural log of 1 + the number of analysts contributing to the I/B/E/S revenue forecast (*NANALYSTS_SAL*); (ii) an indicator equal to 1 when the I/B/E/S actual revenue differs from GAAP revenue, which implies that I/B/E/S follows the firm's revenue on a non-GAAP basis (*IBES_NG_REV_LEVEL*); (iii) an indicator equal to 1 when implied revenue growth based on I/B/E/S actual revenue in quarter q and $q-4$ differs from GAAP revenue growth over the same quarters (*IBES_NG_REV_GROWTH*); (iv) the firm's ex-ante litigation risk based on Kim and Skinner (2012) (*LIT_RISK*); (v) firm size (*SIZE*); (vi) the Herfindahl-Hirschman Index (*HHI*), measured using GAAP revenue as a proxy for market share within Fama-French 17 industries

(higher values indicate greater market concentration and less concern with competition); (vii) the firm's book-to-market ratio to reflect expected future growth (*BM*; lower values reflect higher expected growth); (viii) the volatility of GAAP earnings (*STDROA*); (ix) the volatility of GAAP revenue (*STDREV*); (x) the proportion of shares held by institutions (*INSTOWN*); and (xi) the number of years the firm has been on Compustat (*AGE*). We also include industry fixed effects based on Fama-French 17 industry classifications.

Measures for factors representing economic conditions that could impair the decision usefulness of GAAP revenue include: (i) an indicator equal to 1 when the firm has foreign exchange activity (*FX_ACTIVITY*); (ii) an indicator equal to 1 when Compustat identifies transitory items (*TRANS_ITEM*); (iii) an indicator equal to 1 when Compustat identifies changes to the reporting entity that could make GAAP revenue incomparable with prior periods (*GAAP_REV_FN*); and (iv) an indicator equal to 1 when an acquisition was completed in the previous 12 months (*ACQUIRER*).

Finally, measures for factors associated with potential opportunism include: (i) an indicator equal to 1 if the firm has negative GAAP revenue growth (*NEG_GAAP_REV_GROWTH*); (ii) an indicator equal to 1 if the firm has a GAAP loss (*GAAP_LOSS*); (iii) an indicator equal to 1 if the firm reports non-GAAP EPS and has a non-GAAP loss (*NG_LOSS*); (iv) an indicator equal to 1 if the firm experiences gains from foreign currency translations, which suggests that foreign-exchange activity increases earnings (*FX_GAIN*); and (v) an indicator equal to 1 if the firm experiences losses from foreign currency translations (*FX_LOSS*). Comparing the associations of non-GAAP revenue disclosure with *FX_GAIN* and *FX_LOSS* allows us to determine whether firms respond asymmetrically to the sign of the foreign exchange impact, for example, adjusting for negative currency effects but not positive currency effects (e.g., Curtis et al. 2014).

Table 3 presents descriptive statistics for these factors across the sample with available data. For this analysis and subsequent analyses described in the paper, all continuous variables are winsorized at 1% and 99% across the sample with available data. Panel B compares the means of the factors between observations disclosing non-GAAP revenue ($NG_REV = 1$) and those disclosing only GAAP revenue ($NG_REV = 0$). We find significant differences in nearly all factors.

Table 4 presents the results of estimating linear probability models of the determinants of non-GAAP revenue disclosures (inferences are identical based on untabulated probit regressions). In these regressions and all others, unless otherwise noted, we cluster standard errors by firm.¹² To facilitate coefficient interpretation in our determinants tests, we standardize all continuous variables (e.g., *SIZE*) to have mean of 0 and standard deviation of 1 prior to estimation. Panel A presents tests for all non-GAAP revenue disclosure. Column 1 includes only factors that reflect firms' fundamentals and information environments, column 2 includes only economic factors that could impair the decision usefulness of GAAP, column 3 includes only factors that capture potential opportunism, and column 4 includes all factors simultaneously.

We analyze the economic significance of each factor by assessing the marginal change in the probability of non-GAAP revenue disclosure associated with (a) a one standard deviation increase in each continuous variable, or (b) a change to a value of one from a value of zero for each indicator variable. The disclosure of non-GAAP revenue is most positively associated with economic factors that make changes in GAAP revenue a less useful measure of performance. For example, when a firm's financial statements are affected by changes in foreign exchange rates, the probability of non-GAAP revenue disclosure is higher by between approximately 17 percent (i.e., coefficient estimates of 0.178 and 0.166 for *FX_GAIN* and *FX_LOSS* in column 4) and 21 percent

¹² Our sample consists of only four years and 16 quarters, resulting in an insufficient number of clusters for a time dimension.

(i.e., coefficient estimate of 0.211 for *FX_ACTIVITY* in column 2). Furthermore, coefficient estimates for other factors suggest that the probability that a firm discloses non-GAAP revenue is between 7 and 9 percent higher when firms have a transitory item (*TRANS_ITEM*), and between 7 and 10 percent higher when firms have a recent acquisition (*ACQUIRER*). When I/B/E/S follows the firm's revenue on a non-GAAP basis (*IBES_NG_REV_LEVEL* and *IBES_NG_REV_GROWTH*), the probability of a non-GAAP revenue disclosure is between 4 and 8 percent higher.¹³ Finally, non-GAAP revenue disclosure is more likely when firms are larger (*SIZE*) or operate in less competitive industries (*HHI*). We find little evidence that firms disclose non-GAAP revenue opportunistically, on average. Specifically, we find insignificant coefficients on *NEG_GAAP_REV_GROWTH*, *GAAP_LOSS*, and *NG_LOSS*, and no significant difference between *FX_GAIN* and *FX_LOSS* (untabulated). Overall, the results of Table 4, Panel A, suggest that non-GAAP revenue disclosure is intended to communicate the effects of economic events on firm performance, most frequently foreign exchange rate changes, rather than to mislead investors.¹⁴

Determinants of Non-GAAP Revenue Adjustment Categories

Table 4, Panel B presents tests of the determinants of different types of non-GAAP revenue adjustments. Because firms can make multiple types of adjustments in the same disclosure, we control for other adjustment categories when examining factors associated with a particular category.¹⁵ For brevity, we highlight a few notable results. First, several results provide validation

¹³ When firms disclose non-GAAP revenue, I/B/E/S follows firms' revenue on a non-GAAP basis only 19% of the time. This suggests that I/B/E/S revenue is a poor proxy for firms' non-GAAP revenue disclosures and is consistent with the I/B/E/S manual's description of revenue as "a corporation's net revenue" without reference to management intent or customization from GAAP (Thomson Financial 2008). When both I/B/E/S and firms provide non-GAAP revenue information, we cannot determine whether this outcome is attributable to firms' supply of the information, I/B/E/S demand for the information, or both.

¹⁴ In an untabulated analysis, we find that removing industry fixed effects in Table 4, Panel A, reduces the adjusted R² from 16.6% to 13.6%. Thus, industry effects are incremental to the other factors in our determinants model in explaining the decision to disclose non-GAAP revenue, but their explanatory power is modest relative to the explanatory power of the other factors.

¹⁵ We do not include industry fixed effects in these estimations because some of the models do not converge given the infrequent number of adjustments in some categories and industries.

of our hand-collected exclusion categories. For example, *FX_GAIN* and *FX_LOSS* have the most positive associations with the FX adjustment category, and *GAAP_REV_FN* and *ACQUIRER* have the most positive association with the *REP_ENT* adjustment category. Second, *I/B/E/S* is more likely to measure firms' revenue on a non-GAAP basis when firms make ASC805 adjustments. As mentioned earlier, the FASB recently issued ASU 2021-08 to change GAAP to report revenue in a manner that is consistent with firms' ASC805 adjustments. Untabulated analyses reveal that *I/B/E/S*' adjustments increase revenue relative to GAAP, which is consistent with measuring acquired deferred revenue at the original transaction price (i.e., the FASB's proposed update).

Third, the factors associated with *OTHER* adjustments (*OTHER*) differ from the factors associated with *FX*, *REP_ENT*, and *ASC805*. Specifically, *OTHER* is not associated with nonrecurring items (*TRANS_ITEM* and *ACQUIRER*) or foreign exchange activity (*FX_GAIN* or *FX_LOSS*), and even has a significantly negative association with circumstances that would make GAAP revenue less comparable with prior periods (*GAAP_REV_FN*). These *OTHER* adjustments may be the least justified based on economic conditions affecting the firm's reported revenue.¹⁶

Consistent and Inconsistent Non-GAAP Revenue Disclosures

The complete 16-quarter time series for each firm in our sample allows us to examine how the determinants of consistent and inconsistent non-GAAP revenue disclosures differ. Inconsistency in non-GAAP revenue disclosure by the same firm over time (i.e., disclosing non-GAAP revenue in some quarters but not others) could reflect either infrequent economic activities (e.g., occasional acquisitions), or opportunism (e.g., disclosing only favorable non-GAAP revenue). We measure consistency of non-GAAP revenue disclosure based on the proportion of

¹⁶ Table 4, Panel B, column 4 suggests that *I/B/E/S* is somewhat more likely to measure firms' revenue on a non-GAAP basis when firms make *OTHER* adjustments (i.e., the coefficient on *IBES_NG_REV_LEVEL* is marginally significant), which implies that such adjustments are not wholly ignored by market participants.

quarters in which firms disclose non-GAAP revenue after their first disclosure in our sample period. Firms that do not report non-GAAP revenue prior to 2018 are omitted from this analysis because either (a) the firm never reports non-GAAP revenue, or (b) the firm has too few quarters to analyze after it first reports non-GAAP revenue. We classify firms as consistent disclosers ($CONSIST = 1$) if they report non-GAAP revenue in at least 75 percent of quarters, inclusive of their first disclosure in our sample period. We classify firms as inconsistent disclosers ($CONSIST = 0$) if they report non-GAAP revenue in 50 percent or fewer quarters, inclusive of their first disclosure in our sample period.

For each group of firms based on $CONSIST$, we examine the determinants of NG_REV using the variables from Table 4. Table 5, Panel A, reveals that FX adjustments are significantly more common for firms with consistent disclosures. Differences in the prevalence of REP_ENT , $ASC805$, and $OTHER$ adjustments across the two groups are not statistically significant. In Panel B, columns 1 and 2 present results for $CONSIST = 1$ firms, where we focus specifically on variables associated with nonrecurring items (column 1) and potential opportunism (column 2). Consistent non-GAAP revenue disclosure is significantly positively associated with foreign exchange activity (FX) and we find no asymmetry between foreign-exchange related gains and losses (i.e., the coefficients on FX_GAIN and FX_LOSS are not significantly different, untabulated). Column 3, which includes variables associated with firms' information environments, yields similar inferences.

Columns 4 and 5 in Panel B present results for $CONSIST = 0$ firms. Inconsistent non-GAAP revenue disclosure is significantly positively associated with acquisitions (Column 4), and we also find evidence of a greater propensity to adjust for foreign-exchange related losses than gains (i.e., the coefficients on FX_GAIN and FX_LOSS are significantly different, $p\text{-value} < 0.01$,

untabulated). However, the asymmetry is not significant when we include variables associated with firms' information environments (*STDREV* and *INSTOWN* are significantly positively associated with *NG_REV* in Column 6, untabulated). Thus, inconsistent non-GAAP revenue disclosure is primarily related to infrequent economic activities and does not appear to represent opportunistic disclosure.

Economic Activity and Managerial Discretion

Given the strong relations in Tables 4 and 5 between economic activity and non-GAAP revenue disclosure, we perform several additional analyses to determine whether the presence of economic events completely determines non-GAAP revenue disclosures, or whether, instead, firms exercise discretion conditional on economic activity. Details on these additional tests can be found in the online appendix. First, we examine the proportion of firms making FX, REP_ENT, or ASC805 adjustments conditional on the presence of foreign exchange activity or special items in GAAP. We find that fewer than 25 percent of firms experiencing the related economic events adjust for them via non-GAAP revenue. Second, we identify the 100 largest mergers or acquisitions for our sample firms and examine the proportion of firms that report non-GAAP revenue. We find that fewer than 50 percent of firms with large mergers report non-GAAP revenue, and not necessarily those with the largest mergers. Overall, these findings suggest that while economic conditions provide incentives to disclose non-GAAP revenue, firms still exercise discretion regarding whether to adjust GAAP revenue for these economic conditions.

The Predictive Ability of Non-GAAP Revenue Growth for Future Revenue Growth

Prior research frequently examines the ability of non-GAAP earnings information to predict future firm performance. Thus, we test whether non-GAAP revenue has predictive ability for future revenue, which could be on a GAAP or non-GAAP basis. Firms do not generally disclose

non-GAAP revenue levels; rather, they more commonly disclose non-GAAP revenue growth. Due to the infrequency of future non-GAAP revenue level disclosures, we use revenue growth as our outcome of interest.

For each firm-quarter where firms disclose non-GAAP revenue information, we calculate *FUTURE_REV_GROWTH* as the firm's disclosed non-GAAP revenue growth in quarter $q+4$, if the firm discloses non-GAAP revenue at that time, and as GAAP revenue growth in quarter $q+4$ otherwise. We then regress *FUTURE_REV_GROWTH* on *NG_REV_GROWTH* and *GAAP_REV_GROWTH*, separately, to compare the predictive ability of the two growth measures. We do not include controls because we compare two contemporaneous measures of revenue growth for the same set of firms, which holds constant firm-, time-, and firm-time-factors, and because our interest is in the innate predictive ability of the measures rather than predictive ability conditional on other characteristics (Easton 2003).

Panel A of Table 6 presents descriptive statistics for the variables used in our predictive ability tests. Panel B presents the regression results. In column 1, we find that non-GAAP revenue growth is significantly positively associated with future revenue growth. In column 2, we find that GAAP revenue growth has a significantly less positive association with future revenue growth, which suggests that non-GAAP revenue growth has better predictive ability for future revenue growth than GAAP revenue growth. Table 6, Panel C, examines predictive ability by adjustment category. In column 1, we find that non-GAAP revenue growth adjusted for FX, REP_ENT, and ASC805 has significant predictive ability. We find no evidence that non-GAAP revenue with OTHER adjustments has predictive ability, which is consistent with these disclosures having little value for investors, as per the SEC's concerns. In column 2, we find that when non-GAAP adjustments relate to FX and REP_ENT, GAAP revenue growth is significantly less useful than

non-GAAP revenue growth in predicting future revenue growth. This underscores the usefulness of FX and REP_ENT non-GAAP revenue disclosures.

Market Reaction around Non-GAAP Revenue Disclosure

To assess whether investors incorporate the information provided by firms' non-GAAP revenue disclosures, we estimate the following regression:

$$RET [0,1] = \beta_0 + \beta_1 NG_REV_GROWTH_DIFF + \beta_2 FE_IBES_REV_GROWTH + \beta_3 FE_IBES_EPS_LEVEL + \beta_4 RPTLAG + \beta_5 BM + \beta_6 MKTCAP + \beta_7 QTR4 + \epsilon \quad (1)$$

$RET [0,1]$ is the two-day market-adjusted buy-and-hold return around the earnings announcement date, which is day 0. $NG_REV_GROWTH_DIFF$ is the firm's disclosed non-GAAP revenue growth (NG_REV_GROWTH) less the actual revenue growth from I/B/E/S (actual I/B/E/S revenue for quarter q divided by actual revenue for quarter $q-4$, minus 1). Properly estimating the market response to non-GAAP revenue growth requires a measure of new information, or surprise, which in turn requires an expectation. However, Table 3, Panel B, reports that I/B/E/S generally forecasts revenues on a GAAP basis, even when the firm reports non-GAAP revenue; therefore, using revenue growth derived from I/B/E/S as an expectation for firms' non-GAAP revenue growth would likely lead to measurement error.¹⁷ As a result, we use the difference between firms' non-GAAP revenue growth and I/B/E/S actual revenue growth as a proxy for non-GAAP revenue growth surprise. In effect, we test whether non-GAAP revenue growth adjustments that are incremental to those made by I/B/E/S are useful to investors.

To ensure that our proxy captures the market reaction to non-GAAP revenue information, we include in Equation 1 revenue and earnings information provided to market participants

¹⁷ This is a variant of the "errors-in-variables" problem noted in the non-GAAP EPS literature that arises in comparisons of GAAP and non-GAAP surprises derived from the same forecast (see discussion in Bradshaw et al. 2018 and related papers cited therein). This measurement error would likely bias the estimated market reaction to firms' non-GAAP revenue growth towards zero and against evidence of incremental information content.

contemporaneously with firms' non-GAAP revenue disclosures. $FE_IBES_REV_GROWTH$ is the revenue growth forecast error from I/B/E/S, calculated as actual revenue growth from I/B/E/S less expected revenue growth based on the most recent consensus revenue forecast from I/B/E/S (i.e., the timeliest consensus revenue forecast for quarter q divided by actual revenue for quarter $q-4$, minus 1). FE_IBES_EPS is the street EPS forecast error from I/B/E/S calculated as unadjusted I/B/E/S actual EPS for quarter q less the timeliest consensus EPS forecast for quarter q , scaled by stock price as of fiscal quarter-end. We also include the following variables as controls in Equation 1: the time between the earnings announcement and fiscal quarter-end ($RPTLAG$), the book-to-market ratio (BM), firm market cap ($MKTCAP$), and an indicator equal to 1 when the firm is reporting for fiscal quarter four ($QTR4$). These variables account for variation in returns or in our surprise measures that might not reflect non-GAAP revenue information.

We rank all explanatory variables other than $QTR4$ in Equation 1 into deciles across the sample and scale the ranked variables to range from zero to one. This ranking has two purposes. First, the ranking makes it possible to interpret the coefficients as the return to portfolios formed on each variable, specifically, a portfolio long for observations in the highest decile of $NG_REV_GROWTH_DIFF$ and short observations in the lowest decile. This makes it easier to compare the market reaction to I/B/E/S earnings news, revenue growth news, and non-GAAP revenue growth news, based on whether portfolios formed based on these variables yield different returns. Second, ranking the surprise measures helps mitigate the impact of skewness and nonlinearity on our coefficient estimates (e.g., Bernard and Thomas 1989, 1990). $\beta_1 > 0$ is consistent with the market reacting to firms' non-GAAP revenue disclosures incrementally to both revenue and EPS information reflected in I/B/E/S. We cluster standard errors by earnings announcement date, following prior research examining market reactions to earnings news (e.g.,

Hirshleifer et al. 2009), because announcements could be clustered on certain days.

Table 7, Panel A, presents descriptive statistics for the variables in our market reaction tests, and Panels B and C present results. In Panel B, columns 1-3 present results of estimating Equation 1, beginning with only I/B/E/S EPS news, then adding I/B/E/S revenue growth news, and finally adding non-GAAP revenue growth news. In column 3, we find that the coefficient on *NG_REV_GROWTH_DIFF* is significantly positive, which is consistent with firms' non-GAAP revenue disclosures providing useful information to investors that is incremental to I/B/E/S revenue and EPS. With respect to economic significance, a comparison of the coefficient estimates for the ranked variables implies that a long-short portfolio formed based on non-GAAP revenue growth news earns approximately one-fifth of the magnitude of a long-short portfolio formed based on I/B/E/S EPS news ($0.016 / 0.073 = 0.22$). We also test for a drift or reversal in returns after the announcement date. We measure post-announcement drift starting two trading days after the earnings announcement in quarter q through one trading day after the following earnings announcement in quarter $q+1$ ($RET [2, EA_{q+1} + 1]$). Column 4 presents results for tests of post-announcement drift. We find no significant evidence of drift or reversal related to non-GAAP revenue growth news, suggesting that non-GAAP revenue information is not misleading to investors, on average, and that investors incorporate any such information in a timely manner.

We next assess how market reaction varies by adjustment category, by interacting *FE_NG_REV_GROWTH*, *FE_IBES_REV*, and *FE_IBES_EPS* with indicators for each of the adjustment types. This allows us to examine how the response is related to each adjustment type after conditioning on potential overlap with other adjustment types. Table 7, Panel C, presents the results. In column 1, the only statistically significant variable of interest is the positive coefficient on $NG_REV_GROWTH_DIFF \times FX$, suggesting that investors respond to firms' non-GAAP

revenue growth disclosures only when the non-GAAP measure includes an FX adjustment. We find no reaction or price drift for the other adjustment categories, despite the predictive value of REP_ENT and ASC805 adjustments for future revenue growth (Table 6), which raises questions as to why investors do not react to this information.¹⁸

The Confirmatory Value of Non-GAAP Revenue Disclosures

We next test whether non-GAAP revenue disclosures confirm information that has already been impounded into price. According to the FASB's Conceptual Framework, accounting information is relevant if it confirms expectations (i.e., confirmatory value), even if investors formed those expectations before the information was disclosed. One reason why investors may not react to non-GAAP revenue with REP_ENT and ASC805 adjustments, despite its predictive value, is that investors have incorporated it into price prior to its disclosure.

To test confirmatory value, we examine the extent to which revenue growth is related to contemporaneous stock returns. We measure buy-and-hold returns beginning two days after the earnings announcement in quarter $q-4$ through one day before the earnings announcement in quarter q ($RET [EA_{q-4} +2, -1]$). This timing coincides with the measurement of NG_REV_GROWTH and $GAAP_REV_GROWTH$, which is revenue in quarter q compared to revenue in quarter $q-4$. We regress $RET [EA_{q-4} +2, -1]$ on NG_REV_GROWTH and $GAAP_REV_GROWTH$ separately and compare the extent to which returns prior to the earnings announcement in quarter q are related to the two revenue numbers by examining both coefficient estimates, and overall explanatory power based on Clarke (2003, 2007) tests.

¹⁸ One potential explanation for the insignificant coefficient on $NG_REV_GROWTH_DIFF \times ASC805$ is that firms' non-GAAP revenue disclosures are similar to I/B/E/S revenue growth in these cases, so there is little incremental information. Table 4, Panel B, reveals that I/B/E/S is significantly more likely to follow firms' revenue on a non-GAAP basis when firms make ASC805 non-GAAP revenue adjustments. The coefficient on $FE_IBES_REV_GROWTH \times ASC805$, which reflects I/B/E/S revenue growth, is significantly positive in Table 7, which implies that I/B/E/S revenue information has information content when firms make ASC805 adjustments. This finding provides some evidence that ASC805 non-GAAP revenue adjustments are informative for investors.

Table 8 presents the results of our analysis. Panel A presents descriptive statistics, and panels B and C present regression results.¹⁹ In Panel B, the coefficient on *NG_REV_GROWTH* is significantly positive and larger than that on *GAAP_REV_GROWTH*; the magnitudes suggest that 1% of non-GAAP (GAAP) revenue growth is associated with contemporaneous returns of 37 (22) basis points. Clarke tests also reveal that *NG_REV_GROWTH* explains significantly more variation in these returns across firms than *GAAP_REV_GROWTH*. In Panel C, we present results across the four adjustment categories. In column 1, non-GAAP revenue has a significantly positive relation with contemporaneous returns when it contains adjustments related to FX and REP_ENT, and to a less significant degree, ASC805. Non-GAAP revenue is not related to contemporaneous returns when it contains adjustments related to OTHER.

The combination of results related to adjustment categories across Tables 6, 7, and 8 suggests that investors incorporate some information reflected in non-GAAP revenue disclosures into prices in advance of their announcement, and that FX adjustments contain new information that is not already impounded into price. REP_ENT and ASC805 adjustments often relate to acquisitions, and disclosures by the acquiring firm or its target could provide information on these adjustments prior to firms' disclosure of non-GAAP revenue. By contrast, FX related adjustments are difficult to anticipate because the relevant exchange rates are not known before fiscal year-end, and users cannot observe detailed sales across a firm's various settlement currencies. The combination of results related to the OTHER category of adjustments suggests that OTHER non-GAAP revenue disclosures have little relevance for investors, consistent with the SEC's concerns.

¹⁹ Because the returns windows overlap across quarters for the same firm, we cluster standard errors by both firm and earnings announcement date for this analysis.

V. ADDITIONAL ANALYSES

SEC Comment Letters

Although our findings suggest that non-GAAP revenue disclosures are useful for investors, on average, we also examine cases where non-GAAP revenue disclosures may be used to manage investors' perceptions of firm performance. First, in untabulated analyses, we find that 26 of the 414 firms that disclose non-GAAP revenue during our sample period received a comment letter related to such disclosures. We examine whether the frequency of adjustment types differ significantly between firms receiving and not receiving comment letters. We find that firms receiving comment letters make OTHER adjustments in approximately 23 percent of their non-GAAP revenue disclosures, while firms that do not receive comment letters make OTHER adjustments in only 4 percent of their disclosures; the difference is statistically significant (t-stat. = 2.22). Differences in the frequencies of FX adjustments (58 percent for firms receiving a comment letter vs. 61 percent for other firms), REP_ENT adjustments (39 percent vs. 56 percent), and ASC805 adjustments (15 percent vs. 8 percent) are not significant. Thus, the SEC's comment letters are more related to the presence of OTHER adjustments than the other types.²⁰

Appendix B provides excerpts from comment letters received by Tesla and Microchip Technology related to OTHER adjustments. In both cases, the SEC explicitly questions whether the non-GAAP measures represent individually tailored approaches to revenue recognition, which are prohibited by the SEC.²¹ Taken in concert with our finding that OTHER adjustments do not provide investors with decision-useful information beyond GAAP revenue growth, we conclude that these types of disclosures are more likely to be motivated by managerial opportunism.

²⁰ The specific comments about these measure include: presentation matters such as prominence/reconciliation (35% of comment letters), insufficient disclosure regarding the measures or the reasons they are useful to investors (46%), and explicit comments related to the use of individually-tailored metrics (19%).

²¹ See <https://www.sec.gov/divisions/corpfin/guidance/nongAAPinterp.htm>, Question 100.04.

Non-GAAP Revenue Disclosure Initiation

To supplement our examination of non-GAAP revenue disclosure consistency, we examine the determinants of the initiation of non-GAAP revenue disclosure. While we find no on-average evidence of opportunism in earlier tests, especially for firms with consistent disclosure practices, it is possible that the initial disclosure of non-GAAP revenue reflects incentives to mislead investors by presenting a favorable view of firm performance.

To explore this empirically, we identify the initiation of non-GAAP revenue disclosure for a subsample of firms. If a firm's first disclosure of non-GAAP revenue in our sample period (2015-2018) is in Q2 of 2015 or later, we treat this first disclosure as initiation. If a firm discloses non-GAAP revenue in Q1 of 2015, and we classify the firm as reporting non-GAAP revenue consistently ($CONSIST = 1$), then we manually review earnings announcements working backwards in time from 2015 to identify the firm's initiation quarter.²² If a firm discloses non-GAAP revenue in Q1 of 2015 and we classify the firm as report non-GAAP revenue inconsistently ($CONSIST = 0$), then we exclude the firm from this analysis because identifying the initiation quarter would require more difficult hand collection; the firm could stop and start non-GAAP reporting at any date, such that the initiation is ambiguous. While some firms initiate non-GAAP revenue disclosures as early as 2004, initiation occurs uniformly across time with no particular clustering in a given year (untabulated).

Given firms' initiation quarters, we re-estimate our determinants model using data from (1) the initiation quarters q (where $NG_REV = 1$), and (2) the same quarter in the prior year $q-4$ (where we presume $NG_REV = 0$). Our analysis is based on 192 firms with non-missing initiations

²² We do not look for initiation dates earlier than 2004 because earnings announcements were first required to be provided on EDGAR in 2003, and we expect firms to comply by 2004.

and sufficient data to estimate the model.^{23, 24} Table 9 presents the results of our determinants model for this subsample. We find no evidence that nonrecurring items are associated with the initiation of non-GAAP revenue disclosures. Foreign exchange related losses exhibit a marginally significant positive association with initiation, but foreign exchange related gains have no association. Thus, we find some weak evidence consistent with firms initiating non-GAAP revenue disclosures to highlight more favorable performance.²⁵

Comparing Non-GAAP Revenue and Non-GAAP EPS Disclosure

In the online appendix, we report analyses of the extent to which non-GAAP EPS and non-GAAP revenue disclosures occur jointly and whether the two disclosures have different determinants. These analyses provide evidence regarding whether the properties of non-GAAP EPS disclosures can reasonably be generalized to other non-GAAP financial measures, or whether, instead, researchers and regulators should consider each type of measure individually.

We find significant differences in both the frequency with which firms disclose non-GAAP earnings and non-GAAP revenues, as well as the determinants behind the disclosure of each. Specifically, we find that 14 percent of firms disclose both non-GAAP revenue and non-GAAP EPS. However, approximately 5 percent of firms disclose non-GAAP revenue without non-GAAP EPS and 36 percent of firms disclose non-GAAP EPS without non-GAAP revenue. Furthermore, we find that non-GAAP revenues are significantly more likely to be disclosed relative to non-GAAP earnings if I/B/E/S also makes revenue adjustments, as well as if the firm has operational exposure to foreign currency exchange rates. These findings suggest that non-GAAP revenue and non-GAAP EPS are distinct reporting choices and that inferences drawn from one non-GAAP

²³ We do not include industry fixed effects in these estimations because industry membership is unchanged between initiation quarters and non-initiation quarters.

²⁴ The small sample size in this analysis limits the statistical power of our tests and the external validity of our findings.

²⁵ Untabulated analyses reveal that the coefficient on *FX_LOSS* is significantly larger than the coefficient on *FX_GAIN* (p-value < 0.05 in column 2 and p-value < 0.10 in column 3).

financial measure regarding (i) the types of firms that report non-GAAP information, and (ii) the properties of the non-GAAP information, need not generalize to all non-GAAP financial measures. Thus, researchers and regulators should consider each type of non-GAAP financial measure individually.

VI. CONCLUSION

Although much is known about the informativeness of non-GAAP earnings disclosures, little is known about other non-GAAP measures. Nearly one in five earnings announcements includes a non-GAAP revenue measure, focused on revenue growth, and these disclosures have recently attracted SEC scrutiny. Because revenue relates exclusively to core business activities, it is unclear *ex ante* why adjustments to GAAP revenue would provide useful information.

Using a large, hand-collected sample of disclosures from 2015-2018, we present the first archival analysis of non-GAAP revenues and offer three key findings. First, firms are more likely to disclose non-GAAP revenue when GAAP revenue is incomparable with prior periods (e.g., when revenues are in a fluctuating foreign currency, when a merger or divestiture occurs, etc.). Second, non-GAAP revenue growth predicts future revenue growth better than GAAP revenue growth, and investors respond to non-GAAP revenue disclosures. These results suggest that non-GAAP revenue disclosures are, on average, motivated by economic fundamentals rather than managerial opportunism, and that non-GAAP revenues provide investors with useful information that is incremental to GAAP revenue. Overall, we find that non-GAAP revenue is a distinct disclosure phenomenon that typically reflects an attempt to inform rather than to mislead investors.

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APPENDIX A: Variable Definitions

Variable	Definition
<i>ACQUIRER</i>	Equals 1 if the firm completed an acquisition in the 365 days before fiscal quarter-end, based on data from Zephyr; and 0 otherwise.
<i>AGE</i>	Natural log of 1 + the number of years since the firm's first fiscal year on Compustat.
<i>ASC805</i>	Equals 1 if the firm adjusts GAAP revenue for acquired deferred revenue when reporting non-GAAP revenue growth; and 0 otherwise.
<i>BM</i>	Book-to-market ratio, calculated as <i>seqq</i> from Compustat divided by market cap ($ prc * shrou$) from CRSP or from Compustat ($mkvaltq$ or $prccq * cshoq$) if missing CRSP data.
<i>CONSIST</i>	An indicator variable for the consistency of firms' non-GAAP revenue disclosure after their first disclosure in our sample period. Equal to 1 if firms report non-GAAP revenue in at least 75 percent of quarters, inclusive of the first disclosure in our sample period. Equal to 0 if firms report non-GAAP revenue in 50 percent or fewer quarters, inclusive of the first disclosure in our sample period. Missing for firms that do not report non-GAAP revenue prior to 2018 or firms that do not fall into the classification scheme.
<i>FE_IBES_EPS_LEVEL</i>	Unadjusted I/B/E/S actual "street" EPS (<i>EPS</i> in I/B/E/S) less the timeliest median consensus "street" EPS forecast before the earnings announcement date, scaled by stock price as of fiscal quarter-end.
<i>FE_IBES_REV_GROWTH</i>	I/B/E/S actual revenue growth (actual <i>SAL</i> in I/B/E/S for quarter <i>q</i> divided by actual <i>SAL</i> in quarter <i>q-4</i> , minus 1) less the implied I/B/E/S revenue growth forecast (the timeliest median consensus revenue forecast of <i>SAL</i> before the earnings announcement date in quarter <i>q</i> divided by actual <i>SAL</i> in quarter <i>q-4</i> , minus 1).
<i>FX</i>	Equals 1 if the firm adjusts GAAP revenue for foreign exchange differences when reporting non-GAAP revenue growth; and 0 otherwise.
<i>FX_ACTIVITY</i>	Equals 1 if currency translation adjustments (<i>cicurrq</i> in Compustat) are nonzero; and 0 otherwise.
<i>FX_GAIN</i>	Equals 1 if currency translation adjustments (<i>cicurrq</i> in Compustat) are positive; and 0 otherwise.
<i>FX_LOSS</i>	Equals 1 if currency translation adjustments (<i>cicurrq</i> in Compustat) are negative; and 0 otherwise.

Variable	Definition
<i>GAAP_LOSS</i>	Equals 1 if <i>epsfiq</i> from Compustat is negative; and 0 otherwise.
<i>GAAP_REV_FN</i>	Equals 1 if Compustat identifies a situation in which GAAP revenue may be incomparable across periods; specifically, if <i>revtq_fn1</i> or <i>saleq_fn1</i> from the FUNDQ_FNCD database equal any of the following footnote codes: AA, AB, AR, AZ. Equals 0 otherwise.
<i>GAAP_REV_GROWTH</i>	GAAP revenue in quarter <i>q</i> divided by GAAP revenue in quarter <i>q-4</i> and minus 1. GAAP revenue is the larger of <i>saleq</i> and <i>revtq</i> from Compustat.
<i>HHI</i>	GAAP revenue for a given firm divided by the sum of GAAP revenue for the firm's Fama-French 17 industry classification, multiplied by 100, and then squared. The resulting value is then summed across all firms in the same Fama-French 17 industry. The variable is calculated at the end of each calendar quarter using the timeliest quarterly data for each firm.
<i>IBES_NG_REV_GROWTH</i>	Equals 1 if I/B/E/S actual revenue growth (actual <i>SAL</i> in I/B/E/S for quarter <i>q</i> divided by actual <i>SAL</i> in quarter <i>q-4</i> , minus 1) differs from <i>GAAP_REV_GROWTH</i> ; and 0 otherwise. We round both variables to the nearest 0.001 when making this comparison.
<i>IBES_NG_REV_LEVEL</i>	Equals 1 if I/B/E/S actual revenue differs from GAAP revenue (the larger of <i>saleq</i> and <i>revtq</i> from Compustat); and 0 otherwise.
<i>INSTOWN</i>	The proportion of shares held by institutional investors, calculated as the number of shares held by institutions from Thomson Reuters divided by the number of shares outstanding from CRSP.
<i>LIT_RISK</i>	Ex-ante litigation risk based on Model (3) in Kim and Skinner (2012).
<i>MKTCAP</i>	Natural log of <i>csmaq</i> * <i>prccq</i> from Compustat.
<i>NANALYSTS_REV</i>	The natural log of 1 + the number of analysts contributing to the consensus revenue forecast on I/B/E/S.
<i>NEG_GAAP_REV_GROWTH</i>	Equals 1 if <i>GAAP_REV_GROWTH</i> is negative; and 0 otherwise.
<i>NG_LOSS</i>	Equals 1 if non-GAAP EPS (using data from Bentley et al., 2018) is negative; and 0 otherwise.
<i>NG_REV</i>	Equals 1 if the firm reports non-GAAP revenue information, based on hand-collected data; and 0 otherwise.

Variable	Definition
<i>NG_REV_GROWTH</i>	Non-GAAP revenue growth reported by firms. In the rare cases where this was not disclosed explicitly but a non-GAAP revenue level was, we calculate <i>NG_REV_GROWTH</i> by dividing the non-GAAP revenue level in quarter <i>q</i> by non-GAAP revenue level in quarter <i>q-4</i> , or by <i>GAAP_REV_LEVEL</i> in quarter <i>q-4</i> if the firm did not report non-GAAP revenue in that quarter, and subtracting 1.
<i>NG_REV_GROWTH_DIFF</i>	<i>NG_REV_GROWTH</i> less I/B/E/S actual revenue growth (actual <i>SAL</i> in I/B/E/S for quarter <i>q</i> divided by actual <i>SAL</i> in quarter <i>q-4</i> , minus 1).
<i>OTHER</i>	Equals 1 if the firm adjusts GAAP revenue for items other than foreign exchange differences (<i>FX</i>), acquired deferred revenue (<i>ASC805</i>), or changes in the reporting entity (<i>REP_ENT</i>), when reporting non-GAAP revenue growth; and 0 otherwise.
<i>QTR4</i>	Equals 1 if quarter <i>q</i> is fiscal quarter 4; and 0 otherwise.
<i>REP_ENT</i>	Equals 1 if the firm adjusts GAAP revenue for changes in the reporting entity (e.g., acquisitions, mergers, and divestitures); and 0 otherwise.
<i>RET</i> [0, 1]	Buy-and-hold market-adjusted return over the [0, 1] window with the earnings announcement date as day 0.
<i>RET</i> [2, EA _{q+1} +1]	Buy-and-hold market-adjusted return beginning on day 2 after the earnings announcement date in quarter <i>q</i> (which is day 0) through one day after the earnings announcement in quarter <i>q+1</i> .
<i>RET</i> [EA _{q-4} +2, -1]	Buy-and-hold market-adjusted return beginning on day 2 after the earnings announcement date in quarter <i>q-4</i> through one day before the earnings announcement in quarter <i>q</i> (which is day 0).
<i>RPTLAG</i>	The number of days by which the earnings announcement follows fiscal quarter-end.
<i>SIZE</i>	Natural log of 1 + total assets (<i>atq</i> from Compustat).
<i>STDREV</i>	The standard deviation of GAAP revenue (the larger of <i>saleq</i> and <i>revtq</i> from Compustat) scaled by assets (<i>atq</i> in Compustat) over at least 5 of the previous 8 quarters.
<i>STDROA</i>	The standard deviation of GAAP return on assets (<i>ibq / atq</i> from Compustat) over at least 5 of the previous 8 quarters.
<i>TRANS_ITEM</i>	Equals 1 if Compustat identifies a transitory item in GAAP net income, based on a difference between <i>epsfiq</i> and <i>oepsxq</i> from Compustat.

APPENDIX B: Examples of Non-GAAP Revenue Disclosures

Example 1: Excerpts from Coca-Cola's earnings press release dated October 26, 2016 ²⁶

The Coca-Cola Company

News Release

THE COCA-COLA COMPANY REPORTS THIRD QUARTER 2016 RESULTS Flagship North America Market Maintains Positive Momentum

- *Net Revenues Declined 7%, Impacted by Foreign Currency and Structural Changes*
 - *Organic Revenues (Non-GAAP) Grew 3%*

Quarterly Performance

- Net revenues were \$10.6 billion, a 7% decline from prior year, impacted by a foreign currency exchange headwind of 2% and a headwind from acquisitions, divestitures and structural items of 8%. Organic revenues (non-GAAP) grew 3%, evenly split between volume and price/mix growth.

THE COCA-COLA COMPANY AND SUBSIDIARIES **Reconciliation of GAAP and Non-GAAP Financial Measures**

(UNAUDITED)
(In millions)

Net Operating Revenues by Segment:

	<u>Consolidated</u>
% Change — Reported (GAAP)	(7)
% Currency Impact	(2)
% Change — Currency Neutral (Non-GAAP)	(5)
% Acquisitions, Divestitures and Structural Items	(8)
% Change — Organic Revenues (Non-GAAP)	3

²⁶ <https://www.sec.gov/Archives/edgar/data/21344/0000021344-16-000072-index.htm>

Example 2: Excerpts from Shutterfly’s earnings press release dated August 7, 2018 ²⁷



Shutterfly Announces Second Quarter 2018 Financial Results

Second Quarter 2018 Financial Highlights

GAAP net revenue was \$443.4 million, which includes Lifetouch from the acquisition date of April 2, 2018. Shutterfly Consumer segment net revenue totaled \$165.0 million, an 8% year-over-year decrease. GAAP Lifetouch segment net revenue was \$228.6 million. Shutterfly Business Solutions segment net revenue totaled \$49.8 million, a 66% year-over-year increase. GAAP operating loss totaled \$22.9 million. Net loss was \$26.5 million, or a loss of \$0.80 per share.

Non-GAAP net revenue, excluding purchase accounting adjustments related to the deferred revenue write-down, was \$476.7 million. Shutterfly Consumer brand like-for-like revenue growth was 4%, compared to the second quarter of 2017. Non-GAAP Lifetouch segment net revenue was \$261.9 million. Normalized operating income, excluding restructuring, acquisition-related charges and purchase accounting adjustments related to the deferred revenue write-down and inventory write-up, was \$32.3 million. Normalized net income was \$13.6 million. Adjusted EBITDA was \$84.4 million.

	Three Months Ended	
	June 30, 2018	
	GAAP Income	Non-GAAP
	Statement	Adjustments
Net revenue		
Shutterfly consumer	\$ 165,003	
Lifetouch	228,560	33,351 [1]
Shutterfly business solutions	49,809	
Total net revenue	443,372	33,351

[1] Yearbook sales and collections are made throughout the school year, whereas yearbooks are typically delivered toward the end of the school year in the second quarter. Business combination accounting principles require the Company to write down to fair value the deferred revenue assumed in acquisitions based on the cost to manufacture and deliver the yearbooks, plus a profit margin. Therefore, GAAP revenue after an acquisition does not reflect the full amount that would have been reported if the acquired deferred revenue was not written down to fair value. The non-GAAP adjustments eliminate the effect of the deferred revenue write-down. The Company believes these adjustments are useful to investors as an additional means to reflect revenue and gross margin trends of the Company's business.

²⁷ <https://www.sec.gov/Archives/edgar/data/1125920/0001125920-18-000011-index.htm>

Example 3: Tesla

Ex. 3.1. Excerpts from Tesla's earnings press release dated August 3, 2016²⁸



Tesla Second Quarter 2016 Update

- Completed Model 3 design phase
- Increased automotive gross margin on both Model S and Model X
- Exited Q2 consistently producing nearly 2,000 vehicles/week
- Production and demand on track to support 50,000 deliveries in 2H 2016
- Merger agreement to acquire SolarCity signed, subject to shareholder vote

Q2 Results

Total Q2 GAAP revenue was \$1.3 billion, while non-GAAP revenue was \$1.6 billion for the quarter, up 31% from a year ago. Total Q2 gross margin was 21.6% on a GAAP basis and 20.8% on a non-GAAP basis.

Non-GAAP Financial Information

This letter includes non-GAAP financial information because we plan and manage our business using such information. Our non-GAAP measures align the recognition of revenues and costs related to a vehicle sale with the time when the customer takes delivery of the car and cash is received or owed to us. This contrasts with the approach of other automotive manufacturers who under GAAP accounting recognize revenue when the vehicle is sold into dealership inventory rather than to end customers, even though in the case of a captive finance lease they may not collect cash for several years on a consolidated basis.

Tesla Motors, Inc.

Reconciliation of GAAP to Non-GAAP Financial Information

(Unaudited)

(In thousands, except per share data)

	Three Months Ended		
	Jun 30, 2016	Mar 31, 2016	Jun 30, 2015
Revenues (GAAP)	\$1,270,017	\$1,147,048	\$ 954,976
Model S and Model X revenue deferred due to lease accounting (1)	292,653	454,678	242,148
Revenues (Non-GAAP)	<u>\$1,562,670</u>	<u>\$1,601,726</u>	<u>\$1,197,124</u>

²⁸ <https://www.sec.gov/Archives/edgar/data/1318605/0001193125-16-670068-index.htm>

Example 3, continued: Tesla

Ex. 3.2. Excerpts from the SEC’s Comment Letter on Tesla’s earnings release ²⁹

Form 8-K Furnished August 3, 2016

28. We note that you adjust your non-GAAP measures to add back the deferred revenue and related costs for cars sold with resale value guarantees and where you collected the purchase price in cash, which substitutes an individually tailored measurement method for those of GAAP. Please describe the changes you expect to make to your presentation in light of the new guidance in Question 100.04 of the updated Compliance and Disclosure Interpretations issued on May 17, 2016.

²⁹ <https://www.sec.gov/Archives/edgar/data/1318605/000000000016093364/0000000000-16-093364-index.htm>

Example 4: Microchip Technology

Ex. 4.1 Excerpts from Microchip's earnings press release dated August 9, 2018 ³⁰



EXHIBIT 99.1

NEWS RELEASE

INVESTOR RELATIONS CONTACT:
J. Eric Bjornholt -- CFO..... (480) 792-7804

MICROCHIP TECHNOLOGY ANNOUNCES FINANCIAL RESULTS FOR FIRST QUARTER OF FISCAL YEAR 2019

- Record GAAP net sales of \$1.213 billion, up 21.0% sequentially and up 24.7% from the year ago quarter. Microchip was unable to provide GAAP net sales guidance.
- Record Non-GAAP net sales of \$1.217 billion, up 21.4% sequentially and up 25.2% from the year ago quarter. The midpoint of our guidance provided on May 31, 2018 was non-GAAP net sales of \$1.207 billion.

RECONCILIATION OF GAAP NET SALES TO NON-GAAP NET SALES

	Three Months Ended	
	June 30,	
	2018	2017
Net sales, as reported	\$ 1,212.5	\$ 972.1
Impact of changes in distributor inventory levels	4.3	—
Non-GAAP net sales	<u>\$ 1,216.8</u>	<u>\$ 972.1</u>

Management believes these non-GAAP measures are useful to investors because they enhance the understanding of our historical financial performance and comparability between periods. Many of our investors have requested that we disclose this non-GAAP information, including the effect of changes in distributor inventory holdings because they believe it is useful in understanding our performance as it excludes non-cash and other charges that many investors feel may obscure our underlying operating results and provides better information regarding end-market demand for our products. Management uses these non-GAAP measures to manage and assess the profitability of our business and for compensation purposes. We also use our non-GAAP results when developing and monitoring our budgets and spending. Our determination of the above non-GAAP measures might not be the same as similarly titled measures used by other companies, and it should not be construed as a substitute for amounts determined in accordance with GAAP. There are limitations associated with using non-GAAP measures, including that they exclude financial information that some may consider important in evaluating our performance. Management compensates for this by presenting information on both a GAAP and non-GAAP basis for investors and providing reconciliations of the GAAP and non-GAAP results.

³⁰ <https://www.sec.gov/Archives/edgar/data/827054/000082705419000016/0000827054-19-000016-index.htm>

Example 4, continued: Microchip Technology

Ex. 4.2 Excerpts from the SEC’s Comment Letter on Microchip Technology’s earnings release ³¹

Exhibit 99.1, page 10

2. We note your non-GAAP measures and changes based on non-GAAP measures, such as net sales and gross profit, exclude the impact of changes in distributor inventory levels. Describe to us in more detail what the adjustment represents and explain how you calculated the amount. Tell us how you considered Question 100.04 of the Compliance and Disclosure Interpretations on Non-GAAP Financial Measures when presenting your measures that reflect the impact of changes in distributor inventory levels. That guidance indicates that it is not appropriate to present non-GAAP measures that substitute individually tailored revenue recognition and measurement methods for those of GAAP

³¹ <https://www.sec.gov/Archives/edgar/data/827054/000000000018030161/0000000000-18-030161-index.htm>

TABLE 1
Sample Composition

	Firm-Quarters
Firm-quarters from universe of Compustat, CRSP, and IBES with earnings announced between January 1, 2015 and December 31, 2018	66,679
Limit to firm-quarters from firms with exactly 16 quarters of non-missing 8-K earnings announcements	(24,087)
Initial population	42,592
Random sample of 1,700 firms	27,200
Exclude financial firms (SIC code between 6000 and 6799)	(6,864)
Require non-missing GAAP revenue or revenue growth	(891)
Firm-quarters for which non-GAAP revenue disclosures were hand collected	19,445
Distinct firms for which non-GAAP revenue disclosures were hand collected	1,255

This table presents our sample composition. We randomly sample 1,700 firms from an initial population to reduce the burden of hand collection while maintaining a representative sample. After imposing additional restrictions, our final sample consists of 1,255 distinct firms. This hand collected sample serves as the starting point for all analyses in the paper.

TABLE 2
Descriptive Statistics on Non-GAAP Revenue Disclosure

Panel A: Non-GAAP Revenue Disclosure Frequency

	<u>N</u>	<u>Mean</u>
Indicator for Non-GAAP Revenue Disclosure (<i>NG_REV</i>)	19,445	0.19
Observations with <i>NG_REV</i> = 1		
	<u>N</u>	<u>Mean</u>
Indicator for Foreign Currency Adjustment (<i>FX</i>)	3,690	0.73
Indicator for Change in Reporting Entity Adjustment (<i>REP_ENT</i>)	3,690	0.50
Indicator for Acquisition of Deferred Revenue Adjustment (<i>ASC805</i>)	3,690	0.08
Indicator for Other Adjustment (<i>OTHER</i>)	3,690	0.07

Panel B: Materiality of Differences in Non-GAAP and GAAP Revenue Growth

Absolute Difference in Growth:
|(*NG_REV_GROWTH* - *GAAP_REV_GROWTH*)|

	<u>N</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>P10</u>	<u>P25</u>	<u>P50</u>	<u>P75</u>	<u>P90</u>
<i>NG_REV</i> = 1	3,690	0.09	0.15	0.01	0.02	0.04	0.09	0.23
<i>FX</i> = 1	2,681	0.07	0.12	0.01	0.02	0.03	0.07	0.17
<i>REP_ENT</i> = 1	1,828	0.11	0.16	0.01	0.02	0.05	0.12	0.31
<i>ASC805</i> = 1	308	0.06	0.11	0.00	0.00	0.01	0.05	0.16
<i>OTHER</i> = 1	242	0.17	0.24	0.01	0.01	0.06	0.23	0.57

Panel C: Non-GAAP Revenue Disclosure Over Time

<u>Year</u>	<u>N</u>	<u>Observations with <i>NG_REV</i> = 1</u>				
		<u>Proportion reporting Non-GAAP Revenue</u>	<u>Proportion adjusting for <i>FX</i></u>	<u>Proportion adjusting for <i>REP_ENT</i></u>	<u>Proportion adjusting for <i>ASC805</i></u>	<u>Proportion adjusting for <i>OTHER</i></u>
2015	4,668	0.20	0.75	0.43	0.08	0.07
2016	4,917	0.20	0.74	0.47	0.09	0.07
2017	4,921	0.18	0.71	0.51	0.09	0.07
2018	4,939	0.18	0.70	0.58	0.08	0.06

Panel D: Non-GAAP Revenue Disclosure by Industry

Fama-French 17 Industry	N	Proportion reporting Non-GAAP Revenue	Observations with <i>NG_REV</i> = 1			
			Proportion adjusting for <i>FX</i>	Proportion adjusting for <i>REP_ENT</i>	Proportion adjusting for <i>ASC805</i>	Proportion adjusting for <i>OTHER</i>
Automobiles	445	0.28	0.92	0.55	0.00	0.056
Chemicals	654	0.16	0.89	0.32	0.00	0.104
Construction	854	0.16	0.71	0.68	0.01	0.000
Consumer Durables	413	0.39	0.84	0.23	0.00	0.062
Drugs, Soap, Perfumes, Tobacco	798	0.24	0.79	0.52	0.09	0.031
Fabricated Products	191	0.22	0.76	1.00	0.00	0.000
Food	560	0.26	0.68	0.74	0.00	0.000
Machinery and Business Equipment	2,681	0.23	0.79	0.64	0.12	0.031
Mining and Minerals	212	0				
Oil and Petroleum Products	1,046	0.07	0.00	0.04	0.00	0.958
Retail Stores	1,452	0.09	0.80	0.40	0.00	0.000
Steel	253	0.01	1.00	0.00	0.00	0.000
Textiles, Apparel & Footware	350	0.41	0.90	0.18	0.00	0.000
Transportation	958	0.07	0.66	0.80	0.00	0.000
Utilities	708	0				
Other	7,870	0.22	0.68	0.47	0.12	0.069

This table presents descriptive statistics on non-GAAP revenue disclosure. Panel A presents frequency statistics, where the mean of indicator variables is the proportion of observations making the associated disclosure or adjustment. Panel B presents materiality statistics, where materiality is calculated as the absolute difference between non-GAAP revenue growth and GAAP revenue growth, winsorized at the 1st and 99th percentiles. Panel C presents frequency statistics over the sample period. Panel D presents frequency statistics by Fama-French 17 Industry, excluding financial firms.

TABLE 3
Descriptive Statistics for Variables in Determinants Model

Panel A: Descriptive Statistics

Variable	N	Mean	Std. Dev.	P10	P25	Median	P75	P90
<i>NG_REV</i>	16,142	0.21	0.41	0	0	0	0	1
<i>NANALYSTS_REV</i> (unlogged)	16,142	8.09	6.17	2	3	6	11	17
<i>NANALYSTS_REV</i>	16,142	1.98	0.68	1.10	1.39	1.95	2.48	2.89
<i>IBES_NG_REV_LEVEL</i>	16,142	0.14	0.35	0	0	0	0	1
<i>IBES_NG_REV_GROWTH</i>	16,142	0.13	0.33	0	0	0	0	1
<i>LIT_RISK</i>	16,142	-1.24	1.37	-2.71	-2.14	-1.47	-0.64	0.43
<i>HHI</i>	16,142	408.38	325.58	140.12	146.21	187.78	636.09	864.52
<i>SIZE</i> (unlogged)	16,142	7,091.07	15,215.81	155.37	453.01	1,703.24	5,768.00	18,223.00
<i>SIZE</i>	16,142	7.41	1.81	5.05	6.12	7.44	8.66	9.81
<i>BM</i>	16,142	0.44	0.45	0.07	0.18	0.35	0.59	0.93
<i>STDROA</i>	16,142	0.02	0.03	0.00	0.01	0.01	0.02	0.05
<i>STDREV</i>	16,142	0.03	0.04	0.01	0.01	0.02	0.04	0.07
<i>INSTOWN</i>	16,142	0.17	0.30	0.00	0.00	0.00	0.31	0.72
<i>AGE</i> (unlogged)	16,142	17.37	5.77	7	13	20	22	23
<i>AGE</i>	16,142	2.84	0.41	2.08	2.64	3.04	3.14	3.18
<i>FX_ACTIVITY</i>	16,142	0.66	0.47	0	0	1	1	1
<i>FX_GAIN</i>	16,142	0.29	0.45	0	0	0	1	1
<i>FX_LOSS</i>	16,142	0.36	0.48	0	0	0	1	1
<i>TRANS_ITEM</i>	16,142	0.57	0.49	0	0	1	1	1
<i>GAAP_REV_FN</i>	16,142	0.04	0.21	0	0	0	0	0
<i>ACQUIRER</i>	16,142	0.04	0.19	0	0	0	0	0
<i>NEG_GAAP_REV_GROWTH</i>	16,142	0.34	0.47	0	0	0	1	1
<i>GAAP_LOSS</i>	16,142	0.30	0.46	0	0	0	1	1
<i>NG_LOSS</i>	16,142	0.05	0.23	0	0	0	0	0

Panel B: Comparisons of Means based on Non-GAAP Revenue Disclosure

Variable	NG_REV = 1		NG_REV = 0		Diff. in Mean	
	N	Mean	N	Mean		
<i>NG_REV</i>	3,359	1.00	12,783	0.00	1.00	***
<i>NANALYSTS_REV</i> (unlogged)	3,359	9.58	12,783	7.70	1.88	***
<i>NANALYSTS_REV</i>	3,359	2.18	12,783	1.93	0.25	***
<i>IBES_NG_REV_LEVEL</i>	3,359	0.20	12,783	0.13	0.07	***
<i>IBES_NG_REV_GROWTH</i>	3,359	0.19	12,783	0.11	0.08	***
<i>LIT_RISK</i>	3,359	-1.48	12,783	-1.18	-0.29	***
<i>HHI</i>	3,359	375.26	12,783	417.08	-41.83	*
<i>SIZE</i> (unlogged)	3,359	8,238.72	12,783	6,789.50	1,449.22	
<i>SIZE</i>	3,359	7.90	12,783	7.28	0.62	***
<i>BM</i>	3,359	0.35	12,783	0.46	-0.11	***
<i>STDROA</i>	3,359	0.01	12,783	0.02	-0.01	***
<i>STDREV</i>	3,359	0.03	12,783	0.03	-0.01	***
<i>INSTOWN</i>	3,359	0.20	12,783	0.16	0.04	***
<i>AGE</i> (unlogged)	3,359	17.91	12,783	17.23	0.68	**
<i>AGE</i>	3,359	2.88	12,783	2.83	0.05	**
<i>FX_ACTIVITY</i>	3,359	0.94	12,783	0.58	0.36	***
<i>FX_GAIN</i>	3,359	0.42	12,783	0.26	0.16	***
<i>FX_LOSS</i>	3,359	0.52	12,783	0.32	0.19	***
<i>TRANS_ITEM</i>	3,359	0.73	12,783	0.53	0.21	***
<i>GAAP_REV_FN</i>	3,359	0.06	12,783	0.04	0.02	**
<i>ACQUIRER</i>	3,359	0.07	12,783	0.03	0.03	***
<i>NEG_GAAP_REV_GROWTH</i>	3,359	0.31	12,783	0.35	-0.03	**
<i>GAAP_LOSS</i>	3,359	0.22	12,783	0.32	-0.11	***
<i>NG_LOSS</i>	3,359	0.04	12,783	0.06	-0.02	**

This table presents descriptive statistics for the variables representing factors potentially associated with non-GAAP revenue disclosures. Panel A presents univariate statistics for the variables. Panel B presents comparisons of variable means between observations where *NG_REV* = 1 and *NG_REV* = 0. We assess the significance of differences in means by estimating univariate OLS regressions of each variable on *NG_REV* with standard errors clustered by firm. All variables are defined in Appendix A and winsorized over the sample used for this table at the 1st and 99th percentiles. *, **, and *** indicate a statistically significant difference at the 10%, 5%, and 1% level, respectively.

TABLE 4
Determinants of Non-GAAP Revenue Disclosures

Panel A: Determinants of *NG_REV*

Variable	Pred.	1 <i>NG_REV</i>	2 <i>NG_REV</i>	3 <i>NG_REV</i>	4 <i>NG_REV</i>
Information Environment					
<i>NANALYSTS_REV</i>	?	0.006 (0.54)			0.009 (0.78)
<i>IBES_NG_REV_LEVEL</i>	+	0.037 * (1.87)			0.044 ** (2.34)
<i>IBES_NG_REV_GROWTH</i>	+	0.083 *** (3.05)			0.079 *** (3.02)
<i>LIT_RISK</i>	-	-0.031 *** (-4.43)			-0.021 *** (-3.21)
<i>HHI</i>	+	0.048 ** (2.03)			0.047 ** (1.98)
<i>SIZE</i>	?	0.078 *** (5.68)			0.038 *** (2.74)
<i>BM</i>	-	-0.024 *** (-3.04)			-0.022 *** (-2.85)
<i>STDROA</i>	?	-0.012 * (-1.82)			-0.011 * (-1.67)
<i>STDREV</i>	?	-0.011 (-1.42)			-0.010 (-1.30)
<i>INSTOWN</i>	?	0.014 *** (3.05)			0.013 *** (2.97)
<i>AGE</i>	-	0.001 (0.16)			-0.006 (-0.69)
Nonrecurring Items					
<i>FX_ACTIVITY</i>	+		0.211 *** (13.32)		
<i>TRANS_ITEM</i>	+		0.085 *** (6.80)		0.069 *** (5.59)
<i>GAAP_REV_FN</i>	+		0.035 (1.21)		0.045 (1.59)
<i>ACQUIRER</i>	+		0.102 *** (3.14)		0.070 ** (2.27)
Potential Opportunism					
<i>NEG_GAAP_REV_GROWTH</i>	+			-0.001 (-0.09)	0.007 (0.64)
<i>GAAP_LOSS</i>	+			-0.063 *** (-4.46)	-0.016 (-1.21)
<i>NG_LOSS</i>	+			-0.005 (-0.22)	-0.002 (-0.11)
<i>FX_GAIN</i>	-			0.224 *** (13.56)	0.178 *** (10.97)
<i>FX_LOSS</i>	+			0.220 *** (14.00)	0.166 *** (10.82)
Industry FEs		Yes	Yes	Yes	Yes
N		16,142	16,142	16,142	16,142
Adj. R ²		0.1227	0.1352	0.1263	0.1655

Panel B: Determinants of Non-GAAP Revenue Adjustment Categories

Variable	Pred.	1 <i>FX</i>	2 <i>REP_ENT</i>	3 <i>ASC805</i>	4 <i>OTHER</i>
<i>INTERCEPT</i>	?	-0.009 (-1.05)	0.013 ** (2.10)	-0.018 *** (-3.47)	0.007 (1.53)
<i>NANALYSTS_REV</i>	?	0.012 (1.34)	0.001 (0.15)	0.001 (0.44)	0.005 * (1.84)
<i>IBES_NG_REV_LEVEL</i>	+	0.013 (0.88)	0.000 (-0.02)	0.029 ** (2.51)	0.015 * (1.92)
<i>IBES_NG_REV_GROWTH</i>	+	0.001 (0.03)	-0.003 (-0.16)	0.073 *** (3.87)	0.020 (1.62)
<i>LIT_RISK</i>	-	-0.018 *** (-3.38)	-0.008 * (-1.95)	0.000 (0.20)	0.003 (1.21)
<i>HHI</i>	+	0.006 (0.77)	-0.012 ** (-1.97)	-0.009 *** (-4.26)	0.001 (0.58)
<i>SIZE</i>	?	0.007 (0.89)	0.011 * (1.67)	-0.009 *** (-2.65)	0.002 (0.54)
<i>BM</i>	-	-0.017 *** (-2.63)	-0.005 (-1.14)	-0.005 ** (-2.31)	-0.001 (-0.21)
<i>STDROA</i>	?	-0.009 ** (-1.98)	0.003 (0.87)	-0.009 *** (-3.98)	0.008 ** (2.08)
<i>STDREV</i>	?	-0.005 (-0.80)	-0.005 (-1.08)	-0.001 (-0.60)	-0.004 (-1.56)
<i>INSTOWN</i>	?	0.014 *** (3.54)	-0.010 *** (-2.81)	0.002 (1.24)	0.001 (0.44)
<i>AGE</i>	-	0.001 (0.16)	-0.002 (-0.46)	0.004 (1.13)	-0.006 (-1.60)
<i>TRANS_ITEM</i>	+	0.029 *** (2.95)	0.040 *** (4.82)	0.014 *** (3.14)	-0.004 (-1.20)
<i>GAAP_REV_FN</i>	+	0.023 (0.99)	0.042 ** (2.07)	0.005 (0.46)	-0.011 *** (-3.69)
<i>ACQUIRER</i>	+	0.015 (0.61)	0.062 ** (2.40)	0.017 (1.27)	0.012 (0.86)
<i>NEG_GAAP_REV_GROWTH</i>	+	0.021 ** (2.29)	-0.011 (-1.41)	-0.007 ** (-1.96)	-0.001 (-0.25)
<i>GAAP_LOSS</i>	+	-0.014 (-1.31)	-0.012 (-1.51)	0.015 *** (2.61)	-0.005 (-1.52)
<i>NG_LOSS</i>	+	-0.007 (-0.46)	-0.029 *** (-2.75)	0.000 (0.02)	0.008 (0.79)
<i>FX_GAIN</i>	-	0.138 *** (10.97)	0.023 *** (2.69)	0.019 *** (3.17)	0.002 (0.39)
<i>FX_LOSS</i>	+	0.132 *** (11.14)	0.018 ** (2.36)	0.015 *** (2.60)	0.005 (0.95)
Other Adjustment Categories					
<i>FX</i>			0.374 *** (12.18)	-0.008 (-0.69)	0.003 (0.40)
<i>REP_ENT</i>		0.501 *** (15.40)		0.006 (0.45)	-0.004 (-0.51)
<i>ASC805</i>		-0.044 (-0.69)	0.024 (0.45)		0.079 (1.10)
<i>OTHER</i>		0.024 (0.40)	-0.024 (-0.52)	0.106 (1.13)	
Industry FEs		No	No	No	No

N	16,142	16,142	16,142	16,142
Adj. R ²	0.2875	0.2467	0.0908	0.0364

This table presents the results of estimating linear probability models with factors potentially associated with non-GAAP revenue disclosures (i.e., determinants tests). Panel A presents determinants tests for *NG_REV*, and Panel B presents determinants tests for the four adjustment types: *FX*, *REP_ENT*, *ASC805*, and *OTHER*. We present coefficient estimates above t-statistics, which are in parentheses. To facilitate interpretation, we standardize all continuous variables to have mean of 0 and standard deviation of 1 over the sample prior to estimation. Estimations in Panel B do not include industry fixed effects because some estimations do not converge if they are included. All variables are defined in Appendix A and winsorized over the sample used for this table at the 1st and 99th percentiles. Standard errors are clustered by firm. *, **, and *** indicate a statistically significant difference from zero at the 10%, 5%, and 1% level, respectively.

TABLE 5
Determinants of the Consistency of Non-GAAP Revenue Disclosures

Panel A: Statistics on Non-GAAP Revenue Disclosures, by Consistency

Variable	<i>CONSIST = 1</i>		<i>CONSIST = 0</i>		Diff. in Mean	
	N	Mean	N	Mean		
<i>NG_REV</i>	2,794	0.88	2,087	0.24	0.64	***
<i>FX</i>	2,465	0.80	503	0.53	0.27	***
<i>REP_ENT</i>	2,465	0.46	503	0.53	-0.08	
<i>ASC805</i>	2,465	0.09	503	0.09	0.00	
<i>OTHER</i>	2,465	0.06	503	0.07	0.00	

Panel B: Determinants of *NG_REV*, by Consistency

Variable	<i>CONSIST = 1</i>			<i>CONSIST = 0</i>		
	1 <i>NG_REV</i>	2 <i>NG_REV</i>	3 <i>NG_REV</i>	4 <i>NG_REV</i>	5 <i>NG_REV</i>	6 <i>NG_REV</i>
Nonrecurring Items						
<i>FX_ACTIVITY</i>	0.186 *** (3.11)			0.077 * (1.92)		
<i>TRANS_ITEM</i>	0.014 (0.70)		-0.012 (-0.58)	-0.014 (-0.57)		0.001 (0.05)
<i>GAAP_REV_FN</i>	0.071 ** (2.44)		0.069 ** (2.17)	0.005 (0.09)		0.003 (0.05)
<i>ACQUIRER</i>	-0.012 (-0.35)		-0.030 (-0.82)	0.175 *** (2.78)		0.142 ** (2.20)
Potential Opportunism						
<i>NEG_GAAP_REV_GROWTH</i>		0.016 (0.75)	0.027 (1.31)		0.036 (1.23)	0.028 (1.09)
<i>GAAP_LOSS</i>		-0.032 (-1.20)	-0.006 (-0.27)		-0.013 (-0.48)	0.009 (0.31)
<i>NG_LOSS</i>		-0.032 (-0.59)	-0.003 (-0.05)		0.048 (0.83)	0.035 (0.69)
<i>FX_GAIN</i>		0.208 *** (3.29)	0.167 *** (2.76)		0.023 (0.57)	0.081 * (1.81)
<i>FX_LOSS</i>		0.157 ** (2.45)	0.144 ** (2.31)		0.111 *** (2.75)	0.102 ** (2.23)
Information Environment Vars.	No	No	Yes	No	No	Yes

Industry FEs	Yes	Yes	Yes	Yes	Yes	Yes
N	2,794	2,794	2,794	2,087	2,087	2,087
Adj. R ²	0.0219	0.0266	0.0668	0.0076	0.0115	0.1245

This table presents the results of estimating linear probability models with factors potentially associated with consistent and inconsistent non-GAAP revenue disclosures (i.e., determinants tests). Panel A presents comparisons of variable means between observations where *CONSIST* = 1 (i.e., consistent non-GAAP revenue disclosures) and *CONSIST* = 0 (i.e., inconsistent non-GAAP revenue disclosures). We assess the significance of differences in means by estimating univariate OLS regressions of each variable on *CONSIST*. Panel B presents determinants tests for *NG_REV*, separately by values of *CONSIST*. “Information Environment Vars.” refers to the following variables: *NANALYSTS_REV*, *IBES_NG_REV_LEVEL*, *IBES_NG_REV_GROWTH*, *LIT_RISK*, *HHI*, *SIZE*, *BM*, *STDROA*, *STDREV*, *INSTOWN*, and *AGE*. We present coefficient estimates above t-statistics, which are in parentheses. All variables are defined in Appendix A and winsorized over the sample used for this table at the 1st and 99th percentiles. Standard errors are clustered by firm. *, **, and *** indicate a statistically significant difference from zero at the 10%, 5%, and 1% level, respectively.

TABLE 6
Predictive Ability of Non-GAAP Revenue Growth for Future Revenue Growth

Panel A: Descriptive Statistics

<u>Variable</u>	<u>N</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>P10</u>	<u>P25</u>	<u>P50</u>	<u>P75</u>	<u>P90</u>
<i>FUTURE_REV_GROWTH</i>	2,793	0.069	0.136	-0.050	0.002	0.045	0.100	0.218
<i>NG_REV_GROWTH</i>	2,793	0.078	0.162	-0.041	0.004	0.045	0.100	0.220
<i>GAAP_REV_GROWTH</i>	2,793	0.079	0.234	-0.095	-0.031	0.032	0.116	0.316

Panel B: Predictive Ability

<u>Variable</u>	<u><i>FUTURE_REV_GROWTH</i></u>			
	<u>1</u>		<u>2</u>	
<i>INTERCEPT</i>	0.053	***	0.061	***
	(10.77)		(12.41)	
<i>NG_REV_GROWTH</i>	0.200	***		
	(4.47)			
<i>GAAP_REV_GROWTH</i>			0.100	*** (a)
			(4.14)	
N	2,793		2,793	
Adj. R ²	0.0565		0.0293	

Panel C: Predictive Ability, by Adjustment Category

<u>Variable</u>	<u><i>FUTURE_REV_GROWTH</i></u>			
	<u>1</u>		<u>2</u>	
<i>INTERCEPT</i>	0.109	***	0.129	***
	(7.22)		(7.79)	
<i>NG_REV_GROWTH</i> × <i>FX</i>	0.271	***		
	(3.23)			
<i>NG_REV_GROWTH</i> × <i>REP_ENT</i>	0.171	***		
	(2.81)			
<i>NG_REV_GROWTH</i> × <i>ASC805</i>	0.105	**		
	(2.39)			
<i>NG_REV_GROWTH</i> × <i>OTHER</i>	-0.075			
	(-0.85)			
<i>GAAP_REV_GROWTH</i> × <i>FX</i>			0.143	*** (a)
			(2.60)	
<i>GAAP_REV_GROWTH</i> × <i>REP_ENT</i>			-0.005	(a)
			(-0.11)	
<i>GAAP_REV_GROWTH</i> × <i>ASC805</i>			0.098	***
			(2.60)	
<i>GAAP_REV_GROWTH</i> × <i>OTHER</i>			-0.039	
			(-0.90)	
Main effects	Yes		Yes	
N	2,793		2,793	
Adj. R ²	0.1024		0.0714	

This table presents tests of the predictive ability of non-GAAP revenue growth and GAAP revenue growth for future revenue growth. *FUTURE_REV_GROWTH* is non-GAAP revenue growth disclosed in quarter $q+4$, if disclosed, and GAAP revenue growth calculated for $q+4$ otherwise. Panel A presents univariate statistics for the variables used in the analysis. Panel B presents the results of estimating OLS regressions. “Main effects” in Panel B denotes the main effects of the non-GAAP revenue adjustment categories. We present coefficient estimates above t -statistics, which are in parentheses. Coefficients of interest are presented in bold font. “(a)” denotes a significant difference at the 5% level between the coefficient on *GAAP_REV_GROWTH* and the corresponding coefficient on *NG_REV_GROWTH*. All variables are defined in Appendix A and winsorized over the sample used for this table at the 1st and 99th percentiles. Standard errors are clustered by firm. *, **, and *** indicate a statistically significant difference from zero at the 10%, 5%, and 1% level, respectively.

TABLE 7
Market Reaction Around Non-GAAP Revenue Disclosures

Panel A: Descriptive Statistics

Variable	N	Mean	Std. Dev.	P10	P25	P50	P75	P90
<i>RET</i> [0, 1]	3,508	0.003	0.084	-0.094	-0.041	0.004	0.048	0.100
<i>RET</i> [2, EA _{q+1} +1]	3,508	0.002	0.148	-0.172	-0.078	0.002	0.085	0.182
<i>NG_REV_GROWTH_DIFF</i> (unranked)	3,508	-0.007	0.147	-0.110	-0.023	0.006	0.040	0.095
<i>FE_IBES_REV_GROWTH</i> (unranked)	3,508	0.008	0.045	-0.037	-0.013	0.006	0.028	0.055
<i>FE_IBES_EPS_LEVEL</i> (unranked)	3,508	0.000	0.006	-0.002	0.000	0.000	0.002	0.004
<i>RPTLAG</i> (unranked)	3,508	33.688	10.359	23	26	32	38	48
<i>BM</i> (unranked)	3,508	0.345	0.321	0.059	0.172	0.297	0.465	0.741
<i>MKTCAP</i> (unranked)	3,508	8.181	1.679	6.062	7.095	8.141	9.204	10.276
<i>QTR4</i>	3,508	0.248	0.432	0	0	0	0	1

Panel B: Market Reaction

Variable	1 <i>RET</i> [0, 1]	2 <i>RET</i> [0, 1]	3 <i>RET</i> [0, 1]	4 <i>RET</i> [2, EA _{q+1} +1]
<i>NG_REV_GROWTH_DIFF</i>			0.016 *** (4.16)	-0.006 (-0.77)
<i>FE_IBES_REV_GROWTH</i>		0.057 *** (12.56)	0.061 *** (13.16)	0.004 (0.41)
<i>FE_IBES_EPS_LEVEL</i>	0.094 *** (19.43)	0.074 *** (14.40)	0.073 *** (14.28)	0.003 (0.28)
<i>RPTLAG</i>	-0.007 (-1.35)	-0.008 (-1.52)	-0.006 (-1.19)	-0.004 (-0.35)
<i>BM</i>	-0.005 (-1.02)	-0.002 (-0.38)	-0.002 (-0.27)	-0.017 (-1.57)
<i>MKTCAP</i>	-0.010 * (-1.88)	-0.012 ** (-2.22)	-0.011 ** (-2.07)	0.002 (0.20)
<i>QTR4</i>	0.014 *** (3.99)	0.013 *** (3.99)	0.013 *** (3.82)	0.015 ** (2.07)
Industry FEs	Yes	Yes	Yes	Yes
N	3,508	3,508	3,508	3,508
Adj. R ²	0.1316	0.1720	0.1751	0.0068

Panel C: Market Reaction, by Adjustment Category

Variable	1 <i>RET</i> [0, 1]	2 <i>RET</i> [2, $EA_{q+1} + 1$]
<i>NG_REV_GROWTH_DIFF</i> × <i>FX</i>	0.023 *** (3.40)	-0.003 (-0.20)
<i>NG_REV_GROWTH_DIFF</i> × <i>REP_ENT</i>	-0.001 (-0.08)	-0.008 (-0.56)
<i>NG_REV_GROWTH_DIFF</i> × <i>ASC805</i>	-0.011 (-0.70)	-0.009 (-0.23)
<i>NG_REV_GROWTH_DIFF</i> × <i>OTHER</i>	0.004 (0.19)	0.004 (0.08)
<i>FE_IBES_REV_GROWTH</i> × <i>FX</i>	0.055 *** (7.66)	0.009 (0.63)
<i>FE_IBES_REV_GROWTH</i> × <i>REP_ENT</i>	0.018 * (1.96)	-0.002 (-0.12)
<i>FE_IBES_REV_GROWTH</i> × <i>ASC805</i>	0.092 *** (5.19)	0.048 (1.52)
<i>FE_IBES_REV_GROWTH</i> × <i>OTHER</i>	0.010 (0.54)	-0.073 (-1.47)
<i>FE_IBES_EPS_LEVEL</i> × <i>FX</i>	0.061 *** (8.95)	0.001 (0.08)
<i>FE_IBES_EPS_LEVEL</i> × <i>REP_ENT</i>	0.046 *** (5.50)	0.004 (0.25)
<i>FE_IBES_EPS_LEVEL</i> × <i>ASC805</i>	0.020 (1.12)	-0.037 (-1.06)
<i>FE_IBES_EPS_LEVEL</i> × <i>OTHER</i>	0.025 (1.15)	0.019 (0.40)
Controls	Yes	Yes
Industry FEs	Yes	Yes
N	3,508	3,508
Adj. R ²	0.1604	0.0066

This table presents tests of whether stock returns are associated with measures of revenue and earnings surprises. Panel A presents univariate statistics for the variables used in the analysis. Market-adjusted returns are measured with the earnings announcement date as day 0. Variables denoted as “unranked” in Panel A are ranked into deciles and scaled between 0 and 1 when used in the analyses presented in Panels B and C. Panels B and C present the results of estimating OLS regressions. We present coefficient estimates above t-statistics, which are in parentheses. Coefficients of interest are presented in bold font. “Controls” in Panel C denotes the main effects of non-GAAP revenue adjustment categories and *RPTLAG*, *BM*, *MKTCAP*, and *QTR4*. All variables are defined in Appendix A and winsorized over the sample used for this table at the 1st and 99th percentiles. Standard errors are clustered by earnings announcement date. *, **, and *** indicate a statistically significant difference from zero at the 10%, 5%, and 1% level, respectively.

TABLE 8
Confirmatory Value of Non-GAAP and GAAP Revenue Growth

Panel A: Descriptive Statistics

<u>Variable</u>	<u>N</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>P10</u>	<u>P25</u>	<u>P50</u>	<u>P75</u>	<u>P90</u>
<i>RET</i> [EA _{q-4} +2, -1]	3,690	0.010	0.313	-0.372	-0.170	0.005	0.169	0.373
<i>NG_REV_GROWTH</i>	3,690	0.078	0.145	-0.040	0.010	0.050	0.101	0.215
<i>GAAP_REV_GROWTH</i>	3,690	0.088	0.224	-0.090	-0.020	0.047	0.132	0.317

Panel B: Confirmatory Value

<u>Variable</u>	<u>RET [EA_{q-4} +2, -1]</u>	
	<u>1</u>	<u>2</u>
<i>INTERCEPT</i>	-0.018 * (-1.91)	-0.009 (-0.97)
<i>NG_REV_GROWTH</i>	0.365 *** (4.01)	
<i>GAAP_REV_GROWTH</i>		0.218 *** (a) (3.91)
N	3,690	3,690
Adj. R ²	0.0285	0.0242 (b)

Panel C: Confirmatory Value, by Adjustment Category

<u>Variable</u>	<u>RET [EA_{q-4} +2, -1]</u>	
	<u>1</u>	<u>2</u>
<i>INTERCEPT</i>	-0.049 * (-1.88)	-0.010 (-0.37)
<i>NG_REV_GROWTH</i> × <i>FX</i>	0.671 *** (5.87)	
<i>NG_REV_GROWTH</i> × <i>REP_ENT</i>	0.476 *** (3.04)	
<i>NG_REV_GROWTH</i> × <i>ASC805</i>	0.206 * (1.77)	
<i>NG_REV_GROWTH</i> × <i>OTHER</i>	-0.052 (-0.20)	
<i>GAAP_REV_GROWTH</i> × <i>FX</i>		0.258 *** (a) (3.24)
<i>GAAP_REV_GROWTH</i> × <i>REP_ENT</i>		0.074 (a) (0.96)
<i>GAAP_REV_GROWTH</i> × <i>ASC805</i>		0.158 * (1.79)
<i>GAAP_REV_GROWTH</i> × <i>OTHER</i>		0.053 (0.29)
Main effects	Yes	Yes
N	3,690	3,690
Adj. R ²	0.0654	0.0266 (b)

This table presents tests of the confirmatory value of non-GAAP revenue growth and GAAP revenue growth for future revenue growth based on the extent to which the information is incorporated into stock price prior to its disclosure. Panel A presents univariate statistics for the variables used in the analysis. Market-adjusted returns are measured with the earnings announcement date as day 0. Panels B and C present the results of estimating OLS regressions. “Main effects” in Panel C denotes the main effects of the non-GAAP revenue adjustment categories. We present coefficient estimates above t-statistics, which are in parentheses. Coefficients of interest are presented in bold font. “(a)” denotes a significant difference at the 5% level between the coefficient on *GAAP_REV_GROWTH* and the corresponding coefficient on *NG_REV_GROWTH*, and “(b)” denotes statistical significance in the explanatory power of the models based on a Clarke test. All variables are defined in Appendix A and winsorized over the sample used for this table at the 1st and 99th percentiles. Standard errors are clustered by firm

and earnings announcement date. *, **, and *** indicate a statistically significant difference from zero at the 10%, 5%, and 1% level, respectively.

TABLE 9
Determinants of Non-GAAP Revenue Disclosure Initiation

Variable	1 <i>NG_REV</i>	2 <i>NG_REV</i>	3 <i>NG_REV</i>
<i>Intercept</i>	0.396 *** (9.28)	0.388 *** (8.95)	0.470 *** (3.57)
Nonrecurring Items			
<i>FX_ACTIVITY</i>	0.062 (1.42)		
<i>TRANS_ITEM</i>	0.073 (1.55)		0.075 (1.50)
<i>GAAP_REV_FN</i>	-0.038 (-0.52)		-0.031 (-0.43)
<i>ACQUIRER</i>	0.057 (0.58)		0.036 (0.36)
Potential Opportunism			
<i>NEG_GAAP_REV_GROWTH</i>		0.066 (1.33)	0.064 (1.20)
<i>GAAP_LOSS</i>		0.038 (0.73)	-0.024 (-0.40)
<i>NG_LOSS</i>		0.097 (0.82)	0.056 (0.49)
<i>FX_GAIN</i>		0.006 (0.12)	0.019 (0.29)
<i>FX_LOSS</i>		0.135 *** (2.87)	0.110 * (1.86)
Information Environment Vars.	No	No	Yes
N	382	382	382
Adj. R ²	-0.0026	0.0116	0.0335

This table presents the results of estimating linear probability models with factors potentially associated with the initiation of non-GAAP revenue disclosure (i.e., determinants tests). The sample consists of two firm-quarter observations for each firm: (1) the quarter in which non-GAAP revenue disclosures are initiated by the firm (*NG_REV* = 1) and (2) four quarters prior when the firm does not disclose non-GAAP revenue (*NG_REV* = 0). “Information Environment Vars.” refers to the following variables: *NANALYSTS_REV*, *IBES_NG_REV_LEVEL*, *IBES_NG_REV_GROWTH*, *LIT_RISK*, *HHI*, *SIZE*, *BM*, *STDROA*, *STDREV*, *INSTOWN*, and *AGE*. We present coefficient estimates above t-statistics, which are in parentheses. All variables are defined in Appendix A and winsorized over the sample used for this table at the 1st and 99th percentiles. Standard errors are clustered by firm. *, **, and *** indicate a statistically significant difference from zero at the 10%, 5%, and 1% level, respectively.

ONLINE APPENDIX

The purpose of this online appendix is to provide supplementary information to the paper titled “The Determinants and Informativeness of Non-GAAP Revenue Disclosures.” This online appendix is broken into the following six parts:

- (1) a full description of the data collection process used in the paper,
- (2) a correlation matrix for the variables used in our determinants tests (Table 4),
- (3) a discussion of the motivation and predictions for the variables used in our determinants tests (Table 4),
- (4) analyses of the roles of economic activity and managerial discretion in determining non-GAAP revenue disclosure,
- (5) additional detail on the non-GAAP revenue disclosures in the OTHER category, and
- (6) analyses of non-GAAP revenue disclosures and non-GAAP EPS disclosures.

1) Description of data collection process used in the paper

We hand collect firms’ quarterly non-GAAP revenue disclosures from earnings announcements filed with the SEC in 8-Ks on EDGAR. Because we wish to assess consistency in reporting over time for each firm in our sample, we limit the universe of Compustat, CRSP, and I/B/E/S to firms for which we can identify an 8-K earnings announcement for all 16 quarters between January 1, 2015 and December 31, 2018. Due to the burdensome nature of hand collection, from this set of firms we randomly select an initial 1,700 firms (out of 2,662 firms) for inclusion in our sample.¹ We randomly select firms, rather than limiting collection to a group of large firms (e.g., S&P 500), because revenue could be a more important financial metric for young,

¹ Given the resources available at the time of data collection, we estimated that 1,700 firms represented the largest sample for which we could collect all 16 quarters in a timely manner.

growing firms (Ertimur et al. 2003; Jegadeesh and Livnat 2006).² Informed by the process of hand collection, we eliminate firm-quarter observations for firms in financial services industries (SIC codes 6000-6799) because these firms have complex income statements that include multiple top-line components, and are therefore not comparable with those of other firms.³ Finally, we eliminate observations missing GAAP revenue or GAAP revenue growth, as we require a benchmark with which to compare non-GAAP revenue. Our final sample of 19,445 firm-quarters represents 1,255 distinct firms. Table 1 in the manuscript summarizes our sample selection procedures.

Our data collection involves a combination of text processing using a Python script and manual human data entry. We use a Python script to identify potential non-GAAP revenue disclosures and manual human data entry to filter potential disclosures and extract non-GAAP revenue information.⁴ Unlike EPS numbers, which have a more distinct numeric form, non-GAAP revenue is disclosed either as a growth rate in percent terms or as a dollar value and is therefore less distinguishable from other financial measures in earnings press releases. Our Python script is well suited for identifying GAAP-only disclosures and minimizing the probability of Type II errors (i.e., false negatives), but the Type I (i.e., false positive) error rate is approximately 40 percent, which necessitates human coders manually reviewing potential disclosures and examining the related press releases as necessary to rule out false positives. We manually review each filing identified by the script and gather data on non-GAAP revenue amounts and adjustment categories

² To validate that our sample represents the population from which it was drawn, we compare the descriptive statistics (i.e., size, earnings, growth, etc.) of our random sample with the firms omitted from our random sample and identify no statistically significant differences between the two subsets (untabulated).

³ Because some firms do not have an SIC code that falls between 6000-6799 in each year across all 16 quarters, the number of firm quarters eliminated by this screen is not a multiple of 16.

⁴ Our script removes from the earnings announcement words or phrases referencing earnings, earnings per share, and cost of revenues or similar “of revenues” or “of sales” phrases. After removing these words or phrases, we extract sentences containing “revenue,” “revenues,” or “sales.” We then screen for keywords representing non-GAAP reporting used in Bentley et al. (2018) (“normalized,” variants of “adjusted,” variants of “exclude,” variants of “remove,” “without,” “absent,” “except for,” variants of “non-GAAP,” and variants of “pro forma”) supplemented with “organic” and variants of “constant currency.” Sentences containing both revenue and non-GAAP references are further processed in hand collection. Firm-quarter observations without any such sentences are treated as $NG_REV = 0$.

for all true positives.⁵ Consistent with SEC guidance on non-GAAP financial reporting, we do not consider same store sales (a.k.a., comparable store sales), bookings, or billings to be non-GAAP financial measures.⁶ We also do not gather data for non-GAAP revenue metrics that are not comparable to total consolidated revenue (e.g., non-GAAP revenue for a reportable segment or line of business).⁷

Initial hand collection revealed that firms most commonly disclose non-GAAP revenue in the form of a revenue growth rate (i.e., revenue relative to the same quarter in the previous fiscal year). Explicit disclosure of non-GAAP revenue levels are less common than growth rates, although non-GAAP revenue levels are available in certain cases (e.g., when adjustments relate *exclusively* to deferred revenue under ASC 805). We focus our hand collection and analyses on non-GAAP revenue growth rates because they are disclosed more commonly and available across all adjustment categories.⁸

2) Correlation matrix for the variables included in our determinants tests (Table 4)

Due to the potentially overlapping nature of some of the variables in Table 4, we present a correlation matrix in Table OA1. As expected, *FX_ACTIVITY* is positively correlated with *FX_LOSS* (Pearson corr. = 0.46) and *FX_GAIN* (Pearson corr. = 0.55). *SIZE* is positively correlated with the number of analysts following the firm's revenue (Pearson corr. = 0.57).

⁵ In cases where there are multiple non-GAAP revenue measures, we gather the measure that involves the largest number of adjustments to GAAP revenue. For example, if a firm discloses both (a) constant-currency revenue growth and (b) organic constant-currency revenue growth, we select the latter.

⁶ We define non-GAAP revenues as outlined in Topic 8 of the SEC Financial Reporting Manual (<https://www.sec.gov/corpfin/cf-manual/topic-8>). As such, we do not consider revenue measures that merely disaggregate GAAP earnings into components to be non-GAAP revenue, and instead require that an earnings announcement contains an explicit disclosure of non-GAAP revenue. We note that some non-GAAP revenue disclosures are accompanied by a reconciliation that disaggregates GAAP revenue growth into components of varying usefulness.

⁷ To assess the accuracy of our final sample, we randomly select 50 observations for which we determine that a non-GAAP revenue disclosure exists, and 50 observations for which we determine that no disclosure exists, and manually review each press release in its entirety for disclosure of any non-GAAP revenue information. Our accuracy rate is 100 percent in both random samples, which implies that the true accuracy rate lies between 92.8 percent and 100 percent based on 95% exact confidence intervals (untabulated).

⁸ In the rare case when only the level of non-GAAP revenue is disclosed, we calculate non-GAAP revenue growth manually by dividing non-GAAP revenue in quarter q by non-GAAP revenue in quarter $q-4$ and subtracting 1. If non-GAAP revenue is not disclosed in quarter $q-4$, we use GAAP revenue in quarter $q-4$ as a basis for comparison.

IBES_NG_REV_LEVEL is positively correlated with *IBES_NG_REV_GROWTH* (Pearson corr. = 0.67), as following the firm's revenue on a non-GAAP in the current quarter affects both variables. All other correlations are moderate in magnitude.

3) Motivation and predictions for the variables used in our determinants tests (Table 4)

Here we describe our motivation and predictions for including variables related to firms' fundamentals and information environments. We include *NANALYSTS_SAL* as a proxy for the richness of firms' information environments, but we do not predict a directional association with *NG_REV* because a richer information environment could decrease demand for voluntary disclosure or increase the supply of voluntary disclosure as firms try to guide analysts. We include *IBES_NG_REV_LEVEL* and *IBES_NG_REV_GROWTH* to capture whether I/B/E/S considers revenue level or growth on a non-GAAP basis. Given prior literature on the overlap between managers' and analysts' non-GAAP reporting choices (e.g., Bentley et al. 2018), we predict positive associations between these variables and *NG_REV*. We include *LIT_RISK* as a proxy for litigation risk and we predict a negative association with *NG_REV* because firms concerned with litigation might be less likely to provide non-GAAP disclosures (e.g., Bentley et al. 2018), especially those that are highly scrutinized like non-GAAP revenue. We include *HHI*, a measure of market concentration, as a proxy for firms' competitive environment. We predict a positive association between *HHI* and *NG_REV* because firms with greater market concentration might be more willing to provide voluntary disclosures (e.g., Li 2010). We include *BM* as an inverse proxy for the firm's perceived growth opportunities and we predict a negative association with *NG_REV* because firms with more perceived growth opportunities might have stronger incentives to shape market expectations through voluntary disclosure (e.g., Frankel et al. 1999). We include *STDROA* and *STDREV* as proxies for earnings and revenue volatility, given the frequent inclusion of

performance volatility measures in prior non-GAAP research (e.g., Bentley et al. 2018, Leung and Veenman 2018). We do not predict directional associations between *STDROA* or *STDREV* and *NG_REV*. We include *INSTOWN* as a proxy for the sophistication of firms' investors, which would be of interest to regulators concerned about protecting less sophisticated investors. We do not predict a directional association between *INSTOWN* and *NG_REV*. We include *AGE* because revenue may be a more important performance metric for younger firms, and we predict a negative association with *NG_REV* because such firms may be more likely to disclose non-GAAP revenue.

Here we describe our motivation and predictions for including variables related to economic conditions that could impair the decision usefulness of GAAP revenue. We include *FX_ACTIVITY* as a proxy for the presence of foreign sales that could be affected by exchange rate fluctuations, because hand collection revealed many firms reporting non-GAAP revenue adjusting for foreign-exchange effects. We predict a positive association between *FX_ACTIVITY* and *NG_REV*. We also include *TRANS_ITEM*, *GAAP_REV_FN*, and *ACQUIRER* as indicators for potential changes in the reporting entity, including mergers, acquisitions, or divestitures. Adjustments for these events were commonly observed in our hand collection, and GAAP revenue might be less comparable between periods because of such activities. We predict a positive association between these three indicators and *NG_REV*.

Here we describe our motivation and predictions for including variables related to potential opportunism. We include *NEG_GAAP_REV_GROWTH*, *GAAP_LOSS*, and *NG_LOSS* as indicators for poor performance that firms might try to hide by reporting non-GAAP revenue. The inclusion of variables capturing the presence of net losses is common in prior non-GAAP research (e.g., Bentley et al. 2018, Leung and Veenman 2018), and we include *NEG_GAAP_REV_GROWTH* and *NG_LOSS* given the focus of our study on revenue disclosures,

which could be used to compensate for either poor GAAP revenues or poor non-GAAP earnings. To the extent firms use non-GAAP revenue opportunistically, we predict positive associations between the three indicators and *NG_REV*. We include *FX_GAIN* and *FX_LOSS* as separate indicators to examine potential asymmetry in their associations with *NG_REV*; firms might be more likely to adjust GAAP revenue when the effects of foreign-exchange rate fluctuations are unfavorable (i.e., FX-related losses) but fail to adjust for favorable currency effects (i.e., FX-related gains). To the extent firms use non-GAAP revenue opportunistically, we predict a negative association between *FX_GAIN* and *NG_REV*, a positive association between *FX_LOSS* and *NG_REV*, and that the association for *FX_LOSS* is significantly more positive than that for *FX_GAIN*.

4) Economic activity and managerial discretion

This section describes tests related to whether the presence of economic events completely determines non-GAAP revenue disclosures, or whether, instead, firms exercise discretion conditional on economic activity. If non-GAAP revenue disclosures merely reflect economic activity, we expect nearly all firms with relevant economic activity to make such disclosures.

First, we examine the proportion of firms making FX, REP_ENT, or ASC805 adjustments conditional on the presence of foreign exchange activity or special items in GAAP (Table OA2, Panels A-C). Approximately 22 percent of firms with foreign exchange activity (*FX_ACTIVITY* = 1) report non-GAAP revenue with FX adjustments (Panel A); approximately 14 percent of firms with events that could impair comparability of GAAP revenues (*TRANS_ITEM* = 1 or *GAAP_REV_FN* = 1) report non-GAAP revenue with REP_ENT adjustments (Panel B); and approximately 2 percent of firms with possible acquisitions (*TRANS_ITEM* = 1 or *ACQUIRER* =

1) report non-GAAP revenue with ASC805 adjustments (Panel C).⁹ Even when we condition on more material foreign exchange activity (*MATERIAL_FX_ACTIVITY* = 1), approximately 34 percent of firms report non-GAAP revenue with FX adjustments (Panel A). Overall, the fact that none of these proportions are near 100 percent suggests that the presence of economic activity that affects GAAP revenue does not itself guarantee disclosure of non-GAAP revenue.

Second, we identify the 100 largest mergers or acquisitions for our sample firms and examine the proportion of firms that report non-GAAP revenue (Table OA2, Panels D and E). We find that fewer than 50 percent of firms with large mergers report non-GAAP revenue: 60 (56) percent of the largest 100 (50) mergers involve no disclosure of non-GAAP revenue.

Overall, these findings suggest that while economic conditions provide incentives to disclose non-GAAP revenue, firms still exercise discretion regarding whether to adjust GAAP revenue for these economic conditions.

5) Non-GAAP revenue disclosures in the OTHER category

In Table OA3, we list representative observations from the 26 firms with adjustments in the OTHER category. Non-GAAP revenue disclosures in the OTHER category can be further categorized into three sub-categories. The first two sub-categories relate to economic circumstances that are common to some types of firms and industries. First, OTHER adjustments sometimes remove the effects of cash-flow hedges and other cash-settled derivatives that are required to be included in revenue under ASC 815. Such disclosures are most common among companies in the Oil and Petroleum Products industry. Figure OA1 provides an example of one such disclosure made by Antero Resources.

⁹ The low proportion for ASC805 adjustments likely reflects that most acquisitions do not involve material fair value adjustments to acquired deferred revenue.

Second, firms sometimes make OTHER adjustments related to revenue measurement/deferral principles arising in ongoing service arrangements. Such adjustments relate primarily to multiple deliverable revenue contracts (ASC 605), and they are most common among software companies who must follow industry-specific revenue recognition practices (ASC 985). Figure OA2 provides an example of one such disclosure made by Electronic Arts.

The remaining adjustments in the OTHER category relate to factors that are more specific to the entity and/or quarter, such as the individually tailored metrics disclosed by Tesla (see Appendix B), measures that remove the effects of sales incentives issued to major customers (which much be included in revenue under ASC 718), and measures that involve questionable adjustments for the effects of sales declines (e.g., related to lost customers and/or competition from new market entrants). Figure OA3 provides an example of one such disclosure made by Lawson Products.

6) Non-GAAP revenue disclosures and non-GAAP EPS disclosures

Given the non-GAAP literature's focus on EPS, we examine the extent to which EPS and revenue disclosures occur jointly and whether the two disclosures have different determinants. This analysis provides evidence regarding whether the properties of non-GAAP EPS disclosures can reasonably be generalized to other non-GAAP financial measures, or whether, instead, researchers and regulators should consider each type of measure individually.

In Table OA4, Panel A, we compare the frequency of non-GAAP revenue and non-GAAP EPS disclosures by combining non-GAAP EPS data from the authors of Bentley et al. (2018) for the years 2015-2018 with our sample data.¹⁰ We find that approximately 14 percent of firms disclose both non-GAAP revenue and non-GAAP EPS. However, approximately 5 percent of

¹⁰ We thank Jeremy Bentley, Ted Christensen, Kurt Gee, and Ben Whipple for providing their hand-collected data publicly for researchers' use. We downloaded the data from <https://sites.google.com/view/kurthgee/data>.

firms disclose non-GAAP revenue without non-GAAP EPS and 36 percent of firms disclose non-GAAP EPS without non-GAAP revenue.¹¹

Table OA4, Panel B, compares determinants of non-GAAP revenue disclosure with determinants of non-GAAP EPS disclosure. We add to the factors from Panel B an indicator equal to 1 for whether I/B/E/S reports the firm's EPS on a non-GAAP basis (*IBES_NG_EPS*). Column 1 presents determinants of non-GAAP revenue disclosure, with similar inferences to those in Panel B based on a larger sample; column 2 presents determinants of non-GAAP EPS disclosure; and column 3 presents the difference in coefficients between columns 1 and 2. We assess the significance of the differences by estimating the two equations as a system and testing coefficients across the models. Relative to the disclosure of non-GAAP EPS, the disclosure of non-GAAP revenue is significantly more positively associated with whether I/B/E/S reports the firm's revenue on a non-GAAP basis (*IBES_NG_REV_LEVEL* or *IBES_NG_REV_GROWTH*) and foreign exchange gains and losses (*FX_GAIN* and *FX_LOSS*), and significantly less positively related to whether I/B/E/S reports the firm's EPS on a non-GAAP basis (*IBES_NG_EPS*). We also find marginally significant differences in perceived growth opportunities (*BM*), whether the firm had an acquisition (*ACQUIRER*), and whether the non-GAAP disclosure could compensate for poor GAAP performance (*GAAP_LOSS*).

Overall, the significant differences in these associations suggest that non-GAAP revenue and non-GAAP EPS are distinct reporting choices. While prior research studying non-GAAP

¹¹ To gain insight into why some firms appear to disclose non-GAAP revenue but not non-GAAP EPS, we randomly sample 30 of these observations and review the earnings announcement press releases by hand (untabulated). In 22 of the 30 observations (73 percent) we find that the firm in fact discloses a non-GAAP revenue measure without a non-GAAP EPS or earnings measure, with most cases (19) involving FX adjustments. For a firm to disclose a measure of "constant-currency earnings", all income statement line items, rather than only sales, would need to be adjusted to exclude the effects of changes due to fluctuations in settlement currencies. As such, it does not seem surprising that FX revenue adjustments are not always accompanied by non-GAAP earnings. We also find that in 8 of the 30 observations (27 percent), the firm does disclose non-GAAP EPS but its value equals GAAP EPS, so the Bentley et al. (2018) data classifies the firm-quarter as not containing a non-GAAP EPS disclosure. Because of this latter set of observations, we acknowledge that our estimate that 5 percent of firms disclose non-GAAP revenue without disclosing non-GAAP earnings is slightly overstated.

reporting has focused almost exclusively on non-GAAP EPS, these observable differences imply that inferences drawn from one non-GAAP financial measure regarding (i) the types of firms that report non-GAAP information, and (ii) the properties of the non-GAAP information, need not generalize to all non-GAAP financial measures. This inference is particularly relevant for the SEC because it regulates all non-GAAP financial measures (not only non-GAAP EPS) and has recently scrutinized non-GAAP revenue reporting specifically.

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TABLE OA1
Correlation Matrix

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1 <i>NG_REV</i>		0.15	0.08	0.10	-0.09	-0.05	0.14	-0.10	-0.12	-0.09	0.06	0.05	0.30	0.14	0.16	0.17	0.03	0.07	-0.03	-0.10	-0.03
2 <i>NANALYSTS_REV</i>	0.15		0.05	0.07	0.14	0.03	0.57	-0.22	-0.18	-0.12	0.08	-0.01	0.19	0.08	0.11	0.10	-0.03	0.07	-0.10	-0.15	-0.01
3 <i>IBES_NG_REV_LEVEL</i>	0.08	0.05		0.67	0.05	0.00	0.07	0.04	0.02	0.00	0.01	0.00	-0.03	-0.02	-0.01	0.00	-0.01	0.04	-0.01	0.02	0.02
4 <i>IBES_NG_REV_GROWTH</i>	0.10	0.07	0.67		0.08	-0.04	0.11	0.05	0.03	-0.03	0.00	-0.02	-0.01	-0.01	0.00	0.02	0.00	0.06	-0.01	0.04	0.04
5 <i>LIT_RISK</i>	-0.08	0.22	0.05	0.09		0.06	0.11	0.03	0.27	0.08	-0.12	-0.17	-0.13	-0.05	-0.07	0.01	-0.01	0.01	0.03	0.23	0.11
6 <i>HHI</i>	-0.08	0.04	-0.01	-0.05	0.06		0.10	0.07	-0.03	0.17	-0.01	0.08	-0.05	-0.03	-0.02	0.00	0.02	-0.04	0.04	-0.07	0.00
7 <i>SIZE</i>	0.14	0.58	0.08	0.12	0.22	0.15		0.00	-0.38	-0.20	0.05	0.23	0.18	0.08	0.11	0.24	0.01	0.10	-0.03	-0.34	-0.09
8 <i>BM</i>	-0.09	-0.26	0.05	0.05	-0.01	0.11	0.01		-0.06	0.01	0.02	0.05	-0.09	-0.05	-0.04	0.03	0.06	-0.02	0.15	0.08	0.08
9 <i>STDROA</i>	-0.13	-0.17	0.02	0.02	0.20	0.02	-0.42	-0.07		0.29	-0.10	-0.14	-0.16	-0.06	-0.10	-0.09	-0.01	-0.03	0.12	0.38	0.15
10 <i>STDREV</i>	-0.10	-0.17	0.00	-0.04	0.02	0.22	-0.30	0.02	0.39		-0.02	-0.06	-0.11	-0.06	-0.05	-0.09	0.00	-0.01	0.06	0.13	0.05
11 <i>INSTOWN</i>	0.04	0.05	0.01	0.01	-0.12	-0.01	0.02	0.03	-0.12	-0.02		-0.01	0.05	-0.16	0.20	-0.01	0.00	0.03	0.10	-0.07	-0.03
12 <i>AGE</i>	0.04	0.00	-0.01	-0.02	-0.10	0.15	0.23	0.06	-0.11	-0.05	-0.23		0.16	0.07	0.09	0.08	0.00	0.01	0.05	-0.22	-0.09
13 <i>FX_ACTIVITY</i>	0.30	0.19	-0.03	-0.01	-0.11	-0.07	0.18	-0.08	-0.16	-0.09	0.04	0.14		0.46	0.55	0.21	0.04	0.04	-0.02	-0.13	-0.01
14 <i>FX_GAIN</i>	0.14	0.08	-0.02	-0.01	-0.04	-0.05	0.07	-0.05	-0.07	-0.05	-0.17	0.11	0.46		-0.49	0.10	0.02	0.01	-0.04	-0.04	0.01
15 <i>FX_LOSS</i>	0.16	0.11	-0.01	0.00	-0.07	-0.02	0.11	-0.03	-0.09	-0.04	0.20	0.03	0.55	-0.49		0.11	0.02	0.04	0.02	-0.09	-0.02
16 <i>TRANS_ITEM</i>	0.17	0.10	0.00	0.02	0.02	0.01	0.24	0.06	-0.09	-0.10	-0.02	0.09	0.21	0.10	0.11		0.08	0.08	0.04	-0.02	0.03
17 <i>GAAP_REV_FN</i>	0.03	-0.03	-0.01	0.00	-0.01	0.01	0.02	0.06	0.02	0.00	0.00	-0.01	0.04	0.02	0.02	0.08		0.00	0.03	0.03	0.00
18 <i>ACQUIRER</i>	0.07	0.07	0.04	0.06	0.02	-0.04	0.09	-0.03	-0.04	-0.01	0.03	0.01	0.04	0.01	0.04	0.08	0.00		-0.06	-0.02	-0.01
19 <i>NEG_GAAP_REV_GROWTH</i>	-0.03	-0.10	-0.01	-0.01	0.03	0.06	-0.02	0.17	0.10	0.07	0.11	-0.01	-0.02	-0.04	0.02	0.04	0.03	-0.06		0.17	0.08
20 <i>GAAP_LOSS</i>	-0.10	-0.15	0.02	0.04	0.20	-0.09	-0.33	0.04	0.43	0.15	-0.05	-0.20	-0.13	-0.04	-0.09	-0.02	0.03	-0.02	0.17		0.33
21 <i>NG_LOSS</i>	-0.03	-0.01	0.02	0.04	0.10	-0.01	-0.09	0.06	0.18	0.08	-0.02	-0.08	-0.01	0.01	-0.02	0.03	0.00	-0.01	0.08	0.33	

This table presents a correlation matrix for the variables used in our determinants test in Table 4. The number of observations for each variable is 16,142. The upper (lower) diagonals report Pearson (Spearman) correlations. Correlations presented in bold font are statistically significant at the 5% level.

TABLE OA2
Analyses Conditioning on Economic Activity

Panel A: Foreign-Exchange Activity

	<i>FX = 1</i>	<i>FX = 0</i>	Total
<i>FX_ACTIVITY = 1</i>	21.8%	78.2%	100.0%
	2,617	9,378	11,995
<i>FX_ACTIVITY = 0</i>	0.5%	99.5%	100.0%
	33	7,146	7,179
<i>MATERIAL_FX_ACTIVITY = 1</i>	33.8%	66.2%	100.0%
	1,350	2,646	3,996

Panel B: Changes to the Reporting Entity

	<i>REP_ENT = 1</i>	<i>REP_ENT = 0</i>	Total
<i>POSS_REP_ENT = 1</i>	13.7%	86.3%	100.0%
	1,454	9,184	10,638
<i>POSS_REP_ENT = 0</i>	4.1%	95.9%	100.0%
	351	8,185	8,536

Panel C: Changes to the Reporting Entity

	<i>ASC805 = 1</i>	<i>ASC805 = 0</i>	Total
<i>POSS_ACQUIRER = 1</i>	2.4%	97.6%	100.0%
	254	10,358	10,612
<i>POSS_ACQUIRER = 0</i>	0.6%	99.4%	100.0%
	54	8,508	8,562

Panel D: 100 Largest Acquisitions

<i>NG_REV = 1</i>	<i>NG_REV = 0</i>	Total
40.0%	60.0%	100.0%
40	60	100

Panel E: 50 Largest Acquisitions

<i>NG_REV = 1</i>	<i>NG_REV = 0</i>	Total
44.0%	56.0%	100.0%
22	28	50

This table presents frequencies of observations based on economic characteristics and non-GAAP revenue disclosure adjustments. In Panel A, *MATERIAL_FX_ACTIVITY* is equal to 1 when the absolute value of the firm's foreign currency translation adjustment

divided by the absolute value of net income is in the top tercile of the distribution. In Panel B, *POSS_REP_ENT* is a proxy for potential events that would reduce comparability of GAAP revenues and is equal to 1 if either *GAAP_REV_FN* or *TRANS_ITEM* equals 1 and is equal to 0 otherwise. In Panel C, *POSS_ACQUIRER* is a proxy for a potential acquisition and is equal to 1 if either *ACQUIRER* or *TRANS_ITEM* equals 1 and is equal to 0 otherwise. All other variables are defined in Appendix A of the manuscript. Analyses in Panels D and E are based on the largest acquisitions reported in Zephyr by firms in our sample of 19,445.

TABLE OA3
List of firms that make OTHER adjustments

CIK	Example URL	Category	ASC Ref.	Keyword
874499	http://www.sec.gov/Archives/edgar/data/874499/0001193125-15-063388-index.htm	Derivatives	ASC 815	Excluding the impact of hedge ineffectiveness
1433270	http://www.sec.gov/Archives/edgar/data/1433270/0001104659-15-013975-index.htm	Derivatives	ASC 815	Adjusted net revenue
1469510	http://www.sec.gov/Archives/edgar/data/1469510/0001193125-15-077751-index.htm	Derivatives	ASC 815	Revenue, net of derivative settlements
1528837	http://www.sec.gov/Archives/edgar/data/1528837/0001104659-17-065801-index.htm	Derivatives	ASC 815	Adjusted revenue
1600470	http://www.sec.gov/Archives/edgar/data/1600470/0001193125-15-175116-index.htm	Derivatives	ASC 815	Adjusted Revenue
10456	http://www.sec.gov/Archives/edgar/data/10456/0001193125-17-137953-index.htm	Entity Specific	N/A	Operational Sales
88941	http://www.sec.gov/Archives/edgar/data/88941/0001171843-16-013443-index.htm	Entity Specific	ASC 718	Non-GAAP net sales
101984	http://www.sec.gov/Archives/edgar/data/101984/0000101984-16-000079-index.htm	Entity Specific	ASC 718	Adjusted Pro Forma net sales
109177	http://www.sec.gov/Archives/edgar/data/109177/0000109177-15-000013-index.htm	Entity Specific	ASC 944	Revenue excluding the impact
703604	http://www.sec.gov/Archives/edgar/data/703604/0000703604-15-000062-index.htm	Entity Specific	N/A	Adjusted non-GAAP net sales
789019	http://www.sec.gov/Archives/edgar/data/789019/0001193125-15-350712-index.htm	Entity Specific	N/A	As adjusted (non-GAAP)
914025	http://www.sec.gov/Archives/edgar/data/914025/0000914025-15-000052-index.htm	Entity Specific	ASC 815	Adjusted Revenues
1035267	http://www.sec.gov/Archives/edgar/data/1035267/0001035267-15-000005-index.htm	Entity Specific	N/A	Non-GAAP revenue
1056386	http://www.sec.gov/Archives/edgar/data/1056386/0001144204-17-040116-index.htm	Entity Specific	N/A	Sequential revenue
1318605	http://www.sec.gov/Archives/edgar/data/1318605/0001193125-15-044423-index.htm	Entity Specific	ASC 842	Tesla non-GAAP revenue
1374535	http://www.sec.gov/Archives/edgar/data/1374535/0001374535-16-000162-index.htm	Entity Specific	N/A	Organic sales

CIK	Example URL	Category	ASC Ref.	Keyword
103872	http://www.sec.gov/Archives/edgar/data/103872/0000947871-15-000035-index.htm	Multiple Deliverables	ASC 985	Proforma net revenue
712515	http://www.sec.gov/Archives/edgar/data/712515/0000712515-15-000006-index.htm	Multiple Deliverables	ASC 985	Non-GAAP net revenue
779152	http://www.sec.gov/Archives/edgar/data/779152/0000779152-17-000013-index.htm	Multiple Deliverables	ASC 605	Deconversion fees from both periods
827054	http://www.sec.gov/Archives/edgar/data/827054/0000827054-15-000015-index.htm	Multiple Deliverables	ASC 605	Non-GAAP net sales
884905	http://www.sec.gov/Archives/edgar/data/884905/0001157523-15-001395-index.htm	Multiple Deliverables	ASC 605	Organic sales
946581	http://www.sec.gov/Archives/edgar/data/946581/0001104659-15-006277-index.htm	Multiple Deliverables	ASC 985	Non-GAAP Net Revenue
1123360	http://www.sec.gov/Archives/edgar/data/1123360/0001123360-15-000035-index.htm	Multiple Deliverables	ASC 605	Adjusted net revenue
1286225	http://www.sec.gov/Archives/edgar/data/1286225/0001157523-15-000733-index.htm	Multiple Deliverables	ASC 985	Non-GAAP total revenue
1366246	http://www.sec.gov/Archives/edgar/data/1366246/0001104659-15-031638-index.htm	Multiple Deliverables	ASC 985	Non-GAAP revenue
1595974	http://www.sec.gov/Archives/edgar/data/1595974/0001595974-16-000038-index.htm	Multiple Deliverables	ASC 605	Non-GAAP net revenue

TABLE OA4
Comparing Non-GAAP Revenue and Non-GAAP EPS Disclosures

Panel A: Disclosure Frequency

Disclosure Pattern	N	Proportion of sample with non-missing <i>NG_EPS</i> data
Non-GAAP Revenue, GAAP EPS	749	4.7%
Non-GAAP Revenue, non-GAAP EPS	2,127	13.5%
GAAP Revenue, non-GAAP EPS	5,641	35.7%
GAAP Revenue, GAAP EPS	7,266	46.0%
	15,783	100.0%

Panel B: Determinants of *NG_REV* and *NG_EPS*

Variable	1	2	3
	<i>NG_REV</i>	<i>NG_EPS</i>	Difference (1 - 2)
<i>Intercept</i>	-0.013 (-1.00)	0.042 *** (3.39)	-0.055 *** (-3.23)
<i>NANALYSTS_REV</i>	0.025 ** (2.28)	0.035 *** (3.98)	-0.010 (-0.71)
<i>IBES_NG_REV_LEVEL</i>	0.051 ** (2.55)	0.008 (0.49)	0.043 * (1.74)
<i>IBES_NG_REV_GROWTH</i>	0.080 *** (3.01)	-0.005 (-0.26)	0.085 *** (2.93)
<i>IBES_NG_EPS</i>	0.048 *** (3.02)	0.680 *** (45.27)	-0.632 *** (-28.49)
<i>LIT_RISK</i>	-0.018 ** (-2.71)	-0.005 (-0.83)	-0.013 (-1.48)
<i>HHI</i>	-0.007 (-0.69)	-0.025 *** (-3.51)	0.018 (1.53)
<i>SIZE</i>	-0.002 (-0.22)	-0.005 (-0.47)	0.003 (0.14)
<i>BM</i>	-0.026 *** (-3.41)	-0.007 (-1.04)	-0.019 * (-1.91)
<i>STDROA</i>	-0.012 * (-1.91)	-0.001 (-0.09)	-0.011 (-1.21)
<i>STDREV</i>	-0.005 (-0.65)	-0.004 (-0.68)	-0.001 (-0.10)
<i>INSTOWN</i>	0.013 *** (2.65)	0.022 *** (5.84)	-0.009 (-1.43)
<i>AGE</i>	-0.001 (-0.14)	-0.008 (-1.19)	0.007 (0.66)
<i>TRANS_ITEM</i>	0.070 *** (5.14)	0.062 *** (5.40)	0.008 (0.42)
<i>GAAP_REV_FN</i>	0.055 * (1.81)	0.027 (1.24)	0.028 (0.75)
<i>ACQUIRER</i>	0.065 ** (2.00)	-0.009 (-0.33)	0.074 * (1.83)
<i>NEG_GAAP_REV_GROWTH</i>	-0.004 (-0.34)	-0.015 * (-1.66)	0.011 (0.78)
<i>GAAP_LOSS</i>	-0.016 (-1.18)	-0.045 *** (-3.72)	0.029 * (1.66)

<i>FX_GAIN</i>	0.207 *** (12.74)	0.076 *** (4.73)	0.131 *** (5.74)
<i>FX_LOSS</i>	0.194 *** (12.64)	0.082 *** (5.31)	0.112 *** (5.13)
N	13,417	13,417	
Adj. R ²	0.1398	0.554	

This table presents the results of estimating linear probability models with factors potentially associated with non-GAAP revenue and non-GAAP EPS disclosures (i.e., determinants tests). *NG_EPS* is an indicator equal to 1 if the firm reports non-GAAP EPS from the data in Bentley et al. (2018) and 0 otherwise. Panel A presents frequency statistics on the two types of disclosures. Panel B presents determinants tests for *NG_REV*, *NG_EPS*, and the difference in estimated coefficients between the two models, which is determined using SUEST in STATA. We present coefficient estimates above t-statistics, which are in parentheses. To facilitate interpretation, we standardize all continuous variables to have mean of 0 and standard deviation of 1 over the sample prior to estimation. The t-statistics in Column 3 are calculated based on the square root of the Chi-Square statistic from SUEST. *IBES_NG_EPS* equals 1 if unadjusted I/B/E/S actual “street” EPS differs from *epsfiq* in Compustat is equal to 0 otherwise (we convert I/B/E/S actual “street” EPS to a diluted basis prior to comparing with *epsfiq*). All other variables are defined in Appendix A of the manuscript and winsorized over the sample used for this table at the 1st and 99th percentiles. Standard errors are clustered by firm. *, **, and *** indicate a statistically significant difference from zero at the 10%, 5%, and 1% level, respectively.

Figure OA1: Antero Resources

The following excerpt is from Antero Resources' earnings release dated February 25, 2015, available at: https://www.sec.gov/Archives/edgar/data/1433270/000110465915013975/a15-5429_1ex99d1.htm

Non-GAAP Financial Measures

Adjusted net revenue as set forth in this release represents total operating revenue adjusted for certain non-cash items, including unsettled hedge gains and losses and gains and losses on asset sales. Antero believes that adjusted net revenue is useful to investors in evaluating operational trends of the Company and its performance relative to other oil and gas producing companies. Adjusted net revenue is not a measure of financial performance under GAAP and should not be considered in isolation or as a substitute for total operating revenue as an indicator of financial performance. The following table reconciles total operating revenue to adjusted net revenue:

	Three months ended		Years ended	
	December 31,		December 31,	
	2013	2014	2013	2014
Total operating revenue	\$ 480,014	\$1,478,597	\$1,313,134	\$2,720,632
Hedge gains	(206,179)	(931,921)	(491,689)	(868,201)
Cash receipts for settled hedges	54,259	78,451	163,570	135,784
Gain on sale of assets	—	(40,000)	—	(40,000)
Adjusted net revenue	<u>\$ 328,094</u>	<u>\$ 585,127</u>	<u>\$ 985,015</u>	<u>\$1,948,215</u>

Figure OA2: Electronic Arts

The following excerpt is from Electronic Arts' earnings release dated January 27, 2015, available at: <https://www.sec.gov/Archives/edgar/data/712515/000071251515000006/earningsrelease012715.htm>

Non-GAAP Financial Measures

Change in Deferred Net Revenue (Online-enabled Games). The majority of our software games can be connected to the Internet whereby a consumer may be able to download unspecified content or updates on a when-and-if-available basis (“unspecified updates”) for use with the original game software. In addition, we may also offer an online matchmaking service that permits consumers to play against each other via the Internet. GAAP requires us to account for the consumer’s right to receive unspecified updates or the matchmaking service for no additional fee as a “bundled” sale, or multiple-element arrangement. Electronic Arts is not able to objectively determine the fair value of these unspecified updates or online service included in certain of its online-enabled games. As a result, the Company recognizes the revenue from the sale of these online-enabled games on a straight-line basis over the estimated offering period. Electronic Arts’ management excludes the impact of the change in deferred net revenue related to online-enabled games in its non-GAAP financial measures for the reasons stated above and also to facilitate an understanding of our operations because all related costs of revenue are expensed as incurred instead of deferred and recognized ratably.

	Three Months Ended December 31,		Nine Months Ended December 31,	
	2014	2013	2014	2013
Net revenue				
GAAP net revenue	\$ 1,126	\$ 808	\$ 3,330	\$ 2,452
Change in deferred net revenue (online-enabled games)	302	764	93	655
Non-GAAP net revenue	\$ 1,428	\$ 1,572	\$ 3,423	\$ 3,107

Figure OA3: Lawson Products

The following excerpt is from Lawson Products' earnings release dated July 23, 2015, available at: <https://www.sec.gov/Archives/edgar/data/703604/000070360415000062/q22015pressrelease.htm>

TABLE 2 - RECONCILIATION OF GAAP TO ADJUSTED NON-GAAP NET SALES

(Dollar amounts in thousands)
(Unaudited)

	Three Months Ended June 30,		Six Months Ended June 30,	
	2015	2014	2015	2014
Net Sales, as reported per GAAP	\$ 70,726	\$ 72,080	\$ 140,630	\$ 141,284
Impact of Canadian exchange rate	905	—	1,697	—
Decrease in direct sales to oil and gas customers ⁽¹⁾	1,433	—	2,344	—
Adjusted non-GAAP net sales	<u>\$ 73,064</u>	<u>\$ 72,080</u>	<u>\$ 144,671</u>	<u>\$ 141,284</u>
Percentage increase in non-GAAP net sales	<u>1.4%</u>		<u>2.4%</u>	

(1) Represents decrease in sales to direct oil and gas customers as defined by Standard Industry Classification ("SIC") codes