Journal of Accounting and Economics 70 (2020) 101333

Contents lists available at ScienceDirect

Journal of Accounting and Economics

journal homepage: www.journals.elsevier.com/journal-of-accounting-and-economics

Implications of Non-GAAP earnings for real activities and accounting choices☆

Henry Laurion

University of Colorado, Leeds School of Business, 995 Regent Drive, Boulder, CO, 80309, United States

ARTICLE INFO

Article history:
Received 26 July 2018
Received in revised form 14 April 2020
Accepted 18 May 2020
Available online 28 May 2020

Keywords:
Non-GAAP earnings
Investment
Acquisitions
Restructurings
SFAS 141R
Impairments

ABSTRACT

Managers almost always define non-GAAP earnings to exclude the effects of acquisition and restructuring expenses, the amortization of intangibles, and impairments. I find that managers with a history of reporting non-GAAP earnings act as if they place lower weight on these excluded expenses when making real activities and accounting choices. They pursue more and larger acquisitions, have higher total capital investment, are more likely to restructure, and are more likely to recognize discretionary impairments. In a difference-in-differences setting, I find that non-GAAP reporting firms are less likely to alter their restructuring activities following a significant change in accounting rules for restructuring expense recognition. Finally, in supplementary analyses, I find that non-GAAP-reporting firms tend to repeat these real activities and accounting choices year-after-year, resulting in more persistent special-item expenses.

1. Introduction

Non-GAAP reporting is typically characterized as the final decision managers make in the accounting and financial reporting process. Notably, Black et al. (2017) introduce the notion that perception management tools exist in a chronological hierarchy, in which real activity decisions are made during the fiscal period, accounting choices are generally made after the fiscal period ends and during the closing process, and non-GAAP reporting choices are made just before the earnings announcement. I find that the reporting of non-GAAP earnings is highly persistent (i.e., 96 percent of firms reporting non-GAAP earnings in two consecutive years do so again in the following year), and that managers almost always define non-GAAP earnings to exclude expenses such as acquisition and restructuring expenses, the amortization of intangibles, and

☆ I especially thank Wayne Guay (the editor) and Theodore E. Christensen (the referee), as well as my dissertation committee members Richard G. Sloan (Chair), Patricia M. Dechow, Alastair N. Lawrence, Panos N. Patatoukas, and Michael L. Anderson for their thoughtful guidance. I also thank Eric Allen, Mary Barth, Gary Biddle, Adam Bordeman, Alfonzia Coleman II, Sunil Dutta, Mark De Fond, Omri Even-Tov, Kurt Gee, Jenny Zha Geidt, Adam Greiner, John Hand, Yaniv Konchitchki, Sarah McVay, Alexander Nezlobin, Oded Rozenbaum, James Ryans, Samuel Tan, Annika Wang, T.J. Wong, Jieyin Zeng, and workshop participants at the University of Southern California, University of California at Irvine, Indiana University, University of Wisconsin, University of North Carolina at Chapel Hill, University of Colorado at Boulder, University of Minnesota, and the University of California at Davis. I also thank Challenger, Gray, and Christmas, Inc. for generously providing data on employee layoffs. This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

E-mail address: henry.laurion@colorado.edu.

https://doi.org/10.1016/j.jacceco.2020.101333
0165-4101/

asset impairments.[1] I argue that managers of firms that report non-GAAP earnings consistently in prior years make real activities and accounting choices with the preconceived plan to exclude these expenses in calculating non-GAAP earnings in the current year.

The past 20 years of academic research suggests that investors, boards of directors, and managers embrace non-GAAP earnings as useful measures of operating performance. Equity prices are more highly associated with non-GAAP earnings than GAAP earnings (e.g., Bradshaw and Sloan, 2002; Brown and Sivakumar, 2003; Bradshaw et al., 2018). Executive compensation contracts commonly employ non-GAAP earnings metrics (e.g., Black et al., 2018; Curtis et al., 2018; Guest et al., 2018). Managers, for their part, reveal their preference for non-GAAP earnings by displaying them prominently in earnings announcement press releases (e.g., Bradshaw and Sloan, 2002; Bowen et al., 2005; Chen et al., 2018) and by using non-GAAP earnings guidance to divert analysts' attention from GAAP net income (Christensen et al., 2011).

I hypothesize that managers who report non-GAAP earnings view them as the primary measure of financial performance, placing less weight on GAAP earnings when making real activities and accounting choices. I test this hypothesis by examining activities that have a more favorable effect on non-GAAP earnings than on GAAP earnings: capital investment, acquisitions, restructurings, and impairments. Motivated by the argument that firms that reported non-GAAP earnings in the past have the preconceived plan to do so again in future earnings announcements, I predict that firms with a history of reporting non-GAAP earnings (i.e., they reported non-GAAP earnings in each of the previous two years) are more likely to pursue these types of activities. Further, I hypothesize that different definitions of non-GAAP earnings (i.e., EBITDA versus non-GAAP metrics other than EBITDA) have different implications for managers' decisions. Specifically, I observe that firms that report EBITDA are more likely to exclude depreciation expense and less likely to exclude restructuring expense in calculating that non-GAAP metric compared to firms that report non-GAAP earnings metrics other than EBITDA.[2] Accordingly, I predict that EBITDA-reporting firms engage in greater capital expenditure and fewer restructurings than firms that report a non-GAAP metric other than EBITDA.

I first examine total capital investment, which I define as acquisition expenditure plus capital expenditures. Corporate acquisitions give rise to acquisition expenses, restructuring expenses, the amortization of intangibles, and impairments (primarily goodwill impairments). The vast majority of non-GAAP-reporting firms calculate non-GAAP earnings to exclude the effect of these expenses. Capital expenditures give rise to depreciation expense, which managers are less likely to exclude in general, although all firms that report EBITDA do so (approximately 43 percent of non-GAAP-reporting firms). Watts (2003) argues that, due to managers' limited horizons, conservative accounting rules induce them to forgo projects with negative near-term earnings, even though these projects may result in higher earnings in the long term. Since non-GAAP earnings usually exclude the effect of these investment-related expenses, I predict that non-GAAP-reporting firms will invest more than firms that only report GAAP earnings.[3]

Next, I specifically examine acquisitions. Acquisitions generally have a negative short-term effect on GAAP net income, primarily due to impairments, the amortization of intangibles, and acquisition and restructuring expenses. Non-GAAP earnings, on the other hand, which almost always exclude the effects of these expenses, generally increase following corporate acquisitions. If managers who report it, view non-GAAP earnings as the primary measure of performance, then I expect their firms engage in more acquisitions.[4]

Next, I examine the decision to engage in corporate restructurings. Restructurings can significantly change the operational structure of the firm and usually include the disposal of long-lived assets, the termination of contracts, and layoffs. I find that these expenses have a negative influence on GAAP earnings in the years following entry into a material restructuring plan. Further, when restructuring expenses appear on the GAAP income statement, non-GAAP-reporting firms define non-GAAP earnings to exclude those expenses 87 percent of the time. I argue that, as managers of non-GAAP-reporting firms consider initiating restructuring plans, they do so with the preconceived plan to exclude restructuring expense in calculating non-GAAP earnings. Therefore, I expect that non-GAAP-reporting firms will engage in more restructurings.

Using an accounting standard change and a difference-in-differences empirical design, I next test whether non-GAAP-reporting firms are less sensitive to the real effect of an accounting standard affecting the recognition of restructuring expense, namely Statement of Financial Accounting Standards Number 141R (SFAS 141R). Before SFAS 141R became effective in 2009, acquirers in a business combination could capitalize expected acquisition-related restructuring costs. Afterward,

[1] I hand-collect data from earnings announcements to estimate the frequency of firms defining non-GAAP earnings to exclude certain expenses. When recognized by a firm that reports non-GAAP earnings, impairments are excluded in calculating non-GAAP earnings 93 percent of the time, restructuring expenses 87 percent of the time, acquisition expenses 86 percent of the time, the amortization of intangibles 80 percent of the time, and depreciation expense 43 percent of the time.

[2] I define EBITDA-reporting firms as those that report traditional EBITDA, as well as those that report adjusted versions of EBITDA (e.g., "Adjusted EBITDA").

[3] Rozenbaum (2019) finds that firms that report EBITDA invest more than firms that do not. I expand this result to include all non-GAAP-reporting firms (more than twice as many firms). I also provide evidence that differences in what expenses are excluded in calculating EBITDA versus other non-GAAP metrics give rise to different implications for managers' real-activity decisions.

[4] My corporate investment results should not be used to infer that firms reporting non-GAAP earnings make poor investment decisions. Although ignoring economically meaningful expenses would be imprudent, it would also be imprudent for managers to overweight these expenses when making investment decisions. Conservative accounting standards governing the recognition of investment-related costs may cause firms reporting only GAAP earnings to underinvest (e.g., Watts, 2003). Therefore, high investment and acquisition activity among non-GAAP-reporting firms should not necessarily be interpreted as suboptimal behavior.

acquisition-related restructuring costs had to be expensed as incurred. If the requirement to expense restructuring costs affects firms' behavior, I expect acquisition-related restructurings to be less common after SFAS 141R. However, I expect non-GAAP-reporting firms to be less sensitive to this accounting standard change. Specifically, I examine acquisitions before and after the accounting change, conditional on whether firms have a history of reporting non-GAAP earnings. I hypothesize a decline in acquisition-related layoffs by GAAP-reporting firms but a less significant decline among firms that report non-GAAP earnings.

I next examine asset impairments. I argue that managers whose firms report non-GAAP earnings likely have the pre-conceived plan to exclude impairments in calculating non-GAAP earnings. Accordingly, I predict they will be more inclined to recognize impairments. If true, this prediction does not imply that non-GAAP-reporting firms have better accounting quality. Although less avoidance of necessary impairments may be more informative to investors, an over-willingness to recognize unnecessary impairments can point to "big bath" behavior, which in turn results in speciously-high future earnings and return-on-capital ratios. To distinguish between these two explanations, I use Lawrence et al. (2013) framework. They advocate using the book-to-market ratio as an indication of whether firms are required by GAAP to recognize impairments. If non-GAAP-reporting firms recognize more impairments when their book-to-market ratio is greater than one, this tendency would be consistent with less opportunistic avoidance of necessary impairments. If they recognize more impairments when their book-to-market ratio is less than one, this behavior would be consistent with an over-willingness to recognize unnecessary impairments.

Finally, in supplemental analyses, I find that Compustat-defined special-item expenses are more persistent (i.e., more predictive of future GAAP earnings) for firms with a history of reporting non-GAAP earnings.[5] I also find that this result is partially attributable to the fact that acquisitions, restructurings, and impairments are more likely to reoccur year-after-year among non-GAAP-reporting firms. These results suggest that special items, including acquisition expenses, restructuring expenses, and impairments are more central to the operations of non-GAAP-reporting firms than they are to firms that don't report non-GAAP earnings. This evidence is ironic because non-GAAP-reporting firms typically justify the exclusion of acquisition, restructuring, and impairment expenses because they are "transitory", "infrequent", or "unusual".[6] This evidence also suggests that investors wishing to predict future earnings should put more weight on special-item expenses if the company excludes them in calculating non-GAAP earnings.

In a previous study, Rozenbaum (2019) finds that firms reporting EBITDA have higher total investment than those that do not. In addition to improving identification with a difference-in-differences setting and examining accounting choice implications, I make two incremental contributions to the literature. First, EBITDA-reporting firms represent less than half of the population of non-GAAP-reporting firms.[7] Therefore, my examination of the broader population of non-GAAP reporting firms, rather than EBITDA-reporting firms alone, provides more generalizable evidence. Second, my investigation of a broader set of non-GAAP earnings metrics allows me to make different predictions relative to EBITDA alone. My expectations about restructuring activities and impairments are not predictable based Rozenbaum's examination of EBITDA. I also predict different behaviors between firms reporting EBITDA and those disclosing other non-GAAP earnings metrics. Specifically, I observe that in calculating EBITDA, firms are much more likely to exclude depreciation expense and less likely to exclude restructuring expense. I therefore predict that EBITDA-reporting firms engage in *more* capital expenditures but *fewer* restructurings than firms that report other versions of non-GAAP earnings.[8]

This study is also the first to link EBITDA to the broader topic of non-GAAP earnings. Most academic research on non-GAAP earnings is directed towards "per share" non-GAAP metrics, presumably because I/B/E/S street earnings per share was the original proxy used to represent non-GAAP earnings (e.g., Bradshaw and Sloan, 2002). EBITDA also falls within the SEC's definition of non-GAAP performance metrics, but firms are specifically prohibited from reporting it on a per-share basis.[9] As a result, EBITDA has traditionally been excluded from consideration in academic studies. Furthermore, the traditional definition of EBITDA does not fit well within the academic notion of non-GAAP earnings, because it has a consistent and rigid definition. Prior studies assume that managers have discretion to define non-GAAP earnings opportunistically or informatively. Since this assumption is not necessary in my study, I can combine EBITDA-reporting with other forms of non-GAAP earnings

[5] Special-item expenses (Compustat variable: *spi*) are defined to include acquisition expenses, restructuring expenses, impairments, gains/losses on sale of assets, legal settlements, and various other so-called "unusual" or "nonrecurring" items.

[6] For example, in a comment letter to Waters Corporation dated June 16, 2016, the SEC stated: "We note that your non-GAAP measures exclude purchased intangible amortization, restructuring costs, assets impairments, acquisition-related costs, and income tax items and that you describe these items as infrequent or unusual although you have reported similar items for multiple fiscal years." Regulation S-K prohibits firms from justifying non-GAAP exclusions by calling the expenses non-recurring, infrequent, or unusual if they are reasonably likely to reoccur within two years. Waters Corporation was able to satisfy the SEC's comment letter by stating that excluding these expenses is consistent with how management evaluates financial performance.

[7] Over my 2006 to 2016 sample period, approximately 27 percent of firms report some version of EBITDA (including Adjusted EBITDA), and approximately 35 percent report a non-GAAP earnings metric other than EBITDA. The remaining 38 percent report only GAAP net income in their earnings announcement press release.

[8] Based on hand-collected random samples, 100 percent of EBITDA-reporting firms exclude depreciation expense compared to 6 percent of firms reporting some other version of non-GAAP earnings. EBITDA-reporting firms exclude restructuring expenses 64 percent of the time, compared to 94 percent of firms that report other versions of non-GAAP earnings. Note that EBITDA-reporting firms that exclude restructuring expense are deviating from the traditional definition of EBITDA and commonly label their non-GAAP earnings as "adjusted EBITDA."

[9] SEC Financial Reporting Manual 8120.2 defines EBITDA as a non-GAAP metric. The SEC's Compliance & Disclosure Interpretations prohibit firms from presenting EBITDA on the per-share basis.

reporting. Interestingly, I find that 66 percent of firms that report some form of EBITDA actually report "adjusted EBITDA." Adjusted EBITDA is consistent across firms in excluding the effects of interest, tax, depreciation, and amortization expense but is also very flexible since firms can make further adjustments in either opportunistic or informative ways.

Overall, I find that firms with a history of reporting non-GAAP earnings invest more, pursue more acquisitions and restructurings, are less sensitive to SFAS 141R's changes, and are more willing to recognize discretionary asset impairments but equally likely to recognize those that are non-discretionary. I also find that EBITDA-reporting firms have higher capital expenditures and fewer restructuring activities than other non-GAAP-reporting firms. My evidence is consistent with managers of non-GAAP-reporting firms acting as if they place lower weight on these excluded expenses when making real activities and accounting choices. I conclude that non-GAAP reporting reveals differences in how firms view operating performance and that this insight into internal perceptions of performance has implications for their investment and accounting decisions.

2. Background and hypotheses

2.1. Background

Academic research generally finds that investors, boards of directors, and managers embrace non-GAAP earnings as useful financial performance metrics. Bradshaw and Sloan (2002) examine investors' use of non-GAAP earnings and observe that the association between analysts' street earnings surprises and quarterly stock returns increased during the 1990s, and by the end of the 1990s, the association exceeded that between GAAP-based earnings surprises and quarterly stock returns.[10] Additionally, Bradshaw et al. (2018) find that the short-window earnings announcement return is more highly associated with street earnings surprise than GAAP earnings surprise.

Dechow et al. (1994) examine boards' use of non-GAAP earnings and find that executives' compensation is generally shielded from restructuring expenses, potentially motivating them to engage in restructuring activities. Guest et al. (2018) find that high non-GAAP earnings are associated with abnormally high CEO pay, suggesting that maximizing non-GAAP earnings pays off for executives. Finally, Black et al. (2017) find that the use of non-GAAP earnings metrics in executive compensation is positively associated with the reporting of non-GAAP earnings metrics in earnings press releases.

Managers also act as if they prefer non-GAAP earnings over GAAP net income. Bradshaw and Sloan (2002) and Bowen et al. (2005) find that non-GAAP earnings are prominently displayed in earnings press releases. Chen et al. (2018) find that even after Regulation G curtailed the prominence non-GAAP earnings, firms continue to report them prominently in their earnings press releases.[11] Christensen et al. (2011) present evidence that firms report non-GAAP earnings guidance to distract analysts' attention from GAAP net income. Further, Mazboudi et al. (2019) argue that issuing earnings forecasts, including non-GAAP earnings forecasts, allows managers to signal higher quality non-GAAP earnings. Finally, Hirshleifer and Teoh (2003) present a model of investors' limited attention and suggest that managers may report non-GAAP earnings to increase their firms' market valuations.

I extend the idea that managers prefer non-GAAP earnings. I argue that managers who reported non-GAAP earnings in the past have the preconceived plan to report non-GAAP earnings in the future as they make real activities and accounting choices. I hypothesize that managers place less weight on GAAP expenses that are excluded in calculating non-GAAP earnings. Importantly, managers who place lower weight on excluded expenses should be more willing to engage in the activities that cause them.

Rozenbaum (2019) examines a related research question, in the context of firms that report EBITDA. Rozenbaum (2019) finds that EBITDA-reporting firms invest more and have higher leverage than firms that do not report EBITDA. I build on this evidence in two ways. First, EBITDA-reporting firms represent less than half of all non-GAAP-reporting firms, and Rosenbaum's results may not be generalizable to the much broader group of non-GAAP-reporting firms. Specifically, I search for keywords in Compustat firms' earnings announcement press releases (see Appendix A), and estimate that 27 percent of firms report EBITDA (including other variations such as Adjusted EBITDA) while an additional 35 percent report a non-GAAP earnings metric other than EBITDA.[12] Academic research on non-GAAP earnings has been mostly confined to non-GAAP earnings-per share metrics. This study is the first to link EBITDA to the broader topic of non-GAAP earnings. Second, I examine systematic differences in how firms define EBITDA versus other versions of non-GAAP earnings. I find predictably different behavior of EBITDA-reporting firms, compared to those reporting other types of non-GAAP earnings. Lastly, I examine outcome variables such as restructurings and impairments that do not fit within Rozenbaum's (2019) EBITDA-centered hypotheses.

[10] Street earnings, like non-GAAP earnings, are adjusted versions of GAAP earnings. However, street earnings are defined by analysts and may, in some cases, differ from non-GAAP earnings (e.g., Bentley et al., 2018). Academic studies have sometimes used street earnings as a proxy for non-GAAP earnings.

[11] Following a directive from the U.S. Congress (in the Sarbanes-Oxley Act), the SEC implemented Regulation G in 2003. It requires non-GAAP earnings to be reported no more prominently than GAAP net income. It also requires firms to provide a reconciliation between GAAP and non-GAAP earnings and to explain why their non-GAAP earnings definition provides a useful performance metric.

[12] I find that 38 percent of firms between 2006 and 2016 do not report non-GAAP earnings.

Finally, Guggenmos et al. (2019) conduct an experiment with participants who report having experience in management and public-company financial report preparation. They find that participants are more willing to recognize larger asset impairments if their firms report non-GAAP earnings. The main benefit of this experimental evidence is strong internal validity since the experiment was tightly controlled. My empirical evidence provides external validation and complements this experimental evidence with evidence based on archival data (e.g., Allee et al., 2007). Importantly, there is no assurance that findings of a tightly controlled lab experiment will be observed externally. I also test a wider set of hypotheses, including real-activities outcomes and distinguishing between non-discretionary and discretionary asset impairments.

2.2. Hypothesis development

2.2.1. Corporate investments and acquisitions

I argue that managers of firms that disclose non-GAAP earnings generally have the preconceived plan to exclude any acquisition and restructuring expenses, the amortization of intangibles, and impairments they recognize. Therefore, unlike their effect on GAAP earnings, these expenses generally do not negatively affect non-GAAP earnings. If it is true that managers who report non-GAAP earnings place less weight on excluded expenses, then I should observe that non-GAAP-reporting firms invest more. This investment hypothesis is particularly strong for corporate acquisitions because non-GAAP-reporting firms almost always exclude acquisition-related expenses (i.e., acquisition expenses, restructuring expenses, the amortization of intangibles, and impairments). These expenses also have a strikingly negative effect on GAAP earnings following an acquisition. Fig. 1 presents the average magnitude of these expenses in the years surrounding 5259 large acquisitions. I define acquisitions as "large" when acquisition purchase prices exceed 10 percent of beginning-of-year total assets. Fig. 1 indicates that each of these expenses negatively affects GAAP net income in the years following a large acquisition. Impairments have the largest average effect on post-acquisition GAAP net income, followed by amortization of intangibles, acquisition expenses, and restructuring expenses. Importantly, Watts's (2003) characterization of projects with negative near-term earnings is consistent with the effect of large acquisitions on pre-tax GAAP net income but is not applicable to adjusted earnings metrics that are calculated to exclude acquisition-related expenses. Therefore, I expect to find a relation between non-GAAP reporting and corporate investment, and I expect this relation to be particularly strong for corporate acquisitions.

Hypothesis 1. Firms that report non-GAAP earnings will invest more and engage in more acquisitions.

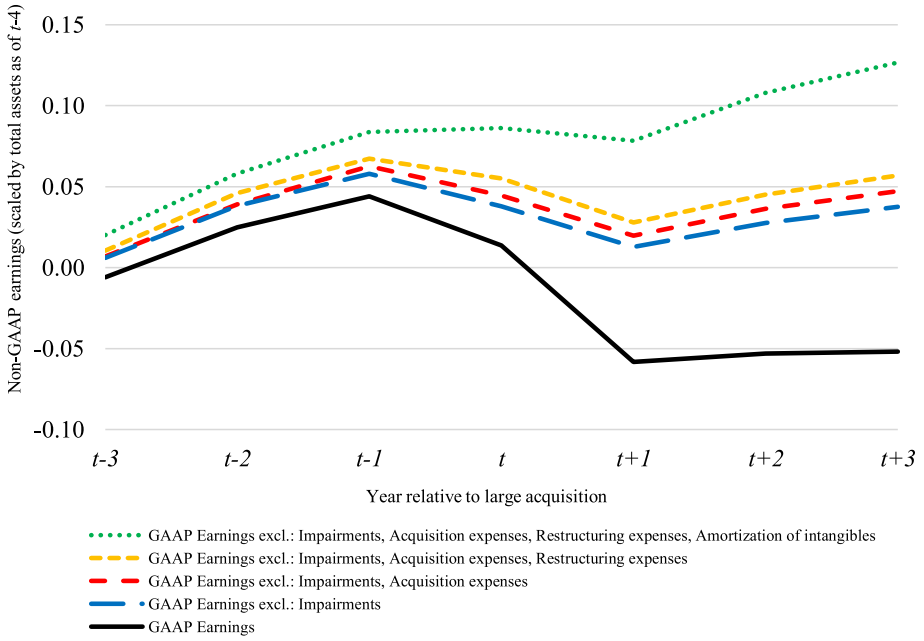


Fig. 1. *Effect of Large Acquisitions on GAAP and Non-GAAP Earnings*, For a sample of 5,259 large acquisitions, this figure presents various definitions of earnings in years relative to the acquisition in year *t*. A large acquisition is defined as the value acquired during the year (SDC: VAL) being greater than 10 percent of beginning-of-year total assets (i.e., total assets as of *t*-1). I define GAAP Earnings as annual pre-tax income (Compustat: PI). Impairments include goodwill impairments and other asset impairments (Compustat: -WDP-GDWLIP). Acquisition expenses are general acquisition-related costs (Compustat: -AQP). Restructuring expenses are costs related to employee severance, closing, and realignment of operations (Compustat: -RCP). Amortization of intangibles is the systematic expensing of the acquisition cost of finite-lived intangibles (Compustat: AM). All adjusted earnings numbers are scaled by total assets as of *t*-4.

2.2.2. Corporate restructurings

I argue that managers of non-GAAP-reporting firms likely have the preconceived plan to exclude any restructuring expenses that they may incur. These restructuring expenses can have a material effect on GAAP earnings and may influence managers to avoid engaging in restructurings (e.g., Dechow et al., 1994). If it is true that managers who report non-GAAP earnings place lower weight on restructuring expense, then I should observe more restructurings among these firms.

Hypothesis 2. Firms that report non-GAAP earnings will engage in more corporate restructurings.

SFAS 141R, which became effective during 2009, requires more conservative accounting for restructuring costs incurred in an acquisition. Previously, standards allowed expected acquisition-related restructuring costs to be capitalized in the acquisition purchase price. SFAS 141R required these costs to be expensed as incurred by the acquirer. This change in standards reduces acquisition-year net income for acquirers who engage in acquisition-related restructurings, making these activities less appealing for firms that only report GAAP earnings. I expect GAAP acquirers to be less likely to pursue acquisition-related layoffs (the most significant restructuring cost) after the effective date of SFAS 141R, consistent with the notion that the rules for recognizing restructuring expenses influences firms' real activities (e.g., Watts, 2003; Lara et al., 2016; Dechow et al., 1994). However, since non-GAAP earnings are almost always calculated to exclude restructuring expenses, non-GAAP-reporting firms should be less sensitive to the accounting change. That is, if firms that report non-GAAP earnings place lower weight on restructuring expenses, then they should be less sensitive to the rule change imposing recognition of restructuring expenses. This setting is useful because it allows for a difference-in-differences empirical design. This hypothesis is also incremental to the previous hypotheses because it examines whether non-GAAP earnings moderate the real effects of accounting standards.

Hypothesis 3. The effect of SFAS 141R on acquisition-related layoffs will be less negative for firms that report non-GAAP earnings.

2.2.3. EBITDA versus other non-GAAP earnings metrics

Based on its traditional definition, EBITDA is very likely calculated to exclude depreciation expense and less likely to exclude restructuring expense. Alternatively, based on prior research (e.g., Black et al., 2018) firms reporting a non-GAAP metric other than EBITDA are very likely to adjust-out restructuring expense but not depreciation expense. Therefore, I expect EBITDA-reporting firms to place lower weight on the effect of future depreciation expense when they engage in capital expenditures, and higher weight on restructuring expense when they contemplate restructuring activities.

Hypothesis 4. Firms that report EBITDA will have higher capital expenditures than firms that report a non-GAAP earnings metric other than EBITDA.

Hypothesis 5. Firms that report EBITDA will be less likely to restructure than firms that report a non-GAAP earnings metric other than EBITDA.

2.2.4. Asset impairments

Managers commonly define non-GAAP earnings to exclude the effect of impairments (e.g., Black et al., 2018). Managers generally have the incentive to delay or avoid recognizing impairments because they have a large negative impact on GAAP earnings (e.g., Ramanna and Watts, 2012; Lawrence et al., 2013). At the same time, firms also face incentives to engage in "big bath" accounting by recognizing impairments in the current period to create the appearance of strong operating performance in the future. Since non-GAAP earnings usually exclude the effect of asset impairments, managers who report non-GAAP earnings should be more willing to recognize them.

Hypothesis 6. Firms that report non-GAAP earnings are more likely to recognize impairments.

3. Empirical design and sample

3.1. Empirical design

3.1.1. Non-GAAP reporting

I classify firms as likely having a preconceived plan to report non-GAAP earnings in the current year based on their historical non-GAAP reporting practices. I ignore their current-period non-GAAP reporting choices because certain activities may cause firms to simultaneously adopt non-GAAP earnings metrics for financial reporting purposes. That is, firms may choose to report non-GAAP earnings in the current period because they engaged in acquisitions or recognized impairments during the period (e.g., Black et al., 2017). By only using historical non-GAAP reporting practices, I reduce look-ahead bias. Black et al. (2018) outline the various methods used by researchers to determine whether firms report non-GAAP earnings. In summary, these methods are (1) assume firms report non-GAAP earnings if EPS from an analyst-forecast data provider (e.g., I/B/E/S) differs from GAAP EPS, (2) programmatically search earnings press releases for key terms indicating non-GAAP reporting, or (3) manually collect the details from earnings announcement press releases.

I programmatically search earnings press releases for key words that indicate non-GAAP reporting. This method allows for a larger sample than manual collection and captures actual firm disclosures, rather than having to assume firms' disclosures from analyst forecasts (e.g., Bentley et al., 2018).[13] I define an indicator variable, $NONGAAP_t$, which equals one when a firms' fourth-quarter earnings press release contains a key term indicating they report non-GAAP earnings. Appendix A presents a detailed explanation of my identification of non-GAAP reporting practices from firms' earnings announcement press releases and results of validation tests, using hand-checked samples. In summary, I estimate the full and false error rate in the $NONGAAP_t$ variable at approximately 1 percent. Specifically, I find that 1.2 percent of firms flagged as reporting non-GAAP earnings do not, and 1 percent of firms flagged as not reporting non-GAAP earnings actually do report non-GAAP earnings. My primary variable of interest is $PAST\_NONGAAP_t$, which equals one when the firm reported non-GAAP earnings in each of the previous two years (i.e., $NONGAAP_{t-2} = 1$ and $NONGAAP_{t-1} = 1$) and zero when the firm did not report non-GAAP earnings in either of the past two years (i.e., $NONGAAP_{t-2} = 0$ and $NONGAAP_{t-1} = 0$). Firms that change their non-GAAP reporting practices from year t-2 to t-1 are excluded from my analysis.

3.1.2. Corporate investment

To test whether non-GAAP-reporting firms invest and acquire more, I model five investment-related outcome variables: $INVESTMENT_t$, $HIGH\_INVESTMENT_t$, $VALUE\_ACQUIRED_t$, $ACQUIRE\_CONTROL_t$, and $LARGE\_ACQUISITION_t$. My independent variable of interest is $PAST\_NONGAAP_t$. I control for other determinants of investment based on past academic research: $TOBINS\_Q_{t-1}$, CFO_t, $GROWTH_{t-1}$, LOG_MV_{t-1}, $INTANGIBLES_{t-1}$, MW_{t-1}, and SD_ABACC_{t-1} (e.g., McNichols and Stubben, 2008; Biddle et al., 2009; Cheng et al., 2013). I also construct $FITTED\_NG_t$, a variable to control for the concentration of non-GAAP reporting by industry and year. Throughout the paper, I model continuous outcome variables using weighted least squares regressions. I model indicator outcome variables with weighted logistic regressions. I calculate weights using Hainmueller's (2012) entropy weighting formula, taking all control variables of the specified model into account.

3.1.3. Restructurings

Corporate restructurings involve disposals of assets, cancelations of contracts, and employee layoffs. My dependent variables are $RESTRUCT_t$, a binary variable equal to one if the firm recognizes restructuring expense, and $RESTRUCT\_8K_t$, a binary variable equal to one if the firm files an 8-K item 2.05 ("Costs associated with Exit or Disposal Activities") in year t. Firms are required to file form 8-K item 2.05 to notify investors that they've committed to a material restructuring plan. Restructurings are essentially the reversal of investment, so I use the same control variables as the corporate investment model, but add certain restructuring-specific variables: $RELATED_t$, $NEWCEO_t$, and $NUMSEGS_t$ (Westphal and Fredrickson, 2001; O'Shaughnessy and Flanagan, 1998).

To investigate the effect of SFAS 141R, I examine acquisitions-for-control directly and estimate the likelihood that acquisitions are accompanied by layoffs. The dependent variable is $LAYOFF_t$, which is equal to one if the acquisition was accompanied by a layoff and zero if not. To examine SFAS 141R, I include a variable called $POST141R_t$, which is equal to one after the effective date of SFAS 141R and zero beforehand. A negative coefficient on $POST141R_t$ is consistent with the notion that mandatory expensing of acquisition-related restructuring costs is associated with a lower probability of acquisition-related restructurings. I also interact $POST141R_t$ with $PAST\_NONGAAP_t$ to examine the difference in the effect of SFAS 141R on acquisition-related layoffs between non-GAAP-reporting firms and those that just report GAAP earnings. A positive coefficient on $PAST\_NONGAAP_t \times POST141R_t$ offsetting a negative coefficient on $POST141R_t$ is consistent with the notion that non-GAAP-reporting firms are less sensitive to the mandated recognition of restructuring expenses. Finally, I expect the coefficient on $PAST\_NONGAAP_t$ to be near zero, since acquisition-related restructuring costs were generally capitalized prior to the effective date of SFAS 141R, and so acquisition-related layoffs did not previously give rise to a difference between GAAP and non-GAAP earnings.

Because this model examines acquisitions directly, I incorporate additional acquisition-specific control variables motivated by O'Shaughnessy and Flanagan (1998). *PCTACQ* controls for the possibility that a larger takeover is associated with an increased probability of layoffs. *ALL_STOCK* controls for the possibility that the acquirers with insufficient liquidity for a cash acquisition are likely less able to afford the combined set of employees. *RELATED* controls for the possibility that a business

[13] Bentley et al. (2018) make their dataset of manager-reported non-GAAP EPS available for academic research. I am unable to use that dataset because their classification of non-GAAP EPS firms (i.e., $MGR\_EXCLUDE = 1$) does not include firms that report non-per-share metrics, such as unscaled non-GAAP earnings and EBITDA. This difference would result in measurement error for my empirical tests. I investigate differences between our respective databases. Of the firms that Bentley et al. (2018) classify as disclosing non-GAAP EPS, 93 percent are also flagged by my text-search program. I randomly select 50 firms for which we differ and find that the Bentley et al. (2018) dataset is correct 70 percent of the time. Specifically, I find that the Bentley et al. (2018) dataset captures a small number of more complicated non-GAAP earnings labels that my text search process does not capture. Alternatively, I flag non-GAAP metrics in 40 percent of the earnings announcements that Bentley et al. (2018) classify as not disclosing non-GAAP EPS. Again, I randomly select 50 firms for which we differ, and find non-per-share non-GAAP metrics in 88 percent of these observations. Most importantly, I find that the Bentley et al. (2018) dataset does not capture any non-per-share non-GAAP metrics, primarily EBITDA. Overall, I find that the Bentley et al. (2018) dataset is effective at capturing per-share non-GAAP earnings metrics but is not designed to capture non-per-share metrics. In Appendix A, I estimate the error rate in identifying non-GAAP earnings disclosure in my entire sample.

combination of firms in the same industry is more likely to result in redundancy. Finally, *REV_PER_EMP* controls for the labor productivity of the acquisition target.

3.1.4. EBITDA versus other non-GAAP metrics

I test whether EBITDA-reporting firms have higher capital expenditures and fewer restructurings than firms that report a non-GAAP metric other than EBITDA. My sample includes firms that either report EBITDA in each of the past two years (i.e., $EBITDA_{t\text{-}2} = 1$ and $EBITDA_{t\text{-}1} = 1$) or those that report a non-GAAP earnings metric other than EBITDA in each of the past two years (i.e., $EBITDA_{t\text{-}2} = 0$; $EBITDA_{t\text{-}1} = 0$; $NONGAAP_{t\text{-}2} = 1$; $NONGAAP_{t\text{-}1} = 1$).[14] Within this subset, I estimate my investment prediction model with $CAPEX_t$ and $HIGH\_CAPEX_t$ as the outcome variables. I also estimate my restructuring prediction model with $RESTRUCT_t$ and $RESTRUCT\_8K_t$ as the outcome variables. In both models, I add a control for $LEVERAGE_t$ since EBITDA is frequently used in debt instrument contracts. My independent variable of interest is $PAST\_EBITDA_t$, which equals one when the firm reported EBITDA in both of the previous two years and zero when the firm reported other non-GAAP earnings metrics in both of the previous two years.

3.1.5. Asset impairments

To test whether non-GAAP-reporting firms are more likely to recognize asset impairments, I use a weighted logistic regression to model the binary dependent variable IMP_t, which is equal to one if the firm recognizes an impairment and zero otherwise. My independent variable of interest is $PAST\_NONGAAP_t$. A positive coefficient on $PAST\_NONGAAP_t$ is consistent with the notion that non-GAAP-reporting firms are more likely to recognize asset impairments. I control for other determinants of impairments primarily based on the models employed by Lawrence et al. (2013) and Ramanna and Watts, 2012. These controls represent market performance, accounting performance, materiality factors, and other firm-related factors that affect managers' incentives. In a cross-sectional test, I split the sample into firms with and without indication of market-implied impairment (i.e., BTM_t greater than and less than one, respectively). This cross-sectional test helps distinguish between two non-mutually exclusive inferences. (1) If non-GAAP-reporting firms recognize more impairments when $BTM_t > 1$, this evidence would suggest that managers are less likely to opportunistically avoid market-implied impairments. (2) If non-GAAP-reporting firms recognize more impairments when $BTM_t < 1$, this evidence would suggest that managers recognize more discretionary impairments, which would be consistent with "big bath" behavior.

3.2. Sample construction

Table 1 presents the steps involved in constructing the five different samples that I use in my tests. I use Sample 1 to test whether non-GAAP-reporting firms invest and restructure more (Hypotheses 1 and 2). I use all the individual acquisitions executed by firms in Sample 1 to test whether non-GAAP-reporting firms are less sensitive to the real effect of SFAS 141(R) (Hypothesis 3). I use Sample 2 to test whether EBITDA-reporting firms invest more and restructure less than firms that report a non-GAAP earnings metric other than EBITDA (Hypotheses 4 and 5). I use Sample 3 to test whether non-GAAP-reporting firms are more likely to recognize impairments. Finally, I use Sample 4 in a supplementary analysis on the persistence of special items in non-GAAP-reporting firms. Panel A presents the remaining sample after each step of attrition. There are 123,840 firm-years in the Compustat annual file with fiscal years between and including 2006 and 2016. The first attrition step is to require relevant variables from various standard research databases. Next, I exclude firms for which I cannot identify the earnings announcement 8-K filing in EDGAR for the previous two years' Q4 earnings announcements. This step ensures that I can identify firms' past non-GAAP-reporting practices (see Appendix A). In Sample 2, I require one additional attrition step, which is to require firms to have reported a non-GAAP earnings metric in each of the previous two years. The final step in constructing each sample requires consistent past non-GAAP reporting. Firms in samples 1, 3, and 4 either reported non-GAAP earnings in each of the past two years or did not report non-GAAP earnings in either of the past two years. Firms in Sample 2 either reported EBITDA in each of the past two years or reported a non-GAAP earnings metric other than EBITDA in each of the past two years.

Panel B reports details on the final step of attrition for each firm-year sample. I exclude firms from my final samples when they change their non-GAAP reporting choices between years t-2 and t-1 (i.e., inconsistent reporters). For example, in constructing Sample 1, there are 27,025 firms for which I can identify their non-GAAP reporting choices for years t-2 and t-1. I find that 59 percent (15,820/27,025) of these firms reported non-GAAP earnings in each of the previous two years ($NONGAAP_{t\text{-}2} = 1$ and $NONGAAP_{t\text{-}1} = 1$; defined as $PAST\_NONGAAP_t = 1$), and 30 percent (8,208/27,025) of these firms did not report any non-GAAP metric in either the previous two years ($NONGAAP_{t\text{-}2} = 0$ and $NONGAAP_{t\text{-}1} = 0$; defined as $PAST\_NONGAAP_t = 0$). I define these firms as having consistent past non-GAAP reporting practices and they are included in my final sample.[15] My main

[14] The small number of firms that change from EBITDA to other non-EBITDA metrics or vice versa from year t-2 to year t-1 are excluded in this analysis.

[15] Seven percent (1,980/27,025) of firms are excluded from Sample 1 because they began reporting non-GAAP earnings in year t-1 (i.e., they did not report non-GAAP earnings in year t-2 but did in year t-1). Four percent (1,017/27,025) of firms are excluded from Sample 1 because they stopped reporting non-GAAP earnings in year t-1 (i.e., they reported non-GAAP earnings in year t-2 but did not in year t-1).

Table 1
Sample construction.

Panel A: Sample attrition

	Sample 1	Sample 2	Sample 3	Sample 4
	Investment and restructuring	*EBITDA versus other non-GAAP*	Impairments	Special items persistence
All Compustat firms (fiscal years 2006–2016)	123,840	123,840	123,840	123,840
Relevant variables available from Compustat, Audit Analytics, SDC Mergers & Acquisitions, and CRSP	37,157	37,157	47,282	36,879
Able to identify Q4 earnings announcement 8-K filing on EDGAR for years t-1 and t-2	27,025	27,025	33,442	26,827
Consistent non-GAAP reporting choice ($NONGAAP_{t-2} = NONGAAP_{t-1}$)	24,028	24,028	29,814	23,847
Consistent non-GAAP reporters ($NONGAAP_{t-2} = NONGAAP_{t-1} = 1$)		15,820		
Consistent EBITDA reporting choice ($EBITDA_{t-2} = EBITDA_{t-1}$)		15,054		
Number of unique acquisitions in Sample 1	11,928			

Panel B: Final step in firm-year sample attrition (non-GAAP reporting histories)

$X =$	Sample 1	Sample 2	Sample 3	Sample 4
	NONGAAP	EBITDA	NONGAAP	NONGAAP
Consistent reporters:				
$X_{t-2} = 1, X_{t-1} = 1$	15,820	6,310	19,154	15,657
$X_{t-2} = 0, X_{t-1} = 0$	8,208	8,744	10,660	8,190
Included in Sample	24,028	15,054	29,814	23,847
Inconsistent reporters:				
$X_{t-2} = 0, X_{t-1} = 1$	1,980	532	2,358	1,970
$X_{t-2} = 1, X_{t-1} = 0$	1,017	234	1,270	1,010
Excluded from sample	2,997	766	3,628	2,980

This table presents sample construction. Panel A presents sample attrition, based on data availability from different sources and after requiring that firms make consistent non-GAAP reporting choices in the past two years. Samples 1 through 4 are composed of firm-years. Sample 5 is composed of all the unique acquisitions completed by firms in Sample 1. Panel B presents the distribution of past non-GAAP reporting and EBITDA reporting choices. To be included in the final samples, firms must have consistently reported or not reported non-GAAP earnings (or EBITDA) in the past two fourth-quarter earnings announcements.

results are unchanged when I only condition on one prior year of reporting non-GAAP earnings. In constructing Sample 2, I find that EBITDA reporting tends to be more persistent than non-GAAP reporting.[16]

4. Results

4.1. Frequency of exclusions

I use random samples of non-GAAP-reporting firms that recognize acquisition expenses, restructuring expenses, impairments, the amortization of intangibles, and depreciation expenses, to estimate the frequency that non-GAAP earnings is calculated to exclude these expenses. I construct 100-firm samples of firms that report non-GAAP earnings and also recognize material levels (i.e., greater than 0.5 percent of lagged total assets) of each expense type. I then examine firms' reconciliations between GAAP and non-GAAP earnings to determine whether the expense is excluded in the calculation of non-GAAP earnings. If I cannot determine whether the expense is excluded (e.g., it may be identified as "other adjustments" in the calculation of non-GAAP earnings), then I assume that it is not excluded. Table 2 reports that 93 percent of 100 random firms reporting non-GAAP earnings and recognizing impairments exclude those impairments in calculating non-GAAP earnings. Using the same methodology, I find that 87 percent exclude restructuring expenses, 86 percent exclude acquisition expenses, 80 percent exclude the amortization of intangibles, and 43 percent exclude depreciation expense.

I repeat this exercise separately for two complementary subsets of non-GAAP-reporting firms: firms that report EBITDA (including adjusted versions of EBITDA) and firms that report a non-GAAP metric other than EBITDA. I find significant differences between EBITDA-reporting firms and those that report some other non-GAAP earnings metric. Specifically, EBITDA-reporting firms are significantly less likely to exclude acquisition and restructuring expenses and significantly more likely to exclude depreciation and amortization expenses.

4.2. Corporate investment and restructurings

Table 3 presents descriptive statistics for variables in the investment and restructuring sample (Sample 1). Panel A reports means and medians of the main variables, partitioned on whether the firms report non-GAAP earnings in both of the previous

[16] Only three percent (532/15,820) of firms start reporting EBITDA in t-1 after reporting a non-GAAP metric other than EBITDA in t-2. One percent of firms (234/15,820) stop reporting EBITDA in t-1 after doing so in t-2.

Table 2
Frequency of excluded items.

Type of expense	Recognized expense is excluded in calculating …		
	Any non-GAAP earnings metric	EBITDA	Any non-GAAP earnings metric other than EBITDA
Asset impairment	93%	88%	92%
Restructuring expense	87%	63%	94%
Acquisition expense	86%	73%	93%
Amortization of intangibles	80%	100%	60%
Depreciation expense	43%	100%	6%

This table presents estimates of the frequency that non-GAAP earnings exclude four types of expenses, conditional on the company having recognized material values of the expense (i.e., greater than 0.5 percent of beginning-of-period total assets). For each type of expense and category of non-GAAP earnings, 100 firms are selected randomly among those that both report that version of non-GAAP earnings and recognize material values of the expense. The percentage represents the share of firms out of 100 that (1) recognize the indicated type of expense and (2) exclude that expense to arrive at non-GAAP earnings.

two years (i.e., $PAST\_NONGAAP_t = 1$ or non-GAAP firms) or neither of the previous two years (i.e., $PAST\_NONGAAP_t = 0$, or GAAP firms). The weighted mean column presents the weighted mean of each variable for GAAP firms, using entropy weights (Hainmueller, 2012). I base entropy weights on all control variables below the dotted line of Panel A. I compute two sets of weights: one for investment-related tests and another for restructuring-related tests. In the right-most columns of Panel A, I compute t-tests of difference in means and weighted means between non-GAAP and GAAP firms.

On average non-GAAP firms have significantly higher levels of $INVESTMENT_t$ than GAAP firms and are slightly more likely to have higher-than-expected levels of investment ($HIGH\_INVESTMENT_t$). Non-GAAP firms also pursue more acquisitions ($VALUE\_ACQUIRED_t$ and $ACQUIRE\_CONTROL_t$), more large acquisitions ($LARGE\_ACQUISITIONS_t$), and more restructurings ($RESTRUCT_t$ and $RESTRUCT\_8K_t$). As for control variables, non-GAAP firms have lower $TOBINS\_Q_{t\text{-}1}$, suggesting that they have weaker investment and growth opportunities than GAAP firms. Non-GAAP firms have significantly higher operating cash flow (CFO_t), are larger in size (LOG_MV_t) than GAAP firms, and they also have higher $INTANGIBLES_{t\text{-}1}$, suggesting that they did acquisitions in the past. Non-GAAP firms are similarly likely to have a prior-year material weakness in internal controls ($MW_{t\text{-}1}$) and have lower variation in prior abnormal accruals ($SD\_ABACC_{t\text{-}1}$).

In terms of restructuring-specific control variables, non-GAAP firms are more likely to acquire in their own industry ($RELATED_t$), which is partially explained by the fact that non-GAAP firms acquire more. Non-GAAP firms are also somewhat more likely to have a CEO change ($NEWCEO_t$) and have slightly more reporting segments ($NUMSEGS_t$). Finally, the difference in $FITTED\_NG_t$ between non-GAAP and GAAP firms is equal to 0.11. This difference is known as the coefficient of discrimination of the first stage model of $PAST\_NONGAAP_t$ on industry and year fixed effects (Tjur, 2009). After entropy weights are applied to the GAAP sample, all control variables have equivalent weighted means between non-GAAP and GAAP firms. In simple terms, entropy weights place higher weight on GAAP firms with characteristics that are similar to non-GAAP firms. The result of entropy weighting is GAAP and non-GAAP samples that are expected to engage in the same weighted average investment and restructuring activity. I find that even after I apply entropy weights, non-GAAP firms still invest, acquire, and restructure more.

Table 3 Panel B presents the percent of non-GAAP firms by GIC industry group for Sample 1. Telecommunication services, media, and software and services are the industries in which greater than 80 percent of firms report non-GAAP earnings, although non-GAAP reporting is well represented in each of the GIC industries. The adoption of non-GAAP reporting across all industries is generally consistent with prior academic research (e.g., Black et al., 2018). An important difference from prior literature is that I define EBITDA as a non-GAAP metric. Prior research generally restricts its attention to non-GAAP earnings-per-share metrics.

Table 4 presents evidence on the relation between past non-GAAP reporting practices and (1) investment, (2) acquisitions, and (3) restructuring activities in the current period. The significantly positive coefficients on $PAST\_NONGAAP_t$ across all columns indicate that firms with a history of reporting non-GAAP earnings invest more, acquire more, and restructure more than their peers. In Panel A, the statistically positive coefficient in column 1 suggests that non-GAAP firms invest 1.5 percent of total assets more than GAAP firms. Per column 2, the logistic coefficient on $PAST\_NONGAAP_t$ suggests that non-GAAP firms are 3 percent more likely to engage in higher-than-expected investment ($HIGH\_INVESTMENT_t$).[17] Column 3 suggests that non-GAAP firms acquire 1 percent of total assets more than GAAP firms. Columns 4 and 5 suggest that non-GAAP firms are 3.4 percent more likely to acquire and 1.5 percent more likely to acquire relatively large targets, defined as aggregate acquisition purchase prices exceeding 10 percent of lagged total assets. Finally, column 6 and 7 suggest that non-GAAP firms are 10.8 percent more likely to recognize restructuring expenses and 2.5 percent more likely to commit to a material restructuring plan.[18]

[17] Throughout the paper, I compute statistical effects on indicator dependent variables as the "effect of the treatment on the treated." Within the sub-sample of non-GAAP firms, I calculate the effect of $PAST\_NONGAAP_t$ on the probability that the dependent variable equals one. For example, Table 3 reports that 34 percent of non-GAAP firms engage in $HIGH\_INVESTMENT_t$, which I estimate would be reduced to 31 percent (34 − 3), after subtracting the effect of treatment on the treated.

[18] When I model restructuring expense as a continuous variable, I find that non-GAAP firms recognize 0.17 percent-of-lagged-assets more restructuring expense than their peers.

Table 3
Investment and restructuring descriptive statistics (Sample 1).

Panel A: Conditional means and medians

Number of firm-years:	Non-GAAP firms		GAAP firms			Tests of differences	
	15,820		8,208			24,028	
	Mean	Median	Mean	Median	Weighted Mean	Unweighted Difference	Weighted Difference
$PAST\_NONGAAP_t$	1.00	1.00	0.00	0.00	0.00		
INVESTMENTt	9.13	4.60	6.59	2.94	7.83	2.54***	1.30***
$HIGH\_INVESTMENT_t$	0.34	0.00	0.33	0.00	0.32	0.02**	0.02***
$VALUE\_ACQUIRED_t$	3.19	0.00	2.03	0.00	2.21	1.16***	0.97***
$ACQUIRE\_CONTROL_t$	0.35	0.00	0.19	0.00	0.32	0.16***	0.03***
$LARGE\_ACQUISITION_t$	0.08	0.00	0.05	0.00	0.06	0.03***	0.01***
$RESTRUCT_t$	0.20	0.00	0.09	0.00	0.10	0.11***	0.10***
$RESTRUCT\_8K_t$	0.09	0.00	0.06	0.00	0.06	0.02***	0.02***
$TOBINS\_Q_{t-1}$	1.76	1.41	2.07	1.46	1.76	−0.31***	0.00
CFO_t	8.75	8.52	2.65	6.17	8.75	6.1***	0.00
$GROWTH_{t-1}$	0.06	0.04	0.06	0.05	0.06	0.01**	0.00
LOG_MV_{t-1}	7.14	7.13	5.89	5.78	7.14	1.25***	0.00
$INTANGIBLES_{t-1}$	0.21	0.15	0.09	0.02	0.21	0.12***	0.00
MW_{t-1}	0.05	0.00	0.04	0.00	0.05	0.00	0.00
SD_ABACC_{t-1}	0.33	0.14	0.42	0.14	0.33	−0.09***	0.00
$RELATED_t$	0.16	0.00	0.08	0.00	0.16	0.08***	0.00
$NEWCEO_t$	0.11	0.00	0.10	0.00	0.11	0.01**	0.00
$NUMSEGS_t$	2.81	3.00	2.23	1.00	2.81	0.59***	0.00
$FITTED\_NG_t$	0.70	0.72	0.59	0.59	0.70	0.11***	0.00

Panel B: Concentrations by industry

Industry	Total Number of Firm-Years	Percent with $PAST\_NONGAAP_t = 1$
Telecommunication Services	321	93%
Media	721	84%
Software & Services	1,758	84%
Energy	1,617	79%
Consumer Services	928	78%
Insurance	627	77%
Commercial & Professional Services	900	74%
Semiconductors & Equipment	927	72%
Technology Hardware & Equipment	1,649	70%
Utilities	743	68%
Materials	1,276	67%
Health Care Equipment & Services	1,689	67%
Diversified Financials	838	66%
Food, Beverage & Tobacco	581	65%
Retailing	1,142	64%
Capital Goods	2,210	60%
Household & Personal Products	256	59%
Automobiles & Components	287	59%
Real Estate	420	58%
Consumer Durables & Apparel	879	58%
Transportation	486	57%
Food & Staples Retailing	178	57%
Banks	2,003	50%
Pharmaceuticals, Biotech. & Life Sciences	1,592	35%

This table presents descriptive statistics for Sample 1. Variable definitions are provided in Appendix B. Panel A presents means and medians of all variables partitioned on whether the firm reported non-GAAP earnings in years t-1 and t-2 (i.e., $PAST\_NONGAAP_t$). The weighted mean column presents the weighted means for the GAAP firms (i.e., $PAST\_NONGAAP_t = 0$), using the weights developed in the entropy balancing procedure (Hainmueller, 2012). T-tests of difference in means and weighted means are presented with ***,**, and * representing statistical significance at the 1 percent, 5 percent, and 10 percent levels, respectively, using two-tailed tests. Panel B presents the total number of firms and concentration of $PAST\_NONGAAP_t = 1$ by GIC group industry.

In Panel B of Table 4, I examine whether past non-GAAP reporting predicts higher investment or more acquisitions and restructurings, incremental to past investment, acquisitions, restructuring activities. Typical investment prediction models use prior-year investment as an additional independent variable (e.g., McNichols and Stubben, 2008). For my main tests (in Panel A), I do not include lagged investment, because it is a collider variable (Gow et al., 2016). That is, I expect past non-GAAP reporting to be associated with higher past and current-period investment. However, since the coefficients on $PAST\_NONGAAP_t$ remain positive, even after controlling for past investment and restructuring, I conclude that non-GAAP reporting practices incrementally predict future investment.

Table 4
Investment and Restructuring (Sample 1)
Investment model (columns 1–5):
$Y_t = \alpha + \beta_1 PAST\_NONGAAP_t + \beta_2 TOBINS\_Q_{t-1} + \beta_3 CFO_t + \beta_4 GROWTH_{t-1} + \beta_5 LOG\_MV_{t-1} + \beta_6 INTA_{t-1} + \beta_7 MW_{t-1} + \beta_8 SD\_ABACC_{t-1} + \beta_9 FITTED\_NG_t + \beta_{10} IND\_FE + \beta_{11} YEAR\_FE.$
Restructuring model (columns 6–7):
$Y_t = \alpha + \beta_1 PAST\_NONGAAP_t + \beta_2 TOBINS\_Q_{t-1} + \beta_3 CFO_t + \beta_4 GROWTH_{t-1} + \beta_5 LOG\_MV_{t-1} + \beta_6 INTA_{t-1} + \beta_7 MW_{t-1} + \beta_8 SD\_ABACC_{t-1} + \beta_9 VALUE\_ACQUIRED_t + \beta_{10} RELATED_t + \beta_{11} NEWCEO_t + \beta_{12} NUMSEGS_t + \beta_{13} FITTED\_NONGAAP_t + \beta_{14} IND\_FE + \beta_{15} YEAR\_FE.$

Panel A: Standard models							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	$INVESTMENT_t$	HIGH $INVESTMENT_t$	VALUE $ACQUIRED_t$	ACQUIRE $CONTROL_t$	LARGE $ACQUISITION_t$	$RESTRUCT_t$	$RESTRUCT\_8K_t$
PAST_NONGAAP$_t$	**1.506***(2.75)**	**0.141***(5.74)**	**1.036**(2.52)**	**0.156***(5.89)**	**0.154***(4.05)**	**0.876***(24.52)**	**0.367***(8.08)**
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N firm-years	24,028	24,028	24,028	24,028	24,028	24,028	24,028
Adjusted R^2/COD	0.10	0.02	0.03	0.16	0.06	0.15	0.07
Panel B: Controlling for lagged dependent variables							
PAST_NONGAAP$_t$	**1.350***(2.68)**	**0.181***(7.35)**	**1.023**(2.46)**	**0.156***(5.89)**	**0.204***(4.41)**	**0.599***(15.69)**	**0.290***(6.22)**
Y_{t-1}	0.010***(2.93)	0.594***(21.65)	0.013 (0.94)	0.571***(8.36)	1.55***(27.99)	1.89***(46.75)	1.55***(27.99)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N firm-years	24,028	24,028	24,028	24,028	24,028	24,028	24,028
Adjusted R^2/COD	0.10	0.02	0.03	0.16	0.06	0.15	0.07

This table presents evidence on the relation between investment and lagged non-GAAP reporting practices. Variable definitions are presented in Appendix B. Y_{t-1} represents the lagged value of the dependent variable. Weighted least squares (WLS) regression models are estimated for continuous dependent variables and weighted logistic regressions for indicator dependent variables. Coefficient estimates and t-statistics (WLS) or z-statistics (logistic) are presented within the columns. Adjusted R^2 is presented for WLS models, and coefficient of discrimination (COD) is presented for logistic models. GIC industry and year fixed effects are included in all models, and entropy weights are applied to all models. WLS regression standard errors are clustered by industry and year. *, **, and *** represent statistical significance at the 10 percent, 5 percent, and 1 percent levels, respectively, using two-tailed tests.

In supplementary analyses, I test whether acquisitions and restructurings are more likely to *reoccur* among non-GAAP firms. I find that among firms that acquired or restructured in the prior year, non-GAAP firms are more likely to acquire or restructure again in the current year. This evidence stands in contrast to firms that justify the exclusion of acquisition and restructuring expenses because they are "nonrecurring" or "transitory." Ironically, the firms that dismiss (through non-GAAP reporting) certain acquisition and restructuring-related expenses are the same ones for which the expenses are more likely to reoccur. One additional implication of repeatedly engaging in acquisitions and restructurings is higher persistence (i.e., more predictive of future GAAP earnings) of acquisition and restructuring expenses. Consistent with this implication, I also find that special-item expenses (defined by Compustat to include acquisition and restructuring expenses) are more persistent among non-GAAP-reporting firms.

4.3. EBITDA versus other non-GAAP metrics

I identify firms that report EBITDA as those whose earnings press releases contain the term "EBITDA". Appendix A presents a detailed explanation of my identification of non-GAAP reporting practices from firms' earnings announcement press releases. I define a new variable called $PAST\_EBITDA_t$, which equals one for firms that report EBITDA in both of the past two years ($EBITDA_{t-2} = 1$ and $EBITDA_{t-1} = 1$; defined as $PAST\_EBITDA_t = 1$), and zero for those that report a non-GAAP earnings metric other than EBITDA in the past two years ($EBITDA_{t-2} = 0$, $EBITDA_{t-1} = 0$, $NONGAAP_{t-2} = 1$, and $NONGAAP_{t-1} = 1$; defined as $PAST\_EBITDA_t = 0$).

For brevity, I do not report descriptive statistics for the EBITDA versus other non-GAAP metrics subsample (Sample 2). Though the differences in control variables are generally small, EBITDA-reporting firms have lower Tobin's Q, are smaller, have higher leverage, higher intangibles, and more volatile abnormal accruals than firms that report non-GAAP earnings metrics other than EBITDA. Overall, EBITDA-reporting firms resemble firms with a history of reporting some other non-GAAP metric more than they resemble those that report only GAAP earnings.

Table 5 examines the implications of reporting EBITDA versus other non-GAAP metrics. Column 1 indicates that EBITDA-reporting firms spend 0.8 percent of lagged assets more on capital expenditures than firms that have a history of reporting other non-GAAP earnings metrics. Column 2 indicates that EBITDA-reporting firms are 5.8 percent more likely (based on the coefficient on $PAST\_EBITDA_t$) to have higher-than-expected capital expenditures. This evidence is consistent with the notion that EBTIDA-reporting firms place less weight on depreciation expense when making capital expenditures. Column 3 indicates that EBITDA-reporting firms are 6 percent less likely to recognize restructuring charges. The coefficient on $PAST\_EBITDA_t$ in column 4 indicates that EBITDA-reporting firms are 2.6 percent less likely to commit to a material restructuring plan and file 8-K Item 2.05. These results are consistent with the notion that EBITDA-reporting firms place more weight on restructuring

Table 5
EBITDA versus Other Non-GAAP Metrics (Sample 2)
Capex Model (columns 1 and 2):
$Y_t = \alpha + \beta_1 PAST\_EBITDA_t + \beta_2 TOBINS\_Q_{t-1} + \beta_3 CFO_t + \beta_4 GROWTH_{t-1} + \beta_5 LOG\_MV_{t-1} + \beta_6 LEV_{t-1} + \beta_7 INTA_{t-1} + \beta_8 MW_{t-1} + \beta_9 SD\_ABACC_{t-1} + \beta_{10} FITTED\_EBITDA_t + \beta_{11} IND\_FE + \beta_{12} YEAR\_FE.$
Restructuring Model (columns 3 and 4):
$Y_t = \alpha + \beta_1 PAST\_EBITDA_t + \beta_2 TOBINS\_Q_{t-1} + \beta_3 CFO_t + \beta_4 GROWTH_{t-1} + \beta_5 LOG\_MV_{t-1} + \beta_6 LEV_{t-1} + \beta_7 INTA_{t-1} + \beta_8 MW_{t-1} + \beta_9 SD\_ABACC_{t-1} + \beta_{10} VALUE\_ACQUIRED_t + \beta_{11} RELATED_t + \beta_{12} NEWCEO_t + \beta_{13} NUMSEGS_t + \beta_{14} FITTED\_EBITDA_t + \beta_{15} IND\_FE + \beta_{16} YEAR\_FE.$

	(1)	(2)	(3)	(4)
	$CAPEX_t$	HIGH $CAPEX_t$	$RESTRUCT_t$	$RESTRUCT\_8K_t$
PAST_EBITDA$_t$	**0.789***(3.31)**	**0.247***(6.43)**	**−0.366***(-7.53)**	**−0.348***(-4.96)**
Controls	Yes	Yes	Yes	Yes
N firm-years	15,054	15,054	15,054	15,054
Adjusted R^2/COD	0.34	0.05	0.15	0.08

This table presents evidence on the different implications of EBITDA versus other non-GAAP earnings definitions for capital expenditures and restructuring activities. Variable definitions are presented in Appendix B. A weighted least squares (WLS) regression model is fitted for the $CAPEX_t$ dependent variable, and a weighted logistic regression is fitted for the $HIGH\_CAPEX_t$, $RESTRUCT\_8K205_t$, and $DRCP_t$ dependent variables. Coefficient estimates and t-statistics (WLS) or z-statistics (logistic) are presented within the columns. Adjusted R^2 is presented for WLS models, and coefficient of discrimination (COD) is presented for logistic models. GIC industry and year fixed effects are included in all models, and entropy weights are applied to all models. WLS regression standard errors are clustered by industry and year. *, **, and *** represent statistical significance at the 10 percent, 5 percent, and 1 percent levels, respectively, using two-tailed tests.

expenses because they are more likely to negatively affect their non-GAAP performance metric. Taken together, these results suggest that the real activities implications of adjusted earnings metrics depend on how firms define non-GAAP earnings.

4.4. SFAS 141R and acquisition-related layoffs

To test for the effect of SFAS 141R on acquisition-related restructurings, I obtained data on firms' restructuring activities. Although Compustat provides data on restructuring expense reported in the income statement, I cannot use this variable in the SFAS 141R setting. Prior to SFAS 141R, firms that incurred acquisition-related restructuring costs did not necessarily recognize restructuring expenses in their income statements.[19]

Mass layoffs are a substantial restructuring activity. Challenger, Gray, and Christmas, a large outplacement and career transitioning firm, collects data on mass layoff announcements and provides the data that I use to define when acquisitions involve employee layoffs. The dataset contains the name of the company, the date of the announcement, and the number of employees laid off. In all, the dataset contains 29,447 layoff announcements between 2006 and 2016. To identify acquisitions that involve layoffs, I match company names from the Challenger, Gray, and Christmas data with historical acquirer and target firm names from the SDC database of acquisitions. I use a text distance measure to identify similar company names between the two databases, then I manually review each of the matches to ensure they are correct. If the acquirer or target announces layoffs within the period between three months prior to the acquisition announcement date and one year after the acquisition effective date, I assume the acquisition involved a restructuring.

I examine 11,928 acquisitions-for-control (i.e., acquisitions for which the acquirer owns greater than 50 percent after the acquisition) between January 2006 and December 2015 (individual acquisitions executed by firms in Sample 1). I require the same control variable availability as in the main corporate investment tests. Since I examine individual acquisitions, I include certain acquisition-specific control variables: *PCTACQ*, *ALL_STOCK*, and *VAL*. I also include *RELATED* and *REV_PER_EMP*, which are the only variables that prior researchers have found to predict acquisition-related layoffs.[20] Specifically, O'Shaugnessy and Flanagan (1998) find that layoffs are more common when the acquirer and target are in the same Standard Industrial Classification (SIC) industry and when the target firm has a low amount of revenue per employee prior to being acquired.

Table 6 presents means and medians of all SFAS 141R setting variables partitioned on whether firms report non-GAAP earnings measures in both of the previous two years (i.e., $PAST\_NONGAAP_t = 1$ or non-GAAP firms) or neither of the previous two years (i.e., $PAST\_NONGAAP_t = 1 = 0$ or GAAP firms). Individual acquisitions are the unit of observation, and I do not present subscripts for acquisition-specific variables. The variable means suggest that non-GAAP firms' acquisitions are not generally more likely to involve restructurings across the entire sample period. This insignificant difference likely reflects the greater number of non-GAAP observations in the post-141R period. Non-GAAP firms are larger and are more likely to target a firm in the same SIC industry. Other control variables are generally consistent with patterns observed in my main investment and restructuring tests.

[19] For example, despite finding a significant decrease in acquisition-related restructuring activities (i.e., layoffs) after SFAS 141R became effective, I find that firms are more likely to report restructuring expenses (Compustat: *rcp*) in the year of an acquisition after the implementation of SFAS 141R (untabulated).

[20] The *ALL_STOCK*, *VAL* and *REV_PER_EMP* variables are missing for 930, 5,090, and 651 acquisitions in my sample. To avoid biases imposed by setting missing values to zero, I include indicator variables for all entropy balancing and tests involving these variables. The indicator variables are equal to one when the value is missing and zero otherwise.

Table 6
SFAS 141R and acquisition-related layoffs descriptive statistics (Sample 1).

Number of acquisitions:	Non-GAAP firms		GAAP firms			Tests of differences	
	9,347		2,581			11,928	
	Mean	Median	Mean	Median	Weighted Mean	Unweighted Difference	Weighted Difference
$PAST\_NONGAAP_t$	1.00	1.00	0.00	0.00	0.00		
$POST141R_t$	0.74	1.00	0.56	1.00	0.75	0.18***	−0.01
LAYOFF	0.23	0.00	0.23	0.00	0.19	0.00	0.04***
PCTACQ	97.32	100.00	97.01	100.00	97.32	0.32	0.00
ALL_STOCK	0.21	0.00	0.26	0.00	0.21	−0.05	0.00
VAL	162.60	75.00	123.24	42.00	162.60	39.36***	0.00
RELATED	0.35	0.00	0.31	0.00	0.35	0.03***	0.00
REV_PER_EMP	0.49	0.29	0.55	0.25	0.49	−0.06	0.00
$TOBINS\_Q_{t-1}$	1.90	1.61	2.01	1.73	1.90	−0.11***	0.00
CFO_t	10.68	10.07	10.62	11.30	10.68	0.07	0.00
$GROWTH_{t-1}$	0.11	0.08	0.10	0.09	0.11	0.01	0.00
LOG_MV_{t-1}	8.04	7.97	7.50	7.42	8.04	0.53***	0.00
$INTA_{t-1}$	0.30	0.28	0.22	0.15	0.30	0.08***	0.00
MW_{t-1}	0.03	0.00	0.04	0.00	0.03	−0.01*	0.00
SD_ABACC_{t-1}	0.36	0.15	0.32	0.12	0.36	0.05***	0.00
$NEWCEO_t$	0.09	0.00	0.06	0.00	0.09	0.03***	0.00
$NUMSEGS_t$	3.22	3.00	3.34	3.00	3.22	−0.12**	0.00
$FITTED\_NG_t$	0.80	0.83	0.71	0.72	0.80	0.09***	0.00

This table presents means and medians of all SFAS 141R setting variables, partitioned on whether the firm reported non-GAAP earnings in years *t*-1 and *t*-2 (i.e., $PAST\_NONGAAP_t$). The sample includes all unique acquisitions-for-control where firms in Sample 1 are the acquiror. The weighted mean column presents the weighted means for the GAAP firms (i.e., $PAST\_NONGAAP_t = 0$), using the weights developed in the entropy balancing procedure (Hainmueller, 2012). T-tests of difference in means and weighted means are presented with ***,**, and * representing statistical significance at the 1 percent, 5 percent, and 10 percent levels, respectively, using two-tailed tests. Variable definitions are provided in Appendix B. Descriptive statistics for *ALL_STOCK*, *VAL*, and *REV_PER_EMP* variables are presented for the subset of acquisitions with data available, representing 930, 5,090, and 651 acquisitions, respectively.

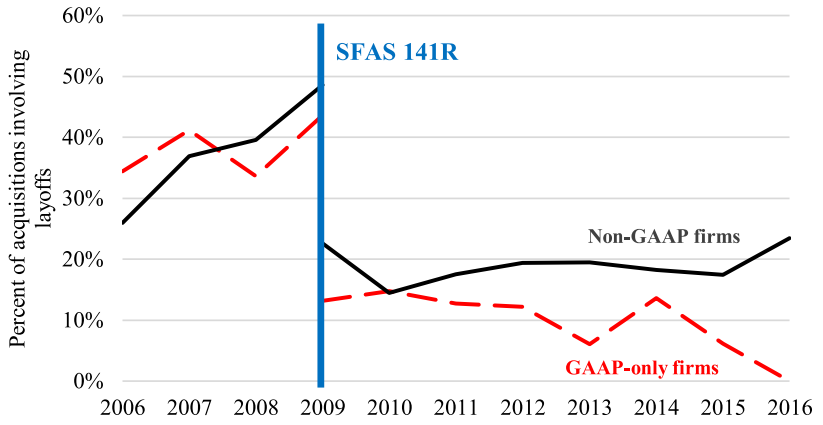
Figure 2 presents a visualization of the relation between SFAS 141R and acquisition-related layoffs. Panel A presents the percentage of acquisitions by year that involve layoffs, conditioning on whether the firm has a history of reporting non-GAAP earnings. The pre-SFAS 141R period is relatively short, making a parallel trends assessment difficult to perform. However, it appears that acquisition-related layoffs increased from 2006 to 2009, with a relative decline in 2008, which was most pronounced for GAAP firms. The apparent effect of SFAS 141R is clearly visible, reducing acquisition-related layoffs more substantially for GAAP firms than for non-GAAP firms. Panel B reports the same data averaged across all years in the pre- and post-SFAS 141R periods. Prior to SFAS 141R, 35 percent of acquisitions by non-GAAP firms involved layoffs, compared to 37 percent for GAAP firms, an insignificant difference. After SFAS 141R, the probability of a layoff decreased by 17 percent for non-GAAP firms and 26 percent for GAAP firms.

Table 7 presents multivariate statistical evidence on firms' response to SFAS 141R, conditional on whether they have a history of reporting non-GAAP earnings. Columns 1 and 2 indicate that non-GAAP firms are not significantly more likely to announce layoffs in the pre-141R period and 6.1 percent (statistically significant p-value < 0.01) more likely to do so in the post-141R period.[21] The lack of a significant difference in layoffs the pre-period is consistent with the notion that restructurings did not give rise to a difference between GAAP and non-GAAP earnings prior to SFAS 141R. After SFAS 141R, restructurings reduce GAAP net income but do not affect most definitions of non-GAAP earnings, and consistent with expectations, non-GAAP firms did relatively more layoffs. Column 3 presents the full difference-in-differences result. The negative coefficient on $POST141R_t$ suggests that GAAP firms were significantly less likely to engage in acquisition-related layoffs after SFAS 141R. The positive yet smaller in magnitude coefficient on $PAST\_NONGAAP_t \times POST141R_t$ indicates that the acquisition-related layoffs of non-GAAP firms were significantly less sensitive to mandatory expensing of acquisition-related restructuring costs imposed by SFAS 141R.

To alleviate the concern that the Challenger, Gray, and Christmas dataset omits layoffs of smaller firms, I examine an alternative outcome variable in an untabulated analysis. Since August 2004, public companies have been required to file an 8-K with the Securities and Exchange Commission when they commit to a material restructuring plan. This type of plan involves disposing of long-lived assets or terminating employees under a plan of termination. Firms must disclose these plans in Item 2.05 to Form 8-K. I construct an alternative restructuring variable, which equals one if the acquirer files 8-K Item 2.05 from three months prior to the acquisition effective date to one year afterward. In untabulated tests, I find the same results using this alternative outcome variable, alleviating this concern about relying on the Challenger, Gray, and Christmas dataset.

[21] I calculate the effect of treatment on the treated as the effect of the $PAST\_NONGAAP_t$ variable on the probability that the average non-GAAP firm's acquisitions are accompanied by a layoff announcement. The column (2) coefficient on $PAST\_NONGAAP_t$ of 0.478 translates into a 6.1 percent increase in the probability of the average post-141R acquisition being accompanied by a layoff.

Panel A: Annual averages



Panel B: Pre versus post SFAS 141R averages

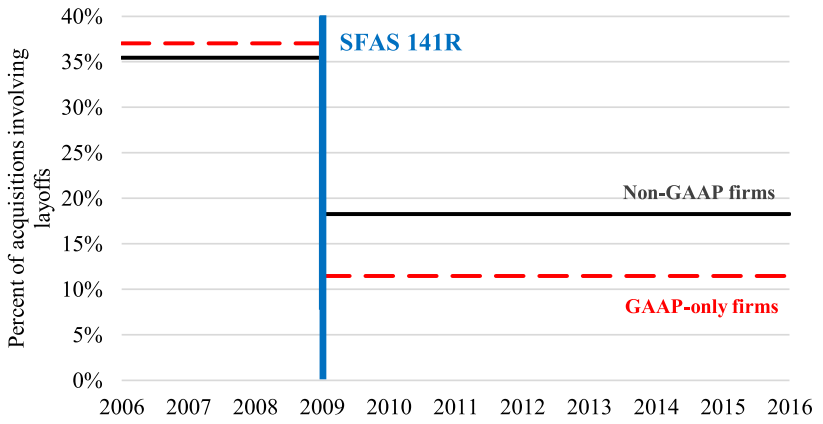


Fig. 2. *Acquisition-Related Layoffs and Non-GAAP Reporting*, This figure presents the relation between acquisition-related layoffs and non-GAAP reporting. SFAS 141R required expensing of acquisition-related restructuring costs. Panel A presents the annual percentage of acquisitions that involve mass layoffs, conditional on past non-GAAP reporting practices. I define Non-GAAP firms as those that reported non-GAAP earnings in both of the past two years. GAAP firms did not report non-GAAP earnings in either of the past two years. The vertical bar highlights the year that SFAS 141R became effective. Panel B presents horizontal bars for the conditional means for the entire pre- and post-periods.

4.5. Asset impairments

I next examine the choice to recognize impairments. Table 8 presents descriptive statistics for variables in the impairment sample (Sample 3), partitioned on whether the firms report non-GAAP earnings in both of the previous two years (i.e., $PAST\_NONGAAP_t = 1$ or non-GAAP firms) or neither of the previous two years (i.e., $PAST\_NONGAAP_t = 0$, or GAAP firms). The weighted mean column presents the weighted mean of each variable for GAAP firms, using entropy weights (Hainmueller, 2012). I base entropy weights on all control variables below the dotted line. In the right-most columns, I compute t-tests of difference in means and weighted means between non-GAAP and GAAP firms.

I find that non-GAAP firms are much more likely to recognize impairments. However, this difference is less pronounced after entropy weighting. The higher mean of IMP_t is unusual, in light of the fact that non-GAAP firms are significantly less likely to have a pre-impairment book-to-market ratio greater than one ($BTMD_t$), are less likely to have weak stock or accounting performance ($WEAK_t$), and have higher long-window contemporaneous returns (RET_t). On the other hand,

Table 7
SFAS 141R and Acquisition-Related Layoffs (Sample 1)
Acquisition-related layoff model:

$$LAYOFF = \alpha + \beta_1 PAST\_NONGAAP_t + \beta_2 POST141R_t + \beta_3 PAST\_NONGAAP_t \times POST141R_t + \beta_4 PCTACQ + \beta_5 ALL\_STOCK + \beta_6 VAL + \beta_7 RELATED + \beta_8 REV\_PER\_EMP + \beta_9 TOBINS\_Q_{t-1} + \beta_{10} CFO_t + \beta_{11} GROWTH_{t-1} + \beta_{12} LOG\_MV_{t-1} + \beta_{13} INTA_{t-1} + \beta_{14} MW_{t-1} + \beta_{15} SD\_ABACC_{t-1} + \beta_{16} NEWCEO_t + \beta_{17} NUMSEGS_t + \beta_{18} FITTED\_NG_t + \beta_{19} IND\_FE + \beta_{20} YEAR\_FE.$$

	(1)	(2)	(3)
	Pre-141R	Post-141R	Full Sample
PAST_NONGAAP$_t$	**0.056(0.74)**	**0.478***(8.39)**	**0.104(1.43)**
POST141R$_t$			**−0.924***(-4.69)**
PAST_NONGAAP$_t$ × POST141R$_t$			**0.369***(4.08)**
Controls	Yes	Yes	Yes
N acquisitions	3,582	8,346	11,928
Adjusted R^2/COD	0.28	0.19	0.25

This table presents evidence on the relation between acquisition-related restructuring activities and past non-GAAP reporting practices in the pre- and post-141R periods. The sample includes all unique acquisitions-for-control where firms in Sample 1 are the acquiror. Variable definitions are presented in Appendix B. Indicator variables for observations with missing *ALL_STOCK*, *VAL*, and *REV_PER_EMP* variables are included in all models. Weighted logistic regression coefficient estimates and z-statistics are presented within the columns. GIC industry fixed effects are included in all models, and entropy weights are applied to all models. Coefficient of discrimination (COD) is presented for goodness-of-fit. *, **, and *** represent statistical significance at the 10 percent, 5 percent, and 1 percent levels, respectively, using two-tailed tests.

consistent with my corporate investment results, non-GAAP firms invest and acquire more and have significantly more goodwill and other intangibles than GAAP firms. Finally, non-GAAP firms report more segments, have higher analyst following, and are larger than GAAP firms, although all these average differences are reduced to zero when entropy weights are applied.

Table 9 reports regression results on the relation between reporting non-GAAP earnings and recognizing impairments. Column 1 suggests that non-GAAP firms are 5 percent more likely to recognize impairments.[22] This evidence is consistent with the notion that firms that report non-GAAP earnings place less weight on the effect of impairments on GAAP earnings.[23] Next I split the sample into firms with and without a key indication of market-implied impairment (i.e., $BTM_t > 1$ and $BTM_t < 1$, respectively). Column 2 reports regression results for the subset of firms where the impairment would be non-discretionary (i.e., $BTM_t > 1$). In this subsample, the near-zero coefficient on $PAST\_NONGAAP_t$ implies that non-GAAP firms are not more likely to recognize non-discretionary (i.e., market-implied) impairments. Column 3 reports regression results with a pre-impairment book-to-market ratio less than one (i.e., $BTM_t < 1$). An impairment recognized under these circumstances is more likely to be discretionary. In this subsample, the positive coefficient on $PAST\_NONGAAP_t$ implies that non-GAAP firms are 5.3 percent more likely to recognize discretionary asset impairments.[24] Fig. 3 presents logistic regression coefficients on the $PAST\_NONGAAP_t$ variable for six separate regressions estimated within closed intervals of BTM_t. Generally, the regression coefficients are positive when BTM_t is less than one and close to zero when BTM_t is greater than one. The exception is when BTM_t is less than 0.5, which can be thought of as representing the category of very high growth firms. Overall, the evidence is consistent with the notion that non-GAAP-reporting firms place less weight on impairments and are consequently more likely to recognize them. However, the increased likelihood of impairment occurs only when there is no market-indication of impaired book value. These discretionary impairments are consistent with non-GAAP firms being overly conservative.

4.6. Supplementary analysis —reoccurrence of activities and special item persistence

From the perspective of an investor who is seeking to forecast future earnings, the persistence of acquisition expenses, restructuring expenses, asset impairments, and other special-item expenses is useful in creating accurate earnings forecasts. Prior academic research generally finds that Compustat-defined special items are less predictive of future earnings than income before special items (e.g., Doyle et al., 2003; Dechow and Ge, 2006; Kolev et al., 2008). The low persistence of special-item expenses is consistent with the Compustat manual, which states that special items (Compustat variable: *spi*) are, "unusual or nonrecurring items." Accordingly, some academic studies define Compustat special-item expenses as "transitory" exclusions in the calculation of non-GAAP earnings (e.g., Bentley et al., 2018; Doyle et al., 2013; Christensen et al., 2011). Contrary to these labels, I expect non-GAAP-reporting firms to repeatedly incur certain special-item expenses. Specifically, managers who prioritize non-GAAP earnings over GAAP earnings are more likely engaging in acquisitions and restructurings year after year. If so, I expect to find that non-GAAP-reporting firms ($PAST\_NONGAAP_t = 1$) have more persistent special-item expenses because the underlying activities that give rise to acquisition, restructuring, and impairment expenses occur year after year. In short, acquisitions, restructurings, and impairments are not transitory events for non-GAAP-reporting firms.

[22] I calculate the effect of treatment on the treated as the effect of the $PAST\_NONGAAP_t$ variable on the probability that the average non-GAAP firm recognizes an impairment. The column 1 coefficient on $PAST\_NONGAAP_t$ of 0.304 translates into a 5 percent increase in the probability recognizing an impairment.

[23] In untabulated tests, I find that non-GAAP firms are also more likely to recognize goodwill impairments, specifically.

[24] The column (3) coefficient on $PAST\_NONGAAP_t$ of 0.358 translates into a 5.3 percent increase in the probability of recognizing a discretionary impairment.

Table 8
Impairments descriptive statistics (Sample 3).

Number of firm-years:	Non-GAAP firms		GAAP firms			Tests of differences	
	19,154		10,660			29,814	
	Mean	Median	Mean	Median	Weighted Mean	Unweighted Difference	Weighted Difference
$PAST\_NONGAAP_t$	1.00	1.00	0.00	0.00	0.00		
IMP_t	0.23	0.00	0.14	0.00	0.20	0.09***	0.04***
$BTMD_t$	0.16	0.00	0.22	0.00	0.16	−0.07***	0.00
BTM_t	0.73	0.73	0.74	0.76	0.73	−0.01***	0.00
$ABINV_{t-1}$	0.52	−1.40	−0.96	−1.39	0.52	1.49***	0.00
$ACQUIRE\_CONTROL_{t-1}$	0.36	0.00	0.18	0.00	0.36	0.18***	0.00
$PREGDWL_t$	0.14	0.07	0.06	0.00	0.14	0.08***	0.00
$PREOINTA_t$	0.07	0.03	0.03	0.00	0.07	0.04***	0.00
$WEAK_t$	0.21	0.00	0.27	0.00	0.21	−0.06***	0.00
$NEWCEO_t$	0.11	0.00	0.10	0.00	0.11	0.01**	0.00
$NUMSEGS_t$	2.70	2.00	2.06	1.00	2.70	0.64***	0.00
$NUMEST_t$	10.40	8.00	5.75	4.00	10.40	4.65***	0.00
LOG_MV_{t-1}	7.13	7.14	5.71	5.59	7.13	1.42***	0.00
RET_t	0.27	0.13	0.22	0.09	0.27	0.05***	0.00
$RETD_t$	0.38	0.00	0.42	0.00	0.38	−0.04***	0.00
$FITTED\_NG_t$	0.70	0.73	0.54	0.54	0.70	0.15***	0.00

This table presents descriptive statistics of all asset impairment setting variables, partitioned on whether the firm reported non-GAAP earnings in years t-1 and t-2 (i.e., $PAST\_NONGAAP_t$). The weighted mean column presents the weighted means for the GAAP firms (i.e., $PAST\_NONGAAP_t = 0$), using the weights developed in the entropy balancing procedure (Hainmueller, 2012). T-tests of difference in means and weighted means are presented with ***,**, and * representing statistical significance at the 1 percent, 5 percent, and 10 percent levels, respectively, using two-tailed tests. Variable definitions are provided in Appendix B.

Table 9
Impairments (Sample 3)
Impairment model:

$$IMP_t = \alpha + \beta_1 PAST\_NONGAAP_t + \beta_2 BTMD_t + \beta_3 ABINV_{t-1} + \beta_4 ACQUIRE\_CONTROL_{t-1} + \beta_5 NEWCEO_t + \beta_6 NUMSEGS_t + \beta_7 NUMEST_t + \beta_8 LOG\_MV_t + \beta_9 BTM_t + \beta_{10} PREGDWL_t + \beta_{11} PREOINTA_t + \beta_{12} WEAK_t + \beta_{13} BTMD_t \times ABTM_t + \beta_{14} BTMD_t \times PREGDWL_t + \beta_{15} BTMD_t \times PREOINTA_t + \beta_{16} DR_t + \beta_{17} R_t + \beta_{18} DR_t \times R_t + \beta_{19} FITTED\_NG_t + \beta_{20} IND\_FE + \beta_{21} YEAR\_FE.$$

	(1)	(2)	(3)
	Full	Non-discretionary	Discretionary
	Sample	($BTM_t > 1$)	($BTM_t < 1$)
$PAST\_NONGAAP_t$	**0.304*****(10.95)**	**−0.024(-0.36)**	**0.358*****(11.55)**
Controls	Yes	Yes	Yes
N firm-years	29,814	5426	24,388
COD	0.14	0.26	0.09

This table presents evidence on the relationship between asset impairments and past non-GAAP reporting choices, using a logistic regression. Variable definitions are presented in Appendix B. Coefficient estimates and z-statistics are presented within the columns. *, **, and *** represent statistical significance at the 1 percent, 5 percent, and 10 percent levels, respectively, using two-tailed tests.

To test this prediction, I first examine whether non-GAAP firms have more persistent special-item expenses than GAAP firms. Similar to Bentley et al. (2018), I model current-year GAAP earnings as a function of prior-year pre-special-items earnings and special items. In Table 10 Panel A, I estimate the persistence of earnings components separately for non-GAAP firms and GAAP firms. Across all columns, the coefficient on pre-special-items earnings (i.e., $INC\_PRE\_SPI_{t-1}$) is significantly higher than that on special items (i.e., SPI_{t-1}), indicating the pre-special-items earnings is overall more persistent than special items. The insignificant coefficient on $PAST\_NONGAAP_t \times INC\_PRE\_SPI_{t-1}$ in column 3 indicates that the persistence of pre-special-items earnings is roughly the same between GAAP and non-GAAP firms. Importantly, the positive and significant coefficient on $PAST\_NONGAAP_t \times SPI_{t-1}$ in column 3 indicates that the persistence of special-item expenses (defined by Compustat) is higher for non-GAAP firms. Using the phrasing of Bentley et al. (2018; p. 1060) conclusion, this evidence is consistent with the notion that special items are more closely related to non-GAAP firms' core operations. The ironic and practical implication of this result is that, in predicting future earnings, investors ought to apply larger persistence multiples for the special-item expenses of non-GAAP firms. This supplementary evidence is ironic because non-GAAP-reporting firms typically justify the exclusion of special items such as acquisition, restructuring, and impairment expenses because they are "transitory", "infrequent", or "unusual".

To provide evidence that this novel result is not attributable to classification shifting of core operating expenses into special items (e.g., McVay, 2006; Kolev et al., 2008), I specifically examine whether certain activities are more likely to reoccur at non-GAAP firms. Table 10 Panel B examines whether acquisitions, restructurings, and impairments (activities that result in special-item expenses) have a higher likelihood of reoccurring in non-GAAP firms. Column 1 presents that, among firms that had recognized special-item expenses in the prior year, 62 percent of non-GAAP firms recognize special items again in the

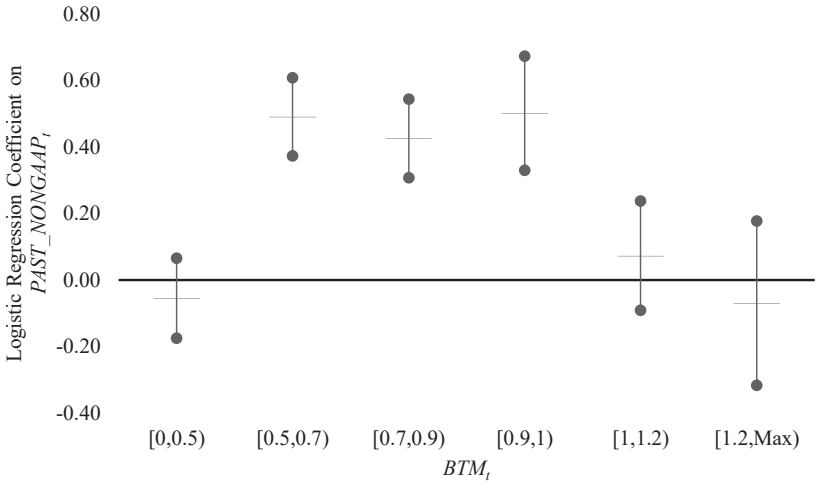


Fig. 3. *Impairments and Non-GAAP Reporting by Book-to-Market*, This figure presents the logistical regression coefficient and 95 percent confidence interval on PAST_NONGAAPt from the asset impairment model estimated within the noted ranges of BTMt. Positive coefficients indicate that non-GAAP-reporting firms are more likely to recognize asset impairments.

Table 10
Special Item Persistence (Sample 4)
Persistence model:
$GAAP\_INC_t = \alpha + \beta_1 INC\_PRE\_SPI_{t-1} + \beta_2 SPI_{t-1} + \beta_3 ASSETS_{t-1} + \beta_4 BTM_t + \beta_5 SALES\_GROWTH_{t-1} + \beta_6 SD\_ROA_{t-1} + \beta_7 LOSS_{t-1}$.

Panel A: Special item persistence

	(1)	(2)	(3)
	GAAP firms	Non-GAAP firms	Full Sample
$INC\_PRE\_SPI_{t-1}$	0.777***(17.29)	0.687***(11.64)	0.777***(17.29)
$\boldsymbol{SPI_{t-1}}$	**−0.074(-1.39)**	**0.115*****(2.65)**	−0.074 (-1.39)
$PAST\_NONGAAP_t \times INC\_PRE\_SPI_{t-1}$			−0.090 (-1.24)
$\boldsymbol{PAST\_NONGAAP_t \times SPI_{t-1}}$			**0.190*****(3.11)**
Controls	Yes	Yes	Yes
N firm-years	8190	15,657	23,847
Adjusted R^2	0.72	0.48	0.64

Panel B: Repetition of activities

	(1)	(2)	(3)	(4)
	$Y_{t-1} = 1$			
$Y_t =$	$SPECIAL\_ITEM_t$	$ACQUIRE\_CONTROL_t$	$RESTRUCT\_8K_t$	IMP_t
$PAST\_NONGAAP_t = 1$	0.622	0.530	0.312	0.431
$PAST\_NONGAAP_t = 0$	0.425	0.434	0.271	0.327
Difference	**0.197*****	**0.096*****	**0.041***	**0.104*****
N	8,254 (subset of Sample 4)	7,195 (subset of Sample 1)	1,882 (subset of Sample 1)	5,635 (subset of Sample 3)

This table presents evidence on the differential persistence of special items between non-GAAP firms (i.e., $PAST\_NONGAAP_t = 1$) and GAAP firms (i.e., $PAST\_NONGAAP_t = 0$). Variable definitions are presented in Appendix B. Panel A presents regressions on the persistence of earnings split into two components: pre-special-items earnings (*INC_PRE_SPI*) and special items (*SPI*). Coefficient estimates and t-statistics are presented within the columns. Standard errors are clustered by industry and year. Columns 1 and 2 estimate the model presented in this table separately for GAAP and non-GAAP firms. Column 3 estimates the same model with the full sample, except that all independent variables interacted with $PAST\_NONGAAP_t$. The fully interacted model allows for statistical tests of the differences between coefficients in columns 1 and 2. *, **, and *** represent statistical significance at the 10 percent, 5 percent, and 1 percent levels, respectively, using two-tailed tests. Panel B presents evidence on the differential likelihood that certain activities reoccur in year *t* after occurring during year *t*-1 for non-GAAP versus GAAP firms. Column 1 examines firms that had recognized special items in the prior year (*SPECIAL_ITEM*), column 2 examines those that acquired in the prior year (*ACQUIRE_CONTROL*), column 3 examines those that announced a restructuring in the prior year (*RESTRUCT_8K*), and column 4 examines firms that recognized impairments in the prior year (*IMP*).

current year, versus 43 percent of GAAP firms. Columns 2 through 4 examine the reoccurrence of actual activities that cannot be attributed to classification shifting. In column 2 I find that, among firms that had completed an acquisition in the prior year, 53 percent of non-GAAP firms complete another acquisition in the current year versus 43 percent of GAAP firms. In column 3 I find that, among firms that had announced a restructuring in an 8K in the prior year, 31 percent of non-GAAP firms do so again

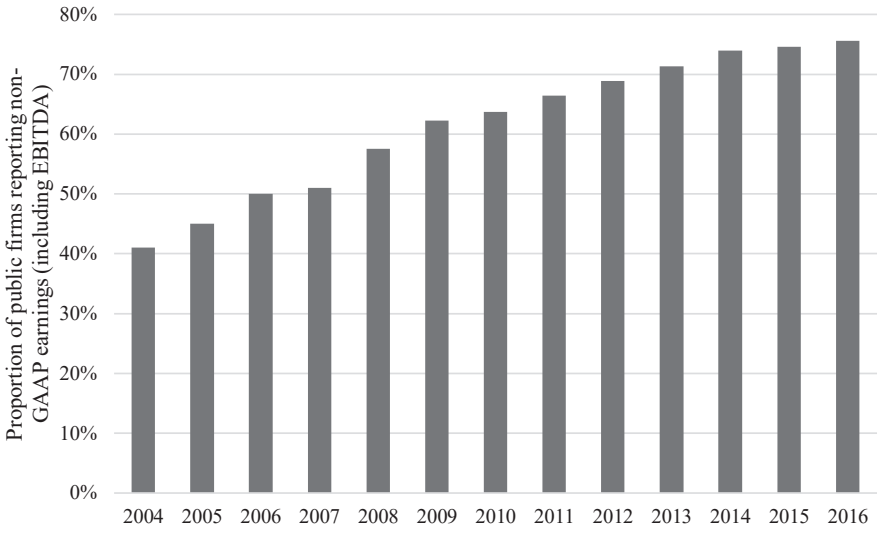


Fig. 4. *Proportion of Public Firms Reporting Non-GAAP Earnings (including EBITDA),* This figure presents the percentage of firms reporting non-GAAP earnings in the population of firms that issue fourth-quarter earnings press releases in Item 2.02 to Form 8-K. I identify non-GAAP reporting (including EBITDA) using text searches of earnings announcement press releases. Refer to Appendix A for details of the non-GAAP-reporting identification process.

in the current year versus 27 percent of GAAP firms. Finally, in column 4 I find that, among firms that had recognized an impairment in the prior year, 43 percent of non-GAAP firms recognize another impairment in the current year versus 33 percent of GAAP firms. These supplementary tests suggest that the firms that dismiss (through non-GAAP reporting) acquisition, restructuring, and impairment expenses are the same firms for which the activities, and therefore the expenses are more likely to reoccur. This evidence helps explain Black et al. (2019), evidence that the traditional academic categorization of special items expenses as "nonrecurring" does not map into practice. Specifically, they find that many of these exclusions appear to reoccur year-after-year. Overall, these surprising results suggest that investors should place *more* weight on special-item expenses recognized by non-GAAP-reporting firms.

5. Conclusion

The disclosure and use of non-GAAP earnings has increased significantly in the past 30 years, and the usefulness of these performance metrics to investors and boards of directors has been well documented. Prior research has also generally found that managers prefer to display non-GAAP earnings prominently in the earnings press release and otherwise seek to draw attention to non-GAAP earnings and downplay GAAP earnings. Whereas academics have generally viewed non-GAAP reporting to be the last step in the financial reporting process, I propose that firms that consistently reported non-GAAP earnings in the past likely have the preconceived plan to do so again in current and future periods. I hypothesize that managers of non-GAAP-reporting firms will prioritize non-GAAP earnings and effectively place less weight on the expenses typically excluded in calculating non-GAAP earnings when making real activities and accounting choices.

Accordingly, I find that firms that had reported non-GAAP earnings consistently in the past pursue more and larger acquisitions, have higher total capital investment, and are more likely to restructure. In a difference-in-differences setting, I find that acquisition-related restructurings of firms reporting non-GAAP earnings were less sensitive to a rule change affecting the recognition of restructuring expense. I also find that different definitions of non-GAAP earnings (i.e., EBITDA versus other non-GAAP earnings metrics) have different implications for firms' real activities. Finally, I find that non-GAAP-reporting firms are more likely to recognize asset impairments but that this relation is only true for discretionary impairments (i.e., when the pre-impairment book-to-market ratio is less than one). I suggest that this evidence results from managers placing lower weight on the expenses typically excluded in the calculation of non-GAAP earnings.

My analyses have some limitations. Although my tests are designed to control for endogenous variables, there may exist some omitted variable that influences the past reporting of non-GAAP earnings and current-period corporate investment, restructuring, and impairment decisions. Additionally, my results should not be used to infer that firms reporting non-GAAP earnings make suboptimal decisions. Although it would be imprudent for managers to ignore economically meaningful

expenses, it would also be imprudent for them to overweight these expenses when making corporate investment and accounting decisions. Future research might identify more tightly controlled settings or methods to produce stronger conclusions. One such working paper by McClure and Zakolyukina (2019) uses structural modelling to conclude that permitting managers to bias non-GAAP earnings leads to inefficient investment choices.

Appendix A. Non-GAAP Identification Process

I identify firms' non-GAAP reporting practices through programmatic searching for key terms in firms' earnings press releases. I identify 8-Ks filed in close proximity to firms' earnings announcements and containing Item 2.02, which is the SEC's code for a firm disclosing "Results of Operations and Financial Condition." The earnings press release is typically filed as exhibit 99 to form 8-K.

I search each earnings announcement for the following terms: "non-gaap", "nongaap", "adjusted earn", "adjusted ebi", "ebitda", "ebit", "adjusted net inc", "adjusted net loss", "cash earnings", "cash net income", "core earnings", "core net income", "pro-forma", "proforma", "earnings adjusted", "net income adjusted", "net loss adjusted", "adjusted eps", "adjusted diluted eps", "income excluding", "loss excluding", "income (loss) excluding", "earnings excluding", "eps excluding", and "earnings per share excluding".

I assume that a firm reports non-GAAP earnings (i.e., $NONGAAP_t = 1$) if the earnings press release contains at least one of the noted key terms. If none of the key words is present, I assume the firm does not report non-GAAP earnings (i.e., $NONGAAP_t = 0$). I further assume that a firm reports EBITDA (i.e., $EBITDA_t = 1$) if the earnings announcement press release contains the term "ebitda."

In all, I identify 51,281 fourth-quarter earnings announcement press releases for Compustat firms between 2004 and 2016. Of all press releases searched, 31,673 (62 percent) contain one of the non-GAAP key words. Fig. 4 presents the increasing trend in non-GAAP reporting over time. This trend is generally consistent with the increasing trend reported in related non-GAAP reporting research (e.g., Bentley et al., 2018). An important difference is that non-GAAP reporting literature does not typically include EBITDA as a non-GAAP metric, whereas I do.

To estimate the error rate in the $NONGAAP_t$ variable, I manually examine a random sample of earnings announcements. In all, I search 698 random earnings press releases of firms that are flagged as reporting non-GAAP earnings. I find nine errors. Eight observations report a non-GAAP metric not reconciled to earnings, such as free cash flows, non-GAAP revenues, or non-GAAP gross profit. One observation is not an earnings announcement but is the disclosure of a debt contract that references EBITDA. Nine errors of 698 observations represents a 1.2 percent error rate.

I then search 100 earnings announcement press releases of firms that are flagged as not reporting non-GAAP earnings. I find one error, which is a firm that reports "adjusted EBITDA" in a supplementary exhibit to the earnings announcement and not the earnings announcement press release itself. I find two earnings announcements that include supplementary disclosure of special items, such as asset impairments, and I find three additional earnings announcements that break out the line items of the income statement that contain stock compensation expense. However, these observations are not considered errors, as no non-GAAP earnings metric is presented. Overall, this low error rate (i.e., 9/698 and 1/100) is low and lends credibility to the programmatic text searching technique used to define the $NONGAAP_t$ variable.

To estimate the error rate in the $EBITDA_t$ variable, I manually examine a random sample of 100 earnings announcements that I flagged as containing the term "EBITDA". I find that all 100 firms report some version of EBITDA.

Appendix B. Variable Definitions

$ACQUIRE\_CONTROL_t$	=	Equal to one if the firm acquired control in a target in year t, obtained from the Securities Data Corporation dataset, and zero otherwise.
ALL_STOCK	=	Equal to one if SDC reports the entire acquisition purchase price was financed with acquirer stock (i.e., pctstk = 100) and zero otherwise. Set to zero when missing.
$ASSETS_{t-1}$	=	Compustat lagged total assets.
$BTMD_t$	=	Equal to one if BTM_t is greater than one and zero otherwise.
BTM_t	=	Compustat total assets (at), adding back any asset write-down (wdp) or goodwill impairment (gdwlip), all divided by market value of assets (csho*prcc_f + at - ceq), all in year t.
$CAPEX\_INVESTMENT_t$	=	Equal to Compustat capital expenditures in year t scaled by lagged total assets.
CFO_t	=	Compustat operating cash flows in year t scaled by lagged total assets.
$EBITDA_t$	=	Equal to one if the term "EBITDA" appears in the firms' fourth-quarter earnings press release for year t and zero otherwise. Refer to Appendix A for details of the non-GAAP reporting identification process.
$FITTED\_EBITDA_t$	=	Equal to the fitted probability from a first-stage logistic regression of $PAST\_EBITDA_t$ on GIC industry and year fixed effects.
$FITTED\_NG_t$	=	Equal to the fitted probability from a first-stage logistic regression of $PAST\_NONGAAP_t$ on GIC industry and year fixed effects.
$GAAP\_INC_t$	=	Compustat pre-tax income divided by lagged total assets.
$GROWTH_{t-1}$	=	Compustat total assets at the end of year t-1 divided by total assets at the end of year t-2.
$HIGH\_CAPEX_t$	=	Equal to one if the residual from the capital expenditure prediction model is positive and zero otherwise. The model is equivalent to that in creating $HIGH\_INVESTMENT_t$, except that $CAPEX_t$ is the outcome variable and not $INVESTMENT_t$.

$HIGH\_INVESTMENT_t$	=	Equal to one if the residual from the investment prediction model estimated separately by industry-year is positive and zero otherwise. I use the investment prediction model used by McNichols and Stubben (2008), except that total investment includes acquisition investment in addition to capital expenditures. I multiply the variable by 100 and it can be interpreted as a percentage of beginning-of-period total assets.
$INC\_PRE\_SPI_t$	=	Compustat pre-tax income before special items scaled by lagged total assets (pi + spi)/at_{t1}.
IMP_t	=	Equal to one if Compustat pre-tax write-down (wdp), pre-tax goodwill impairment (gdwlip), or both are less than zero in year t and zero otherwise.
$INTA_{t-1}$	=	Compustat total intangible assets divided by total assets in year t-1.
$INVESTMENT_t$	=	Sum of Compustat capital expenditure and acquisition expenditure cash flow scaled by lagged total assets.
$LARGE\_ACQUISITION_t$	=	Equal to one when the aggregated acquisition purchase prices during year t exceed 10 percent of beginning-of-period total assets.
$LAYOFF$	=	Equal to one when a layoff is announced by the acquirer or target firm less than 90 days before the acquisition announcement date and less than 365 days after the acquisition effective date.
$LEVERAGE_{t-1}$	=	Equal to Compustat total debt (i.e., dltt + dlc) divided by total assets, all in year t.
LOG_MV_{t-1}	=	Natural logarithm of market value at the end of year t-1, computed with Compustat data.
$LOSS_{t-1}$	=	Equal to one if Compustat net income (ni) was less than zero in the prior year, and zero otherwise.
MW_{t-1}	=	Equal to one if the firm had a material weakness in year t-1 and zero otherwise, obtained from Audit Analytics.
$NEWCEO_t$	=	Equal to one if a new CEO was appointed in year t according to the Audit Analytics Director and Officer Changes database and zero otherwise.
$NONGAAP_t$	=	Equal to one if a non-GAAP earnings term appears in the firms' fourth-quarter earnings announcement press release and zero otherwise. Refer to Appendix A for details of the non-GAAP reporting identification process.
$NUMEST_t$	=	Number of analysts forecasting EPS for year t according to I/B/E/S.
$NUMSEGS_t$	=	Number of business segments, operating segments, or geographic segments reported by the firm in year t according to the Compustat Historical Segments database.
$PAST\_EBITDA_t$	=	Equal to one if $EBITDA_{t-1}$ and $EBITDA_{t-2}$ both equal one and zero if $EBITDA_{t-1}$ and $EBITDA_{t-2}$ both equal zero.
$PAST\_NONGAAP_t$	=	Equal to one if $NONGAAP_{t-1}$ and $NONGAAP_{t-2}$ both equal one and zero if $NONGAAP_{t-1}$ and $NONGAAP_{t-2}$ both equal zero.
$PCTACQ$	=	SDC variable representing the percentage of target acquired.
$POST141R_t$	=	Equal to one if the fiscal year begins after December 15, 2008, the effective date of SFAS 141R, and zero otherwise.
$PREGDWL_t$	=	Compustat total goodwill (gdwl) before the effect of any goodwill impairment (gdwlip), divided by total assets (at), all in year t-1.
$PREOINTA_t$	=	Compustat total intangible assets (intan) minus total goodwill (gdwl) plus goodwill impairment (gdwlip) plus other write-downs (wdp), all divided by total assets (at), all in year t-1.
$RELATED$	=	Equal to one if SDC reports the acquirer and target are in the same SIC four-digit industry and zero otherwise.
$RESTRUCT_t$	=	Equal to one if restructuring expense (i.e., rcp < 0) is recognized in year t and zero otherwise.
$RESTRUCT\_8K_t$	=	Equal to one when an 8-K Item 2.05 is filed by the acquirer firm less than 90 days before the acquisition announcement date and less than 365 days after the acquisition effective date.
$RETD_t$	=	Equal to one if RET_t is negative and zero otherwise.
RET_t	=	Firm's stock return for the 12 months of fiscal year t minus the value-weighted market return, obtained from CRSP.
REV_PER_EMP	=	Target company's annual sales divided by its number of employees in the year prior to the effective date of the acquisition.
$SALES\_GROWTH_{t-1}$	=	Compustat sales in year t-1 minus sales in year t-2 divided by total assets in year t-2.
SD_ABACC_{t-1}	=	Standard deviation of abnormal accruals over five years ending in year t-1, using the combined Dechow and Dichev (2002) and Dechow, Sloan, and Sweeney (1995) accrual models estimated within GIC industry and year.
SD_ROA_{t-1}	=	Standard deviation of income before extraordinary items (ibq) scaled by total assets (atq) over eight prior quarters starting 11 quarters prior and ending four quarters prior.
SPI_{t-1}	=	Compustat special items divided by lagged total assets.
$TOBINS\_Q_{t-1}$	=	Market value of assets (csho×prcc_f + at - ceq) divided by total assets (at) all in year t.
VAL	=	SDC variable representing the acquisition purchase price. Set to zero when missing.
$VALUE\_ACQUIRED_t$	=	Equal to the sum of SDC acquisition purchase prices for all acquisitions made during year t, scaled by beginning-of-period Compustat total assets. The variable is multiplied by 100.

References

Allee, K.D., Bhattacharya, N., Black, E.L., Christensen, T.E., 2007. Pro forma disclosure and investor sophistication: external validation of experimental evidence using archival data. Account. Org. Soc. 32 (3), 201–222.

Bentley, J.W., Christensen, T.C., Gee, K.H., Whipple, B.C., 2018. Disentangling managers' and analysts' non-GAAP reporting. J. Account. Res. 56 (4), 1039–1081.

Biddle, G.C., Hilary, G., Verdi, R.S., 2009. How does financial reporting quality relate to investment efficiency? J. Account. Econ. 48, 112–131.

Black, D.E., Black, E.L., Christensen, T.E., Gee, K.H., 2018a. The Use of Non-GAAP Performance Measures in Executive Compensation Contracting and Financial Reporting. SSRN working paper.

Black, D.E., Christensen, T.E., Ciesielski, J.T., Whipple, B.C., 2018b. Non-GAAP reporting: evidence from academia and current practice. J. Bus. Finance Account. 45 (3–4), 259–294.

Black, D.E., Christensen, T.E., Ciesielski, J.T., Whipple, B.C., 2019. Non-GAAP Earnings: a Consistency and Comparability Crisis? SSRN working paper.

Black, D.E., Christensen, T.E., Joo, T.T., Schmardebeck, R., 2017. The relation between earnings management and non-GAAP reporting. Contemp. Account. Res. 34 (2), 750–782.

Bowen, R.M., Davis, A.K., Matsumoto, D.A., 2005. Emphasis on pro forma versus GAAP earnings in quarterly press releases: determinants, SEC intervention, and market reactions. Account. Rev. 80 (4), 1011–1038.

Bradshaw, M., Sloan, R.G., 2002. GAAP versus the street: an empirical assessment of two alternative definitions of earnings. J. Account. Res. 40, 41–66.

Bradshaw, M.T., Christensen, T.E., Gee, K.H., Whipple, B.C., 2018. Analysts' GAAP earnings forecasts and their implications for accounting research. J. Account. Econ. 66 (1), 46–66.

Brown, L., Sivakumar, K., 2003. Comparing the value relevance of two operating income measures. Rev. Account. Stud. 8, 561–572.

Chen, J.V., Gee, K.H., Neilson, J.J., 2018. Disclosure Prominence and the Quality of Non-GAAP Earnings. SSRN working paper.

Cheng, M., Dhaliwal, D., Zhang, Y., 2013. Does investment efficiency improve after the disclosure of material weaknesses in internal control over financial reporting? J. Account. Econ. 56, 1–18.

Curtis, A., Li, V., Patrick, P.H., 2018. The Use of Adjusted Earnings in Performance Evaluation. SSRN working paper.

Christensen, T.E., Merkley, K.J., Tucker, J.W., Venkataraman, S., 2011. Do managers use earnings guidance to influence street earnings exclusions? Rev. Account. Stud. 16, 501–527.
Dechow, P.M., Dichev, I.D., 2002. The quality of accruals and earnings: the role of accrual estimation errors. Account. Rev. 77 (s-1), 35–59.
Dechow, P.M., Ge, W., 2006. The persistence of earnings and cash flows and the role of special items: implications for the accrual anomaly. Rev. Account. Stud. 11 (2–3), 253–296.
Dechow, P.M., Huson, M.R., Sloan, R.G., 1994. The effect of restructuring charges on executives' cash compensation. Account. Rev. 69 (1), 138–156.
Dechow, P.M., Sloan, R.G., Sweeney, A.P., 1995. Detecting earnings management. Account. Rev. 70 (2), 193–225.
Doyle, J., Jennings, J., Soliman, M., 2013. Do managers define non-GAAP earnings to meet or beat analyst forecasts? J. Account. Econ. 56, 40–56.
Doyle, J.T., Lundholm, R.J., Soliman, M.T., 2003. The predictive value of expenses excluded from pro forma earnings. Rev. Account. Stud. 8, 145–174.
Gow, I.D., Larcker, D.F., Reiss, P.C., 2016. Causal inference in accounting research. J. Account. Res. 54 (2), 477–523.
Guest, N.M., Kothari, S.P., Pozen, R., 2018. High Non-GAAP Earnings Predict Abnormally High CEO Pay. SSRN working paper.
Guggenmos, R., Rennekamp, K., Rupar, K., 2019. The Relationship between Non-GAAP Earnings and Aggressive Estimates in Reported GAAP Numbers. SSRN working paper.
Hainmueller, J., 2012. Entropy balancing for causal effects: a multivariate reweighting method to produce balanced samples in observational studies. Polit. Anal. 20, 25–46.
Hirshleifer, D., Teoh, S.H., 2003. Limited attention, information disclosure, and financial reporting. J. Account. Econ. 36 (1–3), 337–386.
Kolev, K., Marquardt, C.A., McVay, S., 2008. SEC scrutiny and the evolution of non-GAAP reporting. Account. Rev. 83 (1), 157–184.
Lara, J.M.G.L., Osma, B.G., Penalva, F., 2016. Accounting conservatism and firm investment efficiency. J. Account. Econ. 61 (1), 221–238.
Lawrence, A., Sloan, R.G., Sun, Y., 2013. Non-discretionary conservatism: evidence and implications. J. Account. Econ. 56, 112–133.
Mazboudi, M., Pongtepupathum, S., Soliman, M.T., 2019. When Non-GAAP Earnings Are Not Opportunistic: Evidence from Non-GAAP Earnings that Follow Management Forecasts. Working paper.
McClure, C., Zakolyukina, A.A., 2019. Non-GAAP Reporting and Investment. SSRN working paper.
McNichols, M.F., Stubben, S.R., 2008. Does earnings management affect firms' investment decisions? Account. Rev. 83 (6), 1571–1603.
McVay, S., 2006. Earnings management using classification shifting: an examination of core earnings and special items. Account. Rev. 81 (3), 501–531.
O'Shaughnessy, K.C., Flanagan, D.J., 1998. Determinants of layoff announcements following M&As: an empirical investigation. Strat. Manag. J. 19, 989–999.
Ramanna, K., Watts, R.L., 2012. Evidence on the use of unverifiable estimates in required goodwill impairment. Rev. Account. Stud. 17, 749–780.
Rozenbaum, O., 2019. EBITDA and managers' investment and leverage choices. Contemp. Account. Res. 36 (1), 513–546.
Tjur, T., 2009. Coefficients of determination in logistic regression models—a new proposal: the coefficient of discrimination. Am. Statistician 63 (4), 366–372.
Watts, R.L., 2003. Conservatism in accounting part 1: explanations and implications. Account. Horiz. 79 (3), 207–221.
Westphal, J.D., Fredrickson, J.W., 2001. Who directs strategic change? Director experience, the selection of new CEOs, and change in corporate strategy. Strat. Manag. J. 22 (12), 1113–1137.