High Non-GAAP Earnings Predict Abnormally High CEO Pay*

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Abstract

Using the standard academic model of executive compensation, we document excessive CEO pay for the S&P 500 firms that report non-GAAP earnings that are much higher than their GAAP earnings. We also find that, on average, such firms have weak contemporaneous and future operating performance relative to other firms in the S&P 500. Moreover, evidence does not support management's typical assertion that non-GAAP earnings more accurately convey a firm's core earnings. Specifically, non-GAAP earnings do not correlate more highly with contemporaneous stock returns than GAAP net income or operating income. This latter finding confirms prior results that firms' reporting of non-GAAP earnings does not mislead investors, maybe because firms are simultaneously required to report GAAP earnings and a reconciliation of the adjustments to GAAP earnings. Overall, our evidence suggests that, on average, boards of directors are influenced by large positive non-GAAP earnings adjustments in approving a level of CEO pay that is otherwise not supported by the firm's stock price or GAAP earnings performance.

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1. Introduction

Most S&P 500 firms announce non-GAAP earnings, alongside GAAP earnings, that are on average 23% larger than GAAP earnings (see Table 1; see also Bradshaw and Sloan, 2002, and Christensen, 2007). For more than a decade, regulators, academics, and investor activists have attempted to demystify the rationale for disclosing non-GAAP earnings, also commonly labeled "adjusted" or "pro forma" earnings. We hypothesize and show that when non-GAAP earnings greatly exceed GAAP earnings, CEO pay is excessive. That is, our evidence suggests large differences between non-GAAP and GAAP earnings are a significant contributing factor explaining abnormally high compensation to CEOs. In estimating normal CEO pay, we use the state-of-the-art model of CEO compensation from the literature — which bases normal pay on operating performance, stock-price performance, firm size, growth opportunities, CEO tenure, and industry effects (for example, Core, Guay, and Larcker, 2008).

Previous attention to non-GAAP reporting has focused on two issues. First, regulators express concern that securities might be mispriced, and second, company managements claim that non-GAAP earnings better communicate firms' "core" earnings. We briefly discuss these below.

Regulators' main concern has been that securities could be mispriced because non-GAAP financial information might mislead investors if it obscures GAAP results (SEC, 2002). As early as 2002, the SEC established a set of rules and guidelines governing firms' reporting of non-GAAP measures, which the agency elaborated in 2016 by expanding non-GAAP reporting requirements. The SEC's principal recommendation was for firms to avoid presenting non-GAAP metrics before comparable GAAP metrics in their press releases. As a result, the proportion of firms reporting GAAP earnings before non-GAAP earnings immediately rose from

52% to 81% (SEC, 2016; Shumsky, 2016). Also, the SEC regularly challenges *individual* firms' non-GAAP reporting practices. In 2017, an analysis by Audit Analytics for *The Wall Street Journal* identified 51 (42) firms that received SEC comment letters questioning their non-GAAP earnings (revenue) measures (Shumsky, 2017b).

However, scientific scrutiny has produced little evidence of systematic mispricing, which runs counter to the SEC's concern that investors might be misled by non-GAAP reporting (Zhang and Zheng, 2011). *A priori*, mispricing seems unlikely because GAAP numbers are prominently and simultaneously displayed and reconciled in the earnings press releases, so analysts and investors are likely to be well aware of the differences between non-GAAP and GAAP earnings.

Absence of mispricing raises the question, why do firms still produce and discuss non-GAAP earnings? Managements typically defend non-GAAP earnings as capturing their economic reality and factors under their control better than GAAP earnings. For example, FirstEnergy Corp.'s fiscal 2013 earnings release reports non-GAAP earnings of $1,268 million compared to GAAP earnings of $392 million. Part of the discussion of non-GAAP measures in this press release says, "Management believes that the non-GAAP financial measure of 'Operating Earnings' provides a consistent and comparable measure of performance of its businesses to help shareholders understand performance trends."

Our evidence as well as prior findings cast doubt on managements' claim that non-GAAP earnings better communicate firms' economic performance. If that motivation were true, then firms would exclude from GAAP earnings positive and negative transitory items with approximately equal frequency. But this is not the case, as the evidence in our paper shows. In any event, firms typically provide detailed income statements in their earnings press releases,

which allow sophisticated investors to easily identify transient components of GAAP earnings even in the absence of non-GAAP earnings (Francis, Schipper, and Vincent, 2002). This notion that market participants can identify transient earnings components on their own is supported by the fact that analysts often make exclusions that differ from management (about 40 percent of the time according to Christensen, 2007). In summary, intuition and evidence both suggest non-GAAP earnings would neither impede nor facilitate investors' ability to grasp firms' actual financial performance.

In this study, we examine whether the level of CEO compensation is associated with non-GAAP earnings adjustments. For large listed firms, CEO compensation is governed by compensation contracts or customary practices that include operating and stock-price performance metrics (e.g., Core, Guay, and Verrecchia, 2003).[1] Compensation committees, comprising independent directors, use these metrics and other criteria they deem relevant to generate recommendations for the CEO's total compensation. The full board of directors typically approves the recommendations before implementation.

We hypothesize that large, positive differences between non-GAAP and GAAP earnings are associated with excessive management compensation. That is, boards of directors, specifically, their compensation committees in their report to shareholders, behave as if the large positive non-GAAP adjustments to GAAP earnings warrant high levels of compensation. Compensation committees, often supported by specialized consultants, have latitude in choosing criteria that boost executive pay relative to adjusted performance metrics (Chu, Faasse and Rau,

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[1] For example, approximately 68% ($39.5 million) and 28% ($16.5 million) of Allergan Inc.'s 2014-2015 CEO pay ($58 million) was granted for meeting stock return targets and non-GAAP earnings targets, respectively. The remaining 4% was base salary and ancillary benefits (e.g., car and airplane allowances, life insurance coverage). In 2015, the company reported a $3 billion GAAP loss from continuing operations, but a $5 billion non-GAAP net income, which was 105% of the compensation committee's non-GAAP earnings target. The company achieved this $8 billion non-GAAP difference by omitting more than half of its operating expenses, which the SEC later challenged in a series of comment letters (Shumsky, 2017a).

2017). According to previous research, many companies use non-GAAP earnings as a key criterion in setting CEO pay (see Pozen and Kothari, 2017, and Black, Black, Christensen, and Gee, 2018). However, compensation committee reports are opaque in that they rarely offer a detailed explanation for the differences between GAAP and the non-GAAP metrics they use in their compensation decisions. To the extent managers' compensation is based on non-GAAP earnings, each component of GAAP earnings excluded by the committee would directly impact managers' compensation.

Summary of findings. We analyze GAAP and non-GAAP earnings and CEO compensation data for S&P 500 firms from 2010 to 2015. The period examined is relatively short because non-GAAP data are all hand gathered. Below, we briefly summarize the findings.

First, the analysis finds that non-GAAP earnings typically exceed GAAP earnings, often by huge magnitudes. The average difference is 23% of reported GAAP earnings.

Second, the compensation of CEOs in the 25% (top quartile) of the firms reporting largest positive differences between non-GAAP and GAAP earnings is abnormally high, as judged by an industry-standard model of normal compensation used in academic research. Specifically, CEOs of firms making large positive adjustments to arrive at non-GAAP earnings are compensated an average of $1.9 million or 16% more than their expected annual compensation under this model.

Third, firms with the largest positive non-GAAP differences are, on average, characterized by poor contemporaneous stock returns and subpar future operating performance. Our conclusion about poor contemporaneous stock price performance is unchanged when we examine stock returns over three years (contemporaneous plus two prior years). Many

compensation committees determine a portion of CEO pay by comparing a firm's stock return inclusive of dividends to those of peers over these three years (see Pozen and Kothari, 2017).

To this point, the evidence suggests CEOs receive excessive pay in the year of large non-GAAP adjustments, while concurrent stock returns and future operating performance are poor. This pattern is difficult to reconcile with rational pay-for-performance compensation theories (see Murphy, 1999). One exception might be the Holmstrom (1979) informativeness principle. It predicts the compensation decision will load on performance measures that offer the most precise inference about managers' actions. However, we do not believe this principle is driving the observed excessive pay associated with large non-GAAP adjustments for two reasons. (a) Compensation committees are required to disclose measures they use to compensate CEOs, subject to securities law liabilities for material omission. But we rarely find firms disclosing measures other than earnings and stock price performance in proxy statements (e.g., Core and Packard, 2017, for evidence on typical performance measures disclosed by corporations). (b) Assume the compensation committee relied on an alternative (presumably more informative) measure in its decision to highly compensate the manager. Such a measure would be unobservable to readers of the company's proxy statement because it would not identify this measure. Moreover, such a measure would have to be unrelated to the company's earnings and stock prices because these criteria were explicitly used by the committee to compensate the manager, so we were able to assess the significance of these criteria for our sample of public companies. Thus, while we are not attempting to test or refute the informativeness principle, we believe that an undisclosed measure is not likely to explain the observed pattern of executive compensation in the public companies we have studied. Thus, for reasons (a) and (b), Holmstrom's informativeness principle is unlikely to explain the observed phenomena.

Fourth, we do not find non-GAAP earnings to be better correlated with security returns than GAAP earnings. This finding is inconsistent with the firms' claim that non-GAAP earnings adjustments are designed to remove transient items from GAAP earnings.[2] The evidence also allays regulators' concern that investors are misled and securities are mispriced as a result of non-GAAP earnings disclosures by management. Our findings reinforce the conclusion in previous research on this issue (see, e.g., Abarbanell and Lehavy, 2007).

Finally, our comparison of the time series properties of GAAP and non-GAAP earnings does not suggest that the non-GAAP earnings adjustments, designed to remove transient items, enhance the predictability of future earnings using non-GAAP earnings vis-a-vis GAAP earnings. In particular, neither GAAP net income nor GAAP operating income predicts future earnings worse than non-GAAP earnings.

Inferences from the empirical analysis. CEO compensation decisions are an outcome of the agency relationship between the board (or the compensation committee of the board) and the CEO, in which the board acts on behalf of typically diffuse shareholders. Our evidence of abnormally high CEO compensation in years when non-GAAP earnings significantly exceed GAAP earnings suggests that the directors' compensation decisions are heavily influenced by the firm's non-GAAP earnings adjustments, even though such adjustments are not associated with superior stock returns or superior future operating performance. We note that these adjustments are chosen by management in earnings releases and then adopted in similar form by the management committees as seen from the evidence in proxy statements (see Black, Black, Christensen, and Gee, 2018). This apparently inappropriate use of non-GAAP compensation

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[2] For an example of a firm claiming non-GAAP earnings exclude transient items, consider the following excerpt from the American Airlines earnings announcement on Jan. 29, 2016 (emphasis added): "The Company believes that the non-GAAP financial measures provide investors the ability to measure financial performance *excluding special items*, which is more indicative of the Company's *ongoing* performance and is more comparable to measures reported by other major airlines." See also the FirstEnergy example above and Coca-Cola example in Section 2.3.

criteria has taken place despite the requirement during our sample period that compensation committees be composed entirely of independent directors and that boards of publicly listed companies have a majority of independent directors (Kumar and Sivaramakrishnan, 2008). In our sample, the average board of firms with the biggest positive non-GAAP differences is made up of 83.1% independent directors, compared to 82.5% for the other sample firms. After controlling for board independence and several other variables reflecting the governance of the firm, we continue to find excess compensation among CEOs of firms reporting large non-GAAP earnings adjustments.

Naturally, this raises the question, why aren't these boards being monitored by shareholders? There is a voluminous literature on the factors governing the (in)effectiveness of shareholder monitoring of boards (see reviews by Shleifer and Vishny, 1997, and Armstrong, Guay, and Weber, 2010). We do not revisit that literature conceptually or empirically in this study. Suffice to say that, despite advisory votes by shareholders on compensation committee reports, disclosures in these reports about how earnings adjustments are made and how they affect compensation are either cursory or opaque (see Pozen and Kothari, 2017). This lack of disclosure, coupled with the fact that shareholders are diffuse, makes it less likely that shareholders would be effective monitors of the boards' compensation decisions.

Our study complements Black, Black, Christensen, and Gee (2016), which finds long-term incentives in CEO compensation contracts are negatively associated with aggressive non-GAAP reporting. Their findings suggest that providing long-term (versus short-term) incentives deters potentially opportunistic non-GAAP reporting. In contrast, we document excess compensation paid to CEOs whose companies make aggressive positive non-GAAP adjustments that make their quarterly or annual earnings look better. Their paper, together with our study,

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suggests that some CEOs and boards use discretion in non-GAAP reporting opportunistically and that there are contracting mechanisms available to discourage this behavior.

The rest of the paper is organized as follows. Section 2 details our sample and data. Section 3 reports the evidence that high non-GAAP earnings predict abnormally high CEO pay. Section 4 examines alternative explanations for the main finding. Section 5 concludes.

2. Sample and Data

2.1 Sample

Most prior research on managers' non-GAAP earnings disclosures either (i) uses IBES earnings as a proxy or (ii) searches an earnings announcement database for a list of non-GAAP keywords. Christensen (2007) discusses weaknesses with both of these approaches, including that analysts often do not make the same non-GAAP exclusions as managers and that keyword searches miss many non-GAAP disclosures. We overcome these concerns by manually collecting non-GAAP earnings of S&P 500 firms from earnings press releases. S&P 500 firms collectively make up approximately 80% of the U.S. stock market's capitalization and thus represent an economically substantial portion of the public economy.

To identify non-GAAP earnings reported by the firms, we search the annual earnings press releases of every S&P 500 firm for the fiscal years 2010-2015. An alternative to using numbers from the press release is to use earnings information reported in proxy statements. However, this is unlikely to make a difference. When both the earnings press release and proxy statement use non-GAAP earnings, the numbers are identical about 70% of the time (Black, Black, Christensen, and Gee, 2018), supporting our use of non-GAAP earnings from the earnings release. For example, both the earnings press release and the proxy of FirstEnergy in fiscal 2013 reported non-GAAP earnings of $3.04 per share. For Allergan in fiscal 2015, non-GAAP

earnings differ in the earnings press release and proxy, but only just; the proxy makes an additional exclusion of shares issued pursuant to an acquisition. Otherwise, the two documents use the same definition of non-GAAP earnings.

We record *GAAP* and *Non-GAAP Net Income$_{it}$* for all firms *i* and years *t*.[3] This task is relatively straightforward during our sample period because the SEC's Regulation G requires firms that make non-GAAP disclosures to highlight and reconcile GAAP and non-GAAP measures. About 67% of the firms in our sample disclose *Non-GAAP Net Income$_{it}$*. For the other third of the firms, there is no deviation from GAAP net income reported in their earnings press releases.

We obtain CEO compensation, accounting, return, and corporate governance data for our sample firms from Compustat, CRSP, and Institutional Shareholder Services. These data are available for 2,848 of the 2,991 S&P 500 firm-years in our six-year sample period.

2.2 Financial Data

Our independent variable of interest is the difference between non-GAAP and GAAP net income, which we refer to as *Non-GAAP Adjustment$_{it}$*. We assign firm-year observations to five groups based on the existence and magnitude of *Non-GAAP Adjustment$_{it}$*. Specifically, *Non-GAAP Adjustment$_{it}$* group 0 includes 1,373 firm-years that do not report any *Non-GAAP Net Income$_{it}$* or report *Non-GAAP Adjustment$_{it}$* ≤ 0. We sort the remaining 1,475 firm-years with *Non-GAAP Adjustment$_{it}$* > 0 into quartiles and assign them to groups 1 through 4 of 368 or 369 observations each, ranked within each year from the lowest to highest level of adjustment. Thus, Group 4 is comprised of firms with the highest level of non-GAAP adjustments. We also consider *GAAP Operating Income$_{it}$* (Compustat item OIADP) because firms often claim *Non-*

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[3] We gather only annual GAAP and non-GAAP net income and not non-GAAP adjustments to other financial items such as cash, EBITDA, or industry-specific measures such as funds from operations (FFO) used by REITs.

GAAP Net Income$_{it}$ is the best available measure of *operating* performance, and some prior research supports this assertion (Bhattacharya, Black, Christensen, and Larson, 2003).

2.3 Compensation and Governance Data

We follow prior research on executive compensation in estimating expected and excess CEO compensation. These are estimated by regressing total CEO compensation on proxies for the firm's performance and other economic characteristics (e.g., Smith and Watts, 1992; Core, Holthausen, and Larcker, 1999; Core, Guay, and Larcker, 2008). Annual bonus payment is an alternative to explaining total compensation because annual bonus is generally based on accounting earnings. However, we choose CEO's Total Compensation for multiple reasons. Most importantly, components of pay other than the bonus, including equity grants, are frequently tied to accounting targets. For example, 38% of FirstEnergy's 2013 target CEO pay was granted for meeting a non-GAAP earnings target, 20% as an annual cash bonus and 18% as restricted stock. The remaining 62% was either base salary or tied to stock return and time served. More generally, Core and Packard (2017) find that during our sample period a large amount of equity compensation included in long-term incentive pay (i.e., not bonus) is granted on the basis of meeting accounting (and other non-price) targets. Also, total compensation has preferable econometric properties since it is positive for all CEOs, while bonus variables have a large mass at zero.[4]

CEOs' normal and excess compensation are estimated using the following regression model:

$$Log(Total\ Compensation_{it}) = \boldsymbol{\beta}'\boldsymbol{x_{it}} + \lambda_k + \alpha_t + u_{it}, \tag{1}$$

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[4] Some studies also consider a measure of *realized* CEO pay to abstract away from uncertainty associated with expected payouts. For example, Core, Guay, and Larcker (2008) replace option grants with proceeds from option exercises. While this measure is sensible in the context of their analyses of media coverage of option exercises, it is not ideal in our setting because options exercised in the current period were typically granted several periods in the past and hence were not related to current non-GAAP earnings.

where i indexes firms; t indexes years; k indexes industries; *Total Compensation* is the sum of the CEO's salary, bonus, stock and option awards valued using the grant date fair value, non-equity incentives, and all other annual pay; $\boldsymbol{x}_{it}$ is a vector including operating performance (*GAAP Net Income* or *GAAP Operating Income*), *Return (for 2 years, current and immediate past year)*, *Log(Revenue)*, *Book-to-Market*, and *Log(CEO Tenure)*; λ_k is a set of industry fixed effects; and α_t is a set of year fixed effects. We estimate *Expected Compensation*$_{it}$ by exponentiating the predicted value of Eq. (1). *Excess Compensation*$_{it}$ *($)* is *Total Compensation*$_{it}$ - *Expected Compensation*$_{it}$. *Excess Compensation*$_{it}$ *(%)* is *Log(Total Compensation*$_{it}$) – *Log(Expected Compensation*$_{it}$), multiplied by 100. For brevity, we omit *i, t,* and *k* subscripts from the rest of the discussion.

We also control for several governance variables. *Compensation Consultant* is an indicator set to one if the firm employs a compensation consultant during the period. *CEO is Chair* is an indicator set to one if the firm's CEO is also chair of the board of directors. *Independent Board* is the proportion of the firm's directors who are independent. *Busy Board* is the average number of other directorships held by the firm's directors. *CEO Ownership* and *Institutional Ownership* are the percentage of the firm's shares owned by the CEO and institutional investors, respectively.

2.4 Descriptive Statistics

Table 1, Panel A contains descriptive statistics for the main variables in our analysis. The financial variables are deflated by lagged assets. Consistent with prior research, we find that managers exclude expenses and losses more frequently from non-GAAP income than gains. The average difference between non-GAAP and GAAP net income is 1.5% of assets (or about 23% of net income). About 78% of the non-GAAP firms (1,475/1,903) report non-GAAP net income

that is higher than GAAP net income. Several firms report enormous non-GAAP differences. For example, in 2015 Apache Corp. reported a $130 million non-GAAP loss compared to a $23,119 million GAAP loss, a $23 billion difference that was due largely to excluded asset impairments. Also, in 2010 HP Inc. reported non-GAAP earnings of $19,866 million compared to GAAP earnings of $8,761, an $11 billion difference that was largely accounted for by excluded amortization.

Non-GAAP net income ($\mu = 0.081$) typically falls between GAAP net income ($\mu = 0.070$) and GAAP operating income ($\mu = 0.115$), consistent with managers' claims that non-GAAP adjustments move earnings closer to core operating earnings. As highlighted by the FirstEnergy example in the introduction, many firms refer to their non-GAAP net income as "core operating earnings". Shumsky (2017b) provides additional examples, explaining that 35 of 51 firms convinced the SEC their non-GAAP exclusions from earnings did not mislead investors using logic such as "restructuring charges and charges related to our productivity and reinvestment program are not representative of the company's underlying operating performance and are thus appropriately excluded" (Coca-Cola). However, this explanation raises the question of why firms don't simply highlight GAAP *operating* earnings in their disclosures instead of non-GAAP earnings.

Finally, the median CEO receives $10.3 million in total compensation. The pay distribution is significantly right-skewed, with a mean of $12 million and 1% of the CEOs making more than $44 million.

Continuing with the descriptive evidence, in Panel B of Table 1, we report cross-correlations among all of the variables. *Non-GAAP Adjustment* has a significant positive correlation with *Non-GAAP Net Income*, which is largely mechanical since *Non-GAAP*

Adjustment is a part of *Non-GAAP Net Income*. *Non-GAAP Net Income*, *GAAP Net Income*, and *GAAP Operating Income* are all extremely positively correlated (all $\rho > 0.89$), which already makes us skeptical of the managers' claim that non-GAAP adjustments are designed to produce a core earnings number devoid of the one-time items that impart volatility into the GAAP earnings numbers. CEOs' *Total Compensation* is positively and significantly correlated with *Non-GAAP Net Income*, but not with *GAAP Net Income*, which is consistent with our hypothesis that non-GAAP earnings adjustments influence compensation committees' decisions about CEO compensation. Finally, consistent with prior research, *Total Compensation* is positively correlated with contemporaneous stock returns, revenues, and CEO tenure, and negatively correlated with the book-to-market ratio.

Before moving to empirical tests, below we briefly note a few additional aspects of our research design. To avoid understating the standard errors of regression coefficients, we account for cross-sectional and time-series dependence in the error terms by clustering standard errors by industry and including year fixed effects.[5] Including year fixed effects also helps us avoid bias in our regression coefficients due to time trends or shocks in earnings and CEO pay. Finally, to limit the potential influence of outliers, we annually winsorize continuous variables, except for returns, at the 1st and 99th percentiles.[6] However, our results are qualitatively unchanged and quantitatively slightly stronger when we perform our tests without winsorizing.

3. Non-GAAP Reporting and Excess Compensation

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[5] We cluster by industry instead of by firm to allow for the well-known industry components in earnings expectations and executive compensation. Also, consistent with industry correlation being more important than time correlation in our setting, the industry single-clustered standard errors that we present are slightly larger (and hence more conservative) than standard errors that are single-clustered by year or double-clustered by industry and year (untabulated), following Thompson (2011).

[6] Table 1 presents descriptive statistics calculated *after* winsorizing to be consistent with our main analyses, which use the winsorized data. When we calculate means before winsorizing, the mean of total compensation increases to $12.2 million, the mean of firm revenues increases to $20.4 billion, and none of the other variables' means change significantly. Of course, winsorizing slightly decreases the standard deviation of all variables.

In this section, we examine the link between non-GAAP reporting and CEO compensation. We predict that firms with large positive non-GAAP adjustments to GAAP net income compensate their CEOs excessively. This prediction, if true, would suggest that boards of directors' compensation decisions are influenced by non-GAAP criteria that are not supported by other performance metrics.

As a precursor to discussing results from regression analysis, we begin with descriptive findings. As noted earlier, we assign the sample of firms into five portfolios, where Group 0 comprises firms with negative or zero non-GAAP earnings adjustments, and groups 1 to 4 consist of equal numbers of remaining firms ranked from lowest to highest non-GAAP earnings adjustments.

Figure 1 graphs *Non-GAAP Net Income* and *GAAP Net Income* across the five non-GAAP adjustment groups. We observe a negative correspondence between *Non-GAAP Adjustment* and *GAAP Net Income,* which is in line with the correlation in Table 1, Panel B. The figure shows that firms making the largest positive non-GAAP adjustments (group 4) exhibit the worst GAAP performance. Their average *GAAP Net Income* (about 4.8 percent of total assets) is considerably less than the overall sample median of 6 percent of total assets shown in Table 1, Panel A. On average, in Group 4, the non-GAAP adjustments more than double their GAAP earnings from less than 5% of total assets to non-GAAP earnings that are more than 10%. The findings indicate managers exploit the latitude in making non-GAAP adjustments during periods of otherwise poor (below median) GAAP earnings performance.

Figure 2 uses excess compensation estimates, i.e., residuals from the compensation regression model (1), averaged within each non-GAAP adjustment group. The top panel shows that CEOs of firms that make the largest positive non-GAAP adjustments to net income (group

4), on average, receive about 6% more compensation than predicted using the compensation model. The residuals are from a log compensation model, so they are in log dollars. When these residuals are transformed into raw dollars, the percentage excess compensation for the group 4 CEOs is approximately 16% of the average CEO compensation of about $12 million. The bottom panel of Figure 2 transforms excess compensation from log residuals into raw dollar amounts. The graph shows that CEOs of high Non-GAAP Adjustment firms are paid about $1.9 million more than expected. We note that mean Excess Compensation ($) is positive for all five Non-GAAP Adjustment groups because the model is fitted in log compensation to avoid undue influence of right skewness in compensation. That is, a few CEOs in each group receive large amounts of compensation, which results in positive excess compensation in raw dollars for all groups. Still, the firms in group 4 with highest non-GAAP adjustments stand out with nearly a half million dollars more in excess compensation than any other group.

Table 2 reports regression estimates for the CEO compensation model (1), which was the basis of the graphical portrayal in Figure 2. In Panel A of Table 2, we build the expected compensation model by regressing *Log(Total Compensation)* on *Non-GAAP Adjustment Group*, the determinants of expected compensation, and year indicators. Hence, the regression coefficient on *Non-GAAP Adjustment Group* can be interpreted as an estimate of excess compensation attributable to non-GAAP adjustments. We report model estimates both with and without operating performance proxies because *Non-GAAP Adjustment Group* is negatively correlated with operating performance.

The regression models in the first four columns of Panel A provide statistical evidence (that corroborates the visual evidence in Figure 2) that CEOs of firms making large positive non-GAAP adjustments earn more than their expected compensation. Specifically, CEOs in group 4

are paid about 10% (0.026 x 4) more excess compensation than CEOs who do not make non-GAAP adjustments or make negative non-GAAP adjustments (group 0). Because the dependent variable is log compensation, the 10% excess compensation is also in log terms, which means in raw dollar terms the percentage excess compensation is greater.

In Panel B of Table 2, we use indicator variables to directly test the statistical significance of the differences in group means shown in Figure 2. Specifically, we replace *Non-GAAP Adjustment Group* with $1_{Non\text{-}GAAP\ Adjustment\ =\ 4}$ and $1_{Non\text{-}GAAP\ Adjustment\ >\ 0}$, indicators for whether the firm-year is in the highest *Non-GAAP Adjustment Group* and whether *Non-GAAP Net Income* exceeded *GAAP Net Income*, respectively. Regressions with $1_{Non\text{-}GAAP\ Adjustment\ =\ 4}$ as the indicator variable show CEOs of firms making the *largest* positive non-GAAP adjustments make approximately 8% more excess compensation than all other CEOs. That is, extreme non-GAAP adjustments are associated with economically meaningful magnitudes of excess compensation to their CEOs. Also, the regressions using $1_{Non\text{-}GAAP\ Adjustment\ >\ 0}$ confirm CEOs of firms that make positive non-GAAP adjustments receive a statistically significant 7% more excess compensation than CEOs of firms that do not make positive non-GAAP adjustments.

Consistent with prior research, Panel A shows (and untabulated coefficients in Panel B confirm) positive associations between compensation and stock-price performance, size, growth opportunities, and CEO tenure, and an insignificant association between compensation and operating performance (e.g., Table 4 of Core, Guay, and Larcker, 2008). The statistical and economic significance of the coefficient on *Non-GAAP Adjustment Group* is similar when we include governance variables (last column of each panel) to address concerns our results are explained by existing governance structures that have been the subject of much shareholder and academic attention. Consistent with prior governance research, CEO pay is significantly higher

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when the firm employs a compensation consultant, when the CEO is chair of the board, and when directors sit on more outside boards; while CEO pay is significantly lower when there are more independent directors and the CEO owns a higher proportion of the firm's stock.

Finally, R^2 values ranging from 0.34-0.40 are in line with previous research and suggest the model captures a non-trivial portion of the cross-sectional variation in CEO compensation. Collectively, these findings increase our confidence that the high pay of CEOs who make large positive non-GAAP adjustments represents excess compensation that is not explained by the firms' contemporaneous performance and other economic characteristics.

4. Alternative Explanations

The results in the prior section are consistent with our hypothesis that large positive adjustments to GAAP income are associated with high CEO pay that would not be supported by the traditional economic determinants of executive compensation. In this section, we examine whether two alternative explanations account for the observed positive correlation between excess pay and non-GAAP adjustments. (1) The CEO compensation reflects anticipated superior future operating performance that is not captured in the expected compensation model, but is captured by high non-GAAP net income; and (2) the non-GAAP adjusted income represents a more informative and more permanent measure of the firm's core economic earnings, which might justify high CEO compensation. The evidence below suggests neither of the two alternative explanations is credible.

4.1 Future Operating Performance and Contemporaneous Stock Price Performance

The abnormally high pay of the CEOs of the firms reporting large positive non-GAAP adjustments to earnings may reflect compensation for superior future operating performance that would not be captured in the expected compensation model. However, the anticipated superior,

but as-of-yet unrealized, performance would be capitalized in the firm's stock price in an informationally-efficient market. We thus would expect to find superior stock price performance contemporaneously and superior operating performance in future for the firms making large positive non-GAAP adjustments to earnings.

Figures 3 and 4 graph one-year contemporaneous stock-price performance and one-year-ahead GAAP earnings performance, respectively, for the five non-GAAP adjustment portfolios. Contemporaneous stock returns are measured concurrently with the year for which the CEO is being compensated; and future operating performance is measured over the year immediately following the year for which the executive is being compensated. Compensation committees typically meet at least four times a year, including a meeting after the end of the relevant fiscal year when it has access to the firm's operating performance as well as stock-price performance.

Figure 3 shows that average annual return for the portfolio of firms making the largest positive non-GAAP adjustments (group 4) is about 12%. In comparison, the average annual returns for the remaining four portfolios, i.e., for firms that do not make positive non-GAAP adjustments or for firms that make small positive non-GAAP adjustments (groups 0-3), range from 15 to 17%. That is, the average returns to firms making the largest non-GAAP adjustments are 3-5% lower than other firms. This is an economically large magnitude of difference in annual returns and it runs counter to the hypothesis that CEOs making large positive non-GAAP adjustments are compensated for superior stock-price performance.

Figure 4 shows how the future one-year *GAAP Net Income* and *GAAP Operating Income* vary across the *Non-GAAP Adjustment* groups. According to both measures, we find below average future operating performance among the firms that make the largest positive non-GAAP adjustments (group 4). In fact, these firms achieve lower future operating performance than all

other groups except for the firms that make the smallest positive non-GAAP adjustments (group 1).[7] Finally, untabulated results confirm that group 4's *current period* net income and operating income are also lower than all groups except group 1.

Taken together, we find that the firms with the largest positive non-GAAP adjustments and largest excess CEO pay exhibit worse future prospects compared to other firms. Thus, the two forward-looking performance metrics do not explain the high CEO pay of the firms making large non-GAAP earnings adjustments. In contrast, these findings are consistent with our main hypothesis that large deviations of non-GAAP earnings from GAAP earnings appear to influence compensation committees' decision to set high (or excessive) compensation to CEOs.

4.2 Earnings Informativeness

Managers often justify the use of non-GAAP earnings on the premise that those are superior in capturing their firms' economic reality than GAAP or operating earnings (see FirstEnergy, American Airlines, and Coca-Cola examples above). What makes one measure of earnings superior in reflecting a firm's economic reality is, however, a much debated issue in the literature without a clear consensus. Still, two metrics emerge as frequently used and possessing intuitive sensibility: (i) informativeness as inferred from the association of the earnings measures with contemporaneous stock returns, which assumes annual stock return in an efficient capital market accurately captures the value implications of a firm's operating performance for the year; and (ii) permanence of earnings as inferred from the time-series properties of various earnings measures.

4.2.1 Association with stock returns

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[7] This raises the question, why do firms with small positive non-GAAP adjustments perform so poorly? These may be the firms that use non-GAAP earnings to strategically meet earnings targets (Doyle, Jennings, and Soliman, 2013). That is, poor performance likely magnifies the pressure to meet analysts' earnings targets. So we conjecture that the firms in group 1 are willing to make (relatively) small adjustments to GAAP earnings to meet analysts' targets but unwilling to make large adjustments to rationalize high CEO pay.

In comparing the informativeness of *Non-GAAP Net Income*, *GAAP Net Income,* and *GAAP Operating Income*, we follow the vast literature on return-earnings association (see Kothari, 2001). We regress contemporaneous stock returns on the three measures of accounting earnings, individually and in multivariate regressions. If the non-GAAP adjustments were to make the earnings measure superior in capturing the firm's operating performance for the year, then non-GAAP earnings would correlate more strongly with annual stock returns than the GAAP measures. The same prediction would also apply if the non-GAAP adjustments were designed to eliminate one-time influences on income that skew the GAAP earnings to be too high or too low. In performing the regressions, we sidestep the influence of scale differences in the three measures of income (see Table 1) by standardizing all variables to have unit variance. This facilitates a direct comparison of the regression coefficients to infer relative informativeness of the various measures of earnings.

In Table 3, Panel A, we report estimates of contemporaneous return-earnings regressions using all three measures of earnings – *Non-GAAP, GAAP Net Income*, and *GAAP Operating Income*. The sample comprises all 2,848 firm-year observations.[8] All three earnings measures are individually significantly positively associated with contemporaneous returns in this subsample. *GAAP Net Income* is the most informative measure, with a one standard deviation increase in *GAAP Net Income* implying a 0.136 standard deviation increase in annual returns, compared to 0.114 for *Non-GAAP Net Income*. However, the hypothesis that the coefficient magnitudes are the same across the three earnings measures is not rejected. We reach the same conclusion when we simultaneously include *Non-GAAP* and *GAAP Net Income* or *GAAP Operating Income* in the regression. As expected, the standard errors increase substantially due to the extreme collinearity

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[8] To avoid missing data and to be able to evaluate all firms in this and the following section (i.e., Tables 3-5), we set *Non-GAAP Net Income = GAAP Net Income* for firms not reporting non-GAAP earnings. That is, these firms' non-GAAP earnings and GAAP earnings are the same because they do not make adjustments to GAAP earnings.

among the three earnings proxies and neither coefficient in the regression is statistically significant. The collinearity actually reinforces our point that managers would do just as well highlighting GAAP net or operating income if their primary objective were to inform investors. That being said, the coefficients on *Non-GAAP Net Income* and *GAAP Operating Income* decrease to less than 0.10 in these regressions, but the coefficient on *GAAP Net Income* is slightly larger (0.181), suggesting *GAAP Net Income* provides what little incremental information exists beyond the large common component of common information within the measures.

In Panel B, we examine whether firms making extreme positive Non-GAAP Adjustments, i.e., group 4, produce an earnings measure that is more informative as a result of the large adjustments. We estimate regressions in the full sample of firms that include an interaction between *Non-GAAP Net Income* and $1_{Non\text{-}GAAP\ Adjustment\ =\ 4}$, an indicator for whether *Non-GAAP Adjustment* is extreme, i.e., group 4.[9] We find that, for group 4 of the *Non-GAAP Net Income* firms, the association with stock returns is negligible beyond that of *GAAP Net Income*. Specifically, the coefficient on Group 4 firms is the sum of the coefficients on *Non-GAAP Net Income* and the interaction term, i.e., -0.083 and 0.138 = 0.055, compared to the coefficient on *GAAP Net Income* equal to 0.180. Thus, the extreme adjustments to income in the Group 4 firms do not enhance earnings informativeness beyond the GAAP income measure. In fact, one might argue the adjustments render the non-GAAP measure less informative.

While the preceding analysis used contemporaneous annual returns, in Table 4, we repeat the analysis using earnings announcement window returns, which are defined as three-day market-adjusted return centered on the earnings announcement day. The evidence in Table 4 is

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[9] The results in Panel B of Table 3, as well as the respective results in Tables 4 and 5 (discussed below), are qualitatively similar when we instead condition on $1_{Non\text{-}GAAP\ Adjustment\ Group\ <\ 0}$ (i.e., whether *Non-GAAP Net Income* exceeded *GAAP Net Income*).

largely consistent with the findings reported in Table 3. As a measure of unexpected earnings, we subtract last year's operating earnings from the *Non-GAAP* or *GAAP Net Income* or *GAAP Operating Income* measures. The results show that all three measures are individually positively correlated with announcement-period returns, but that when two measures are included in the regressions, *Non-GAAP Net Income and GAAP Operating Income* exhibit slightly greater correlation. We suspect this is because first difference in operating income is a better proxy for unexpected operating income whereas subtracting last year's operating income from other earnings measures yields noisier measures of unexpected earnings. Still, the overall conclusion that large non-GAAP adjustments do little to improve the informativeness of the earnings measure relative to *GAAP Net Income* is unaffected.

The evidence that non-GAAP earnings do not incrementally associate with security returns is inconsistent with firms' claim that the adjustments are designed to remove transient items from GAAP earnings. Equally, it is also inconsistent with regulators' concern that securities might be mispriced as a result of non-GAAP earnings disclosures. The latter finding reinforces the conclusion in Abarbanell and Lehavy (2007) that the results in the non-GAAP literature are not robust, generalizable, or consistent enough to support the firms' claims or the regulators' concern. Additionally, our paper complements prior research by examining a more recent time period and, as discussed in Section 2, by overcoming some of the weaknesses of prior research designs (albeit using a smaller sample of firms).

4.2.2 Earnings permanence

Another desirable property of accounting earnings is its ability to predict future earnings, i.e., permanence of earnings. In this section, we examine the extent to which non-GAAP and GAAP earnings predict future earnings. The measure of future earnings we use is operating

earnings, but untabulated results show that the conclusions are unaffected if we were to use future Non-GAAP or GAAP Net Income instead of future operating earnings.

Table 5 reports estimates from regressions of GAAP operating income for year $t+1$, which we refer to as *Future OI*, on the GAAP and non-GAAP measures of current earnings for year t. The first two columns of Panel A show that there is barely any difference between *Non-GAAP* and *GAAP Net Income* in their ability to forecast future operating income. The coefficient on *Non-GAAP Net Income* is 0.807 compared to 0.784 on *GAAP Net Income.* The difference is statistically insignificant. The coefficient on *Operating Income* is greater at 0.892, but that is likely because we are forecasting future operating income. In column 4, when we include both *Non-GAAP* and *GAAP Net Income*, the coefficients on both are significant, which means each has incremental predictive power, but the coefficients on both are considerably smaller than when they were included individually, which suggests a high degree of collinearity.

In Panel B of table 5, we examine whether the earnings permanence of firms making extreme non-GAAP earnings adjustment (i.e., Group 4 firms) is greater than for other firms. We find the opposite. Specifically, the coefficient on *Non-GAAP Net Income* interacted with Group 4 dummy is negative.

Overall, earnings permanence regression analyses do not produce evidence to suggest that non-GAAP earnings adjustments enhance the predictive power of non-GAAP earnings with respect to future earnings of the firm. These future earnings results complement the stock price associations from the prior section and suggest that non-GAAP earnings adjustments do not provide significant incremental information or mislead investors about the firm's economic performance.

5. Conclusions

It is a common practice for publicly listed firms to report non-GAAP earnings that are substantially higher than their GAAP earnings. Much of the prior literature has focused on two hypotheses to explain this practice: whether investors are misled or whether non-GAAP adjustments convey firm's core earnings. However, neither hypothesis has been strongly supported by previous studies (e.g., Abarbanell and Lehavy, 2007). We offer an alternative explanation supported by data. Thus, our findings cast further doubt on both these hypotheses.

Company executives typically defend their exclusion of substantial expenses in GAAP earnings by alleging these expenses do not reflect their core financial performance. However, we find that non-GAAP earnings are not significantly correlated with traditional measures of financial performance – contemporaneous stock returns and future operating performance. In specific, non-GAAP earnings are not good predictors of a company's net income as compared to GAAP earnings. Similarly, companies with the highest positive difference between their non-GAAP and GAAP earnings display inferior contemporaneous stock returns relative to companies with small differences.

Non-GAAP earnings adjustments have long attracted the attention of regulators. They have expressed concern that the reporting of non-GAAP earnings can mislead investors and lead to the mispricing of securities. However, stock prices are influenced by sophisticated analysts and large institutional holders. These groups are not likely misled by press releases with non-GAAP numbers since these releases must clearly reconcile these numbers to GAAP net income.

In this study, we examine a different hypothesis -- that large positive differences between non-GAAP and GAAP earnings are significantly associated with abnormally high CEO pay as estimated according to the standard academic model of executive compensation. Consistent with

our hypothesis, we find that CEO pay is excessive when non-GAAP earnings exceed GAAP earnings by large amounts.

Our findings raise the broader question: why do boards of directors – specifically, the compensation committees of boards – reward their CEOs with excessive pay based in large part on non-GAAP numbers that are not well correlated with the company's financial performance? Concerns about CEO compensation have been on the radar screen of the regulators and Congress for quite some time. Many shareholder activists and academics have also been strident in their criticism of CEO pay that is disconnected to a company's financial performance.

To better align CEOs' pay with company performance, Congress and the regulators have adopted many governance reforms over the past two decades. These reforms include: a) each board must have a majority of independent directors; b) the compensation committee must be composed entirely of independent directors; c) the criteria for CEO pay must be described in the company's proxy statement; and d) a comparison of the company's stock price performance against its peers must also be disclosed in its proxy statement.

Nevertheless, while there has been improvement in alignment, there continue to be numerous examples of CEO pay that seems excessive relative to company performance. We offer a few plausible reasons that point to fruitful areas for future research and possible suggestions for further reforms.

First, the company management controls the preparation of the earnings press release – especially, which GAAP expenses to exclude in such releases. Since the company has effectively announced that its version of non-GAAP earnings is the best way to understand the company's financial performance, it is only logical that the compensation committee would adopt a similar approach.

Second, almost all compensation committees hire consultants to help set CEO pay (95% in our sample; also see Murphy and Sandino, 2017). Current regulation requires that these consultants be different from those regularly employed by the company, unless extensive disclosures are made about conflicts of interest. Nevertheless, consultants tend to assess CEO pay relative to CEO pay at peer companies. And the peer group typically contains larger companies, which tend to have higher CEO pay (see Faulkender and Yang, 2010; Bizjak, Lemmon, and Nguyen, 2011; and Erickson, 2015). Moreover, compensation committees, with the help of their consultants, often pay CEOs in the 75th percentile of their peers, or at least in the top half (see Bizjak, Lemmon, and Naveen, 2008; and Bizjak, Lemmon, and Nguyen, 2011).[10]

Third, although the nominating or governance committee of the board formally appoints new directors and terminates existing directors, the CEO usually has a significant role in these processes. In some companies, the CEO vets new director candidates before they are interviewed by the board. In other companies, the CEO effectively exercises a veto over board candidates put forth by the committee. Thus, directors, even though independent, in certain situations may defer to the compensation desires of their CEOs.

Finally, diffuse shareholders may not be effective monitors of CEO pay, despite the requirement of shareholder advisory votes on the compensation committee report. Over 97 percent of these votes approve such reports; negative votes occur only in cases where the CEO's pay is egregiously high or directly contrary to company performance. Moreover, as mentioned previously, the compensation committee reports are difficult to understand. In particular, they are

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[10] For example, Bizjak, Lemmon, and Nguyen (2011) highlight the following statement from the 2008 proxy of JB Hunt: "Given the peer group's size disparity, the Committee decided that the appropriate comparative compensation target should be at the 75th percentile of the peer group."

not required to quantify the differences between their non-GAAP criteria and the company's GAAP numbers.

As to future reforms, the SEC may want to consider extending to compensation committee reports its "equal prominence" requirement for earnings press releases that include non-GAAP as well as GAAP metrics. In particular, the SEC might consider requiring compensation committee reports of all public companies to (i) prominently disclose the amount of difference between the non-GAAP criteria used by the committee and the relevant GAAP numbers; and (ii) provide a detailed justification for why the committee chose to utilize any non-GAAP criteria in setting executive compensation.

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Figure 1. Current Performance across Non-GAAP Adjustment Groups

This figure shows how mean current performance varies across non-GAAP adjustment groups. *Non-GAAP Net Income* and *GAAP Net Income* are collected from firms' annual earnings press release, as described in Section 2.1. *Non-GAAP Adjustment* is *Non-GAAP Net Income - GAAP Net Income*. *Non-GAAP Adjustment* group 0 includes 1,373 firm-years that do not report *Non-GAAP Net Income* or report *Non-GAAP Adjustment* ≤ 0. We set *Non-GAAP Net Income = GAAP Net Income* for firms not reporting non-GAAP earnings. That is, these firms' non-GAAP earnings and GAAP earnings are the same because they do not make adjustments to GAAP earnings. The 1,475 firm-years with *Non-GAAP Adjustment* > 0 are sorted into quartiles and assigned to groups 1 through 4.
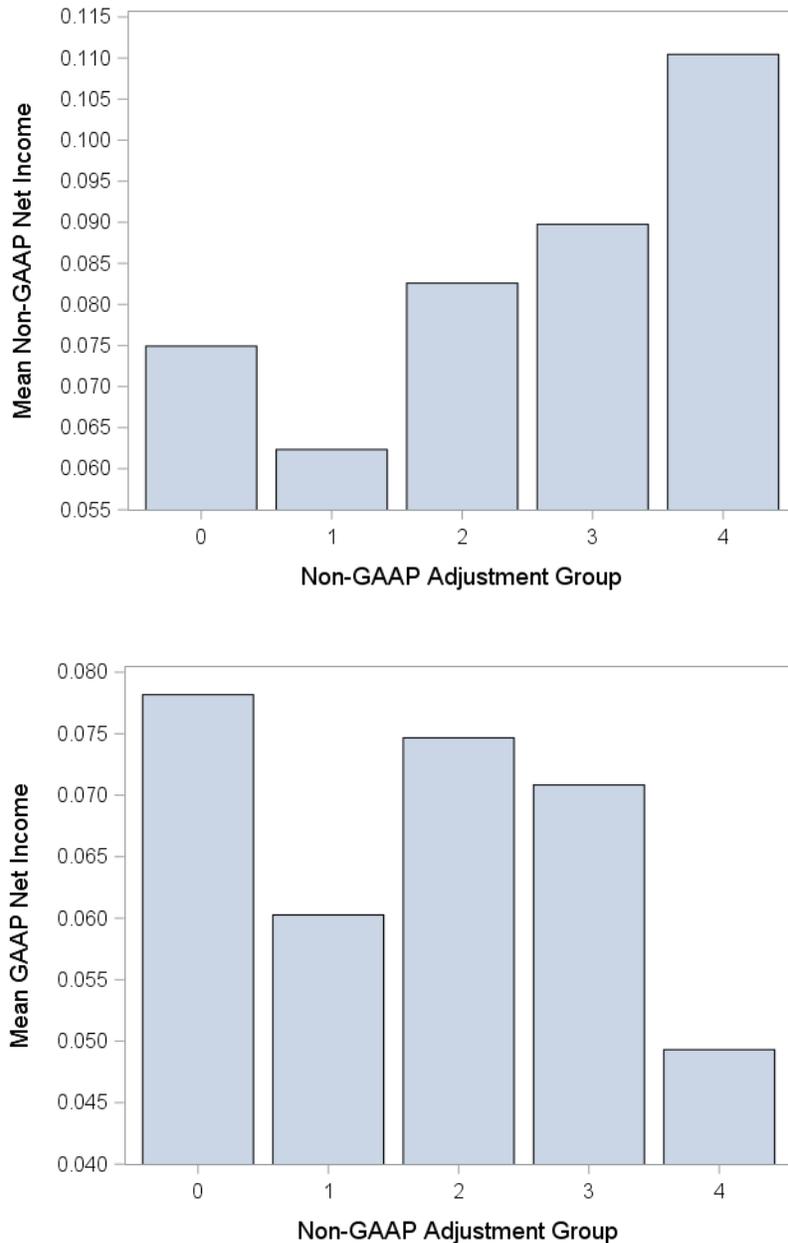
Figure 2. Excess Compensation across Non-GAAP Adjustment Groups

This figure shows variation in mean CEO excess compensation across non-GAAP adjustment groups. *Expected Compensation* is the exponentiated predicted value of the regression *Log(Total Compensation$_{it}$) = $x_{it}\beta$ + α_t + u_{it}*, where *i* indexes firms, *t* indexes years, α_t is a set of year fixed effects, and x_{it} is a vector including *Return (2 yr.)*, *Log(Revenue)*, *Book-to-Market*, and *Log(CEO Tenure)*, which are defined in Table 1. *Excess Compensation ($ in 000s)* is *Total Compensation - Expected Compensation*. *Excess Compensation (%)* is *Log(Total Compensation)* – *Log(Expected Compensation)*, multiplied by 100. *Non-GAAP Adjustment* is *Non-GAAP Net Income - GAAP Net Income*. *Non-GAAP Adjustment* group 0 includes 1,373 firm-years that do not report *Non-GAAP Net Income* or report *Non-GAAP Adjustment* ≤ 0. The remaining 1,475 firm-years with *Non-GAAP Adjustment* > 0 are sorted into quartiles and assigned to groups 1 through 4.
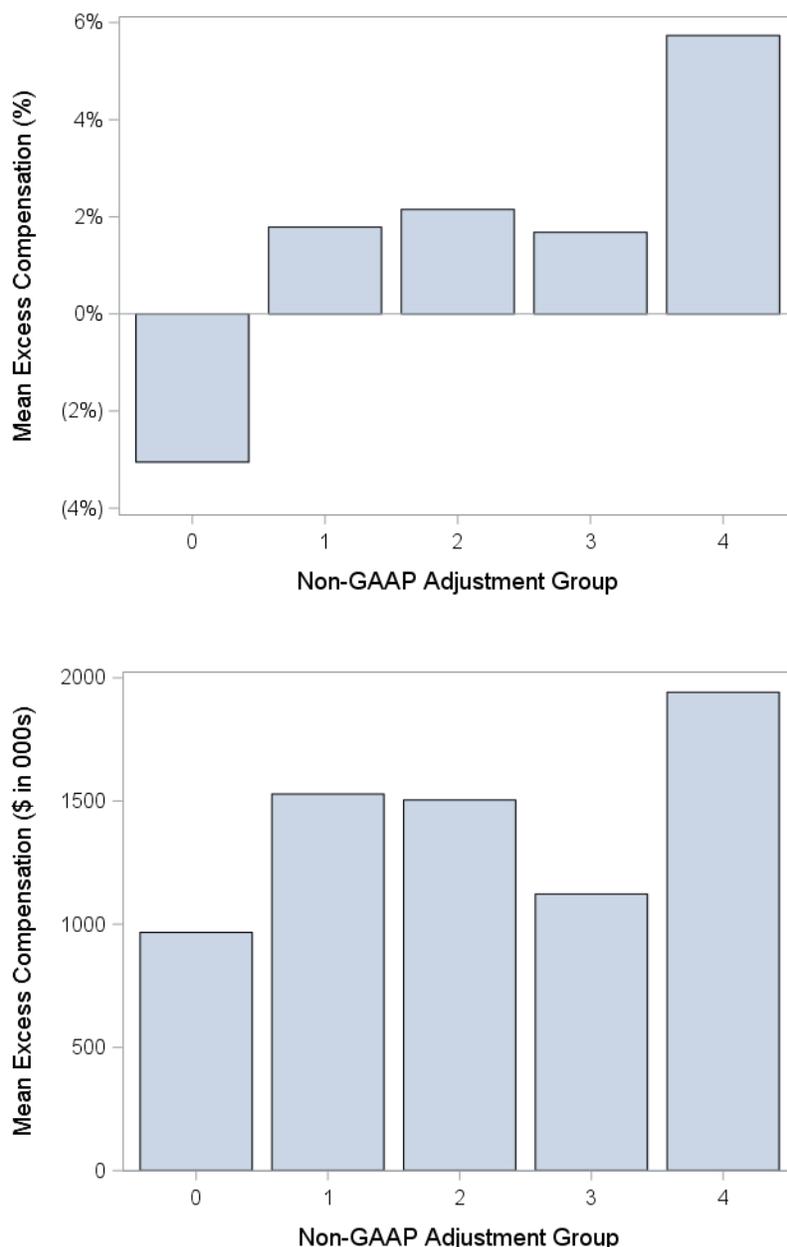
Figure 3. Contemporaneous Returns across Non-GAAP Adjustment Groups

This figure shows how mean contemporaneous returns vary across non-GAAP adjustment groups. *Return (1 yr.)* is the firm's stock return during the current fiscal year. *Market-Adjusted Return (1 yr.)* is the difference between the firm's stock return and the return on the CRSP value-weighted market portfolio during the current fiscal year. *Industry-Adjusted Return (1 yr.)* is the difference between the firm's stock return and the return on the value-weighted portfolio of stocks in the firm's (Fama-French 48) industry during the current fiscal year. *Non-GAAP Adjustment* is *Non-GAAP Net Income - GAAP Net Income. Non-GAAP Adjustment* group 0 includes 1,373 firm-years that do not report *Non-GAAP Net Income* or report *Non-GAAP Adjustment* ≤ 0. The remaining 1,475 firm-years with *Non-GAAP Adjustment* > 0 are sorted into quartiles and assigned to groups 1 through 4.
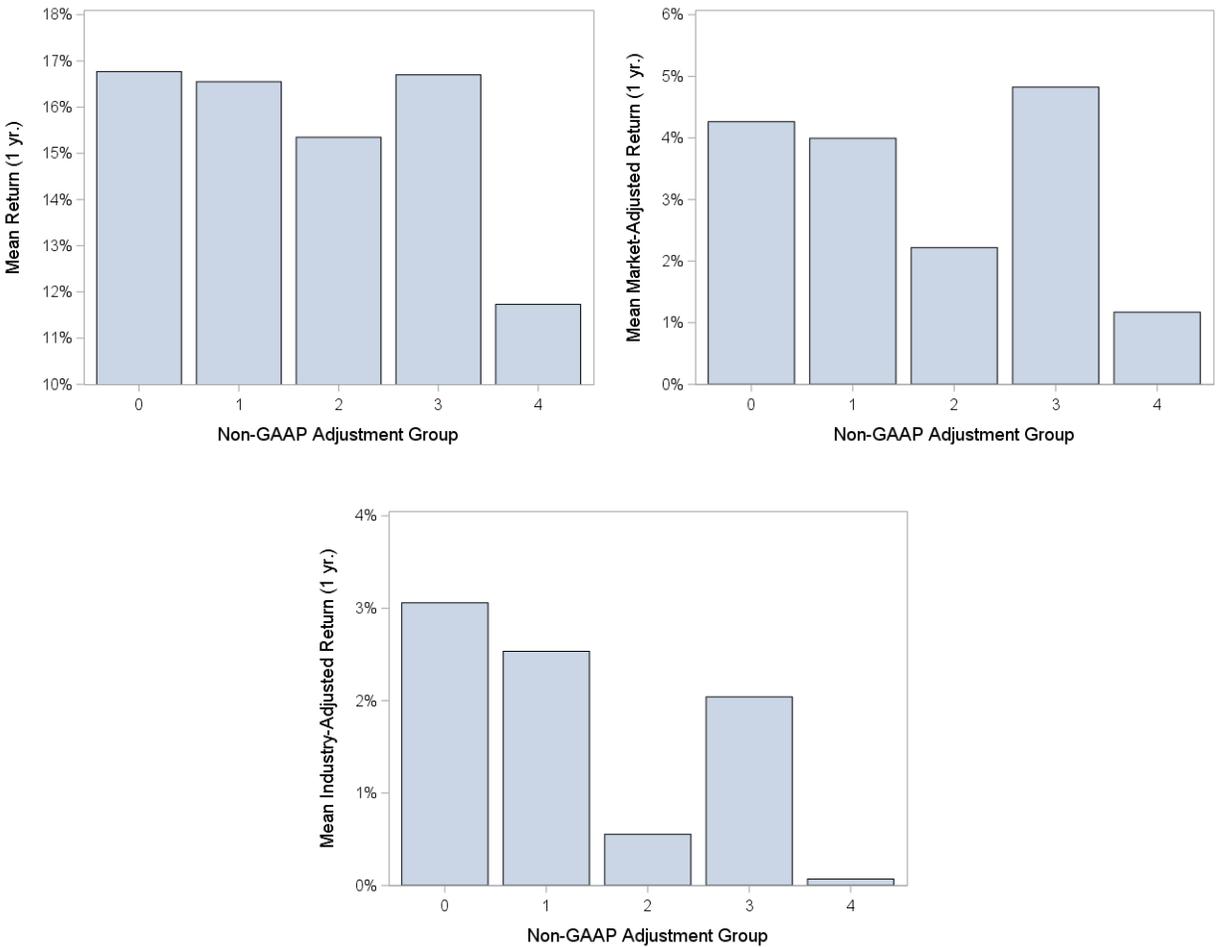
Figure 4. Future Performance across Non-GAAP Adjustment Groups

This figure shows how mean future performance varies across non-GAAP adjustment groups. *Future GAAP Net Income* is Compustat item NI in the subsequent fiscal year, scaled by beginning-of-period assets. *Future GAAP Operating Income* is Compustat item OIADP in the subsequent fiscal year, scaled by beginning-of-period assets. *Non-GAAP Adjustment* is *Non-GAAP Net Income - GAAP Net Income. Non-GAAP Adjustment* group 0 includes 1,373 firm-years that do not report *Non-GAAP Net Income* or report *Non-GAAP Adjustment* ≤ 0. The remaining 1,475 firm-years with *Non-GAAP Adjustment* > 0 are sorted into quartiles and assigned to groups 1 through 4.
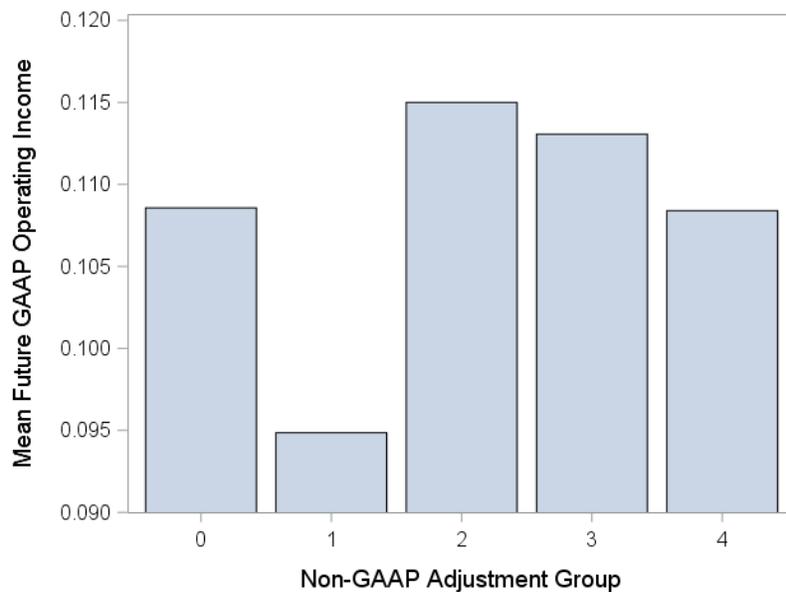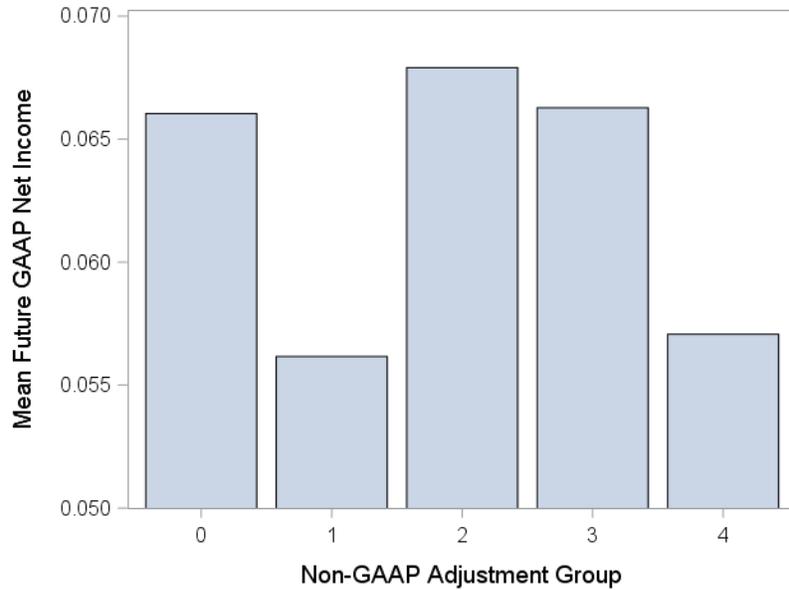
Table 1. Descriptive Statistics

Panel A reports distributional statistics for the sample of 2,848 S&P 500 firm-years during the period 2010-2015. Panel B presents Pearson (raw) correlations above the diagonal and Spearman (rank) correlations below the diagonal. Correlations in bold are statistically significant at the 10 percent level. *Non-GAAP Adjustment* is *Non-GAAP Net Income - GAAP Net Income. Non-GAAP Net Income* and *GAAP Net Income* are collected from firms' annual earnings press release, as described in Section 2.1. *GAAP Operating Income* is Compustat item OIADP. All three measures of income are scaled by beginning-of-period assets. *Total Compensation ($ in 000s)* is the sum of the CEO's salary, bonus, stock and option awards valued using the grant date fair value, non-equity incentives, and all other compensation. *Return (EA)* is market-adjusted buy-and-hold returns during the three trading day window centered on the annual earnings announcement. *Return (1 yr.)* is the firm's stock return during the current fiscal year. *Return (2 yr.)* is the firm's stock return during the current and prior fiscal years. *Revenue ($ in millions)* is Compustat item SALE. *Book-to-Market* is book value of equity (Compustat item CEQ) divided by market value of equity (Compustat items CSHO x PRCC_F) at the end of the fiscal year. *CEO Tenure* is the number of years since the current CEO became CEO (Execucomp items YEAR – BECAMECEO). *Compensation Consultant* is an indicator set to one if the firm employs a compensation consultant during the period. *CEO is Chair* is an indicator set to one if the firm's CEO is also chair of the board of directors. *Independent Board* is the proportion of the firm's directors who are independent. *Busy Board* is the average number of other directorships held by the firm's directors. *CEO Ownership* and *Institutional Ownership* are the percentage of the firm's shares owned by the CEO and institutional investors, respectively.

Panel A: Descriptive Statistics

Variable	N	Mean	Std. Dev.	1st	25th	Median	75th	99th
Non-GAAP Adjustment	1903	0.015	0.032	-0.071	0.001	0.007	0.022	0.181
Non-GAAP Net Income	1903	0.081	0.057	-0.004	0.039	0.070	0.110	0.277
GAAP Net Income	2848	0.070	0.065	-0.109	0.028	0.060	0.102	0.287
GAAP Operating Income	2848	0.115	0.083	-0.048	0.058	0.100	0.155	0.394
Total Compensation ($ in 000s)	2848	12020	7403	1071	7125	10329	14864	44335
Return (EA)	2848	0.003	0.056	-0.149	-0.028	0.001	0.031	0.165
Return (1 yr.)	2848	0.159	0.288	-0.477	-0.011	0.146	0.304	1.027
Return (2 yr.)	2848	0.432	0.583	-0.537	0.093	0.350	0.657	2.651
Revenue ($ in millions)	2848	19167	28688	1021	4171	8519	18337	155929
Book-to-Market	2848	0.455	0.340	-0.101	0.219	0.376	0.614	1.776
CEO Tenure	2848	6.557	5.800	0	2	5	9	30
Compensation Consultant	2848	0.949	0.221	0	1	1	1	1
CEO is Chair	2848	0.487	0.500	0	0	0	1	1
Independent Board	2848	0.826	0.098	0.538	0.778	0.857	0.900	0.929
Busy Board	2848	0.950	0.505	0.077	0.667	1.000	1.300	2.100
CEO Ownership	2848	0.803	2.280	0.022	0.071	0.192	0.515	15.919
Institutional Ownership	2848	68.246	22.318	46.367	62.071	72.927	82.328	97.581

Panel B: Pearson (Above) and Spearman (Below) Correlations

Variable	1	2	3	4	5	6	7	8	9
1. *Non-GAAP Adjustment*		0.20	-0.33	0.00	0.00	0.06	-0.09	-0.06	-0.08
2. *Non-GAAP Net Income*	0.27		0.90	0.91	0.03	0.02	0.11	0.18	-0.06
3. *GAAP Net Income*	-0.12	0.92		0.89	0.03	0.01	0.15	0.20	-0.03
4. *GAAP Operating Income*	0.10	0.91	0.89		0.01	0.02	0.11	0.17	-0.05
5. *Total Compensation ($ in 000s)*	-0.03	0.03	0.02	0.01		0.01	0.06	0.11	0.35
6. *Return (EA)*	0.03	0.05	0.04	0.05	0.04		0.00	0.03	-0.02
7. *Return (1 yr.)*	-0.08	0.10	0.13	0.11	0.05	-0.01		0.64	0.02
8. *Return (2 yr.)*	-0.09	0.18	0.20	0.18	0.11	0.05	0.67		-0.01
9. *Revenue ($ in millions)*	-0.15	-0.07	-0.03	-0.01	0.51	0.00	0.01	0.00	
10. *Book-to-Market*	-0.20	-0.63	-0.58	-0.65	-0.03	-0.05	-0.22	-0.31	0.10
11. *CEO Tenure*	0.02	0.05	0.05	0.04	0.12	0.01	0.04	0.06	-0.03
12. *Compensation Consultant*	-0.02	0.01	0.00	-0.01	0.13	0.02	0.01	0.00	-0.01
13. *CEO is Chair*	-0.10	-0.05	-0.02	-0.02	0.21	-0.02	0.01	0.03	0.16
14. *Independent Board*	-0.09	-0.10	-0.09	-0.09	0.16	0.00	0.00	0.01	0.20
15. *Busy Board*	-0.01	0.00	0.00	0.00	0.22	0.01	-0.01	0.00	0.26
16. *CEO Ownership*	0.00	0.01	0.02	0.02	-0.12	0.04	0.03	0.05	-0.25
17. *Institutional Ownership*	0.07	0.09	0.08	0.10	-0.09	0.01	0.03	0.03	-0.25

Variable	10	11	12	13	14	15	16	17
1. *Non-GAAP Adjustment*	-0.11	0.01	0.00	-0.10	-0.05	-0.05	0.00	0.02
2. *Non-GAAP Net Income*	-0.55	0.07	0.01	-0.05	-0.03	-0.02	0.03	0.05
3. *GAAP Net Income*	-0.50	0.07	0.00	-0.02	-0.02	-0.01	0.03	0.05
4. *GAAP Operating Income*	-0.57	0.06	-0.01	-0.03	-0.03	-0.02	0.04	0.07
5. *Total Compensation ($ in 000s)*	-0.06	0.10	0.10	0.15	0.00	0.14	-0.01	-0.03
6. *Return (EA)*	-0.05	0.02	0.02	0.00	0.02	0.01	0.05	0.00
7. *Return (1 yr.)*	-0.24	0.05	0.01	0.02	-0.01	0.01	0.06	0.03
8. *Return (2 yr.)*	-0.26	0.07	0.01	0.01	-0.02	0.00	0.07	0.04
9. *Revenue ($ in millions)*	0.07	-0.07	-0.04	0.10	0.07	0.20	-0.03	-0.11
10. *Book-to-Market*		-0.10	0.02	-0.04	-0.02	-0.07	-0.06	-0.07
11. *CEO Tenure*	-0.10		-0.13	0.22	-0.04	-0.07	0.42	0.05
12. *Compensation Consultant*	0.02	-0.10		0.08	0.23	0.22	-0.14	-0.03
13. *CEO is Chair*	-0.02	0.27	0.08		0.38	0.25	0.05	0.02
14. *Independent Board*	0.04	-0.03	0.21	0.36		0.64	-0.09	0.02
15. *Busy Board*	-0.07	-0.03	0.20	0.23	0.45		-0.09	0.01
16. *CEO Ownership*	-0.03	0.47	0.02	0.11	-0.11	-0.09		0.03
17. *Institutional Ownership*	-0.08	0.06	-0.04	-0.04	-0.05	-0.06	0.17	

Table 2. CEO Compensation Regressions

This table shows OLS estimates from CEO compensation regressions. That is, we regress *Log(Total Compensation)* on *Non-GAAP Adjustment Group* and proxies for the economic determinants of expected compensation. The sample consists of 2,848 firm-years in the period 2010-2015. *Non-GAAP Adjustment Group* is a categorical variable taking integer values between 0 and 4. *Non-GAAP Adjustment* group 0 includes 1,373 firm-years that do not report *Non-GAAP Net Income* or report *Non-GAAP Adjustment* ≤ 0. The remaining 1,475 firm-years with *Non-GAAP Adjustment* > 0 are sorted into quartiles and assigned to groups 1 through 4. $\mathbf{1}_{Non\text{-}GAAP\ Adjustment\ >\ 0}$ is one if the firm reports *Non-GAAP Adjustment* > 0, and zero otherwise. $\mathbf{1}_{Non\text{-}GAAP\ Adjustment\ =\ 4}$ is one if the firm reports *Non-GAAP Adjustment* = 4, and zero otherwise. Other variables are defined in Table 1. *t*-statistics are reported in parentheses below coefficients and are based on standard errors that are clustered by industry. ***, **, and * indicate significance at the 1, 5, and 10 percent level, respectively.

Panel A: Categorical Non-GAAP Adjustment Variable

Independent Variable	*Y = Log(Total Compensation)*				
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Non-GAAP Adjustment Group	0.028**	0.028**	0.027**	0.026**	0.026**
	(2.58)	(2.57)	(2.34)	(2.58)	(2.04)
Non-GAAP Net Income		-0.127			
		(-0.22)			
GAAP Net Income			-0.076		
			(-0.15)		
GAAP Operating Income				-0.179	
				(-0.33)	
Return (2 yr.)	0.122***	0.122***	0.122***	0.122***	0.126***
	(4.30)	(4.43)	(4.43)	(4.36)	(3.80)
Log(Revenue)	0.277***	0.276***	0.276***	0.276***	0.260***
	(14.36)	(14.18)	(14.36)	(14.09)	(15.52)
Book-to-Market	-0.077	-0.087	-0.083	-0.098	-0.046
	(-1.35)	(-1.13)	(-1.08)	(-1.07)	(-0.93)
Log(CEO Tenure)	0.086***	0.086***	0.086***	0.086***	0.112***
	(5.08)	(5.12)	(5.08)	(5.05)	(4.72)
Compensation Consultant					0.404**
					(2.68)
CEO is Chair					0.118***
					(3.29)
Independent Board					-0.166**
					(-2.34)
Busy Board					0.061*
					(1.80)
CEO Ownership					-0.048***
					(-3.91)
Institutional Ownership					0.001
					(1.13)
Industry Fixed Effects?	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects?	Yes	Yes	Yes	Yes	Yes
R^2	0.3411	0.3412	0.3411	0.3414	0.3982
N	2848	2848	2848	2848	2848

Panel B: Indicator Non-GAAP Adjustment Variables

Independent Variable	$Y = Log(Total\ Compensation)$				
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
$\mathbf{1}_{Non\text{-}GAAP\ Adjustment\ =\ 4}$	0.083***	0.084***	0.076***	0.078***	0.090**
	(2.89)	(2.72)	(2.95)	(3.36)	(2.13)
Non-GAAP Net Income		-0.141			
		(-0.25)			
GAAP Net Income			-0.150		
			(-0.31)		
GAAP Operating Income				-0.212	
				(-0.40)	
Compensation Determinants?	Yes	Yes	Yes	Yes	Yes
Governance Controls?	No	No	No	No	Yes
Year Fixed Effects?	Yes	Yes	Yes	Yes	Yes
R^2	0.3396	0.3397	0.3397	0.3400	0.3973
N	2848	2848	2848	2848	2848

Independent Variable	$Y = Log(Total\ Compensation)$				
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
$\mathbf{1}_{Non\text{-}GAAP\ Adjustment\ >\ 0}$	0.073**	0.072**	0.069*	0.069**	0.061**
	(2.33)	(2.31)	(1.89)	(2.04)	(2.14)
Non-GAAP Net Income		-0.102			
		(-0.18)			
GAAP Net Income			-0.139		
			(-0.27)		
GAAP Operating Income				-0.195	
				(-0.35)	
Compensation Determinants?	Yes	Yes	Yes	Yes	Yes
Governance Controls?	No	No	No	No	Yes
Year Fixed Effects?	Yes	Yes	Yes	Yes	Yes
R^2	0.3407	0.3408	0.3408	0.3411	0.3974
N	2848	2848	2848	2848	2848

Table 3. Contemporaneous Informativeness Regressions

This table shows OLS estimates from contemporaneous informativeness regressions. In Panel A, we regress *Return (1 yr.)* on multiple proxies for contemporaneously realized earnings. In Panel B, we include an indicator for firms with *Non-GAAP Adjustment* = 4 and interact this indicator with *Non-GAAP Net Income*. Specifically, $1_{\text{Non-GAAP Adjustment} = 4}$ is one if the firm reports *Non-GAAP Adjustment* = 4, and zero otherwise. Other variables are defined in Table 1. We standardize all variables to have unit variance to facilitate the interpretation of coefficients. *t*-statistics are reported in parentheses below coefficients and are based on standard errors that are clustered by industry. ***, **, and * indicate significance at the 1, 5, and 10 percent level, respectively.

Panel A: Baseline comparisons

Independent Variable	Y = Return (1 yr.)				
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Non-GAAP Net Income	0.114***			-0.049	0.088*
	(4.23)			(-0.51)	(1.72)
GAAP Net Income		0.136***		0.181*	
		(4.53)		(1.80)	
GAAP Operating Income			0.109***		0.029
			(3.87)		(0.52)
Year Fixed Effects?	Yes	Yes	Yes	Yes	Yes
R^2	0.1817	0.1873	0.1806	0.1878	0.1819
N	2848	2848	2848	2848	2848

Panel B: Indicator for firms with Non-GAAP Adjustment = 4

Independent Variable	Y = Return (1 yr.)	
	(1)	**(2)**
Non-GAAP Net Income	-0.083	0.089
	(-0.77)	(1.67)
Non-GAAP Net Income x $1_{\text{Non-GAAP Adjustment} = 4}$	0.138**	0.135**
	(2.66)	(2.36)
$1_{\text{Non-GAAP Adjustment} = 4}$	-0.109***	-0.160***
	(-2.72)	(-2.80)
GAAP Net Income	0.180	
	(1.67)	
GAAP Operating Income		-0.001
		(-0.02)
Year Fixed Effects?	Yes	Yes
R^2	0.1930	0.1898
N	2848	2848

Table 4. Earnings Announcement Informativeness Regressions

This table shows OLS estimates from earnings announcement informativeness regressions. In Panel A, we regress *Return (EA)* on multiple proxies for current earnings innovations. In Panel B, we include an indicator for firms with *Non-GAAP Adjustment* = 4 and interact this indicator with *Non-GAAP Net Income - PastOI*. Specifically, $\mathbf{1}_{Non\text{-}GAAP\ Adjustment = 4}$ is one if the firm reports *Non-GAAP Adjustment* = 4, and zero otherwise. We subtract GAAP operating income in the prior year (*Past OI*) from the current earnings proxies to benchmark for expected earnings. Other variables are defined in Table 1. We standardize all variables to have unit variance to facilitate the interpretation of coefficients. *t*-statistics are reported in parentheses below coefficients and are based on standard errors that are clustered by industry. ***, **, and * indicate significance at the 1, 5, and 10 percent level, respectively.

Panel A: Baseline comparisons

Independent Variable	Y = Return (EA)				
	(1)	(2)	(3)	(4)	(5)
Non-GAAP Net Income - PastOI	0.063*			0.107	0.042
	(1.95)			(1.57)	(1.08)
GAAP Net Income - PastOI		0.030		-0.056	
		(1.03)		(-0.89)	
GAAP Operating Income - PastOI			0.062***		0.040
			(3.16)		(1.51)
Year Fixed Effects?	Yes	Yes	Yes	Yes	Yes
R^2	0.0046	0.0016	0.0044	0.0057	0.0057
N	2848	2848	2848	2848	2848

Panel B: Indicator for firms with Non-GAAP Adjustment = 4

Independent Variable	Y = Return (EA)	
	(1)	(2)
Non-GAAP Net Income - PastOI	-0.002	0.007
	(-0.03)	(0.19)
(Non-GAAP Net Income - PastOI) x $\mathbf{1}_{Non\text{-}GAAP\ Adjustment = 4}$	0.031	0.024
	(1.04)	(0.77)
$\mathbf{1}_{Non\text{-}GAAP\ Adjustment = 4}$	0.082	0.075
	(1.67)	(1.52)
GAAP Net Income - PastOI	0.036	
	(0.63)	
GAAP Operating Income - PastOI		0.055*
		(1.93)
Year Fixed Effects?	Yes	Yes
R^2	0.0091	0.0108
N	2848	2848

Table 5. Permanence Regressions

This table shows OLS estimates from earnings permanence regressions. In Panel A, we regress GAAP operating income in the subsequent year (*Future OI*) on multiple proxies for current earnings. In Panel B, we include an indicator for firms with *Non-GAAP Adjustment* = 4 and interact this indicator with *Non-GAAP Net Income*. Specifically, $\mathbf{1}_{Non\text{-}GAAP\ Adjustment\ =\ 4}$ is one if the firm reports *Non-GAAP Adjustment* = 4, and zero otherwise. Other variables are defined in Table 1. We standardize all variables to have unit variance to facilitate the interpretation of coefficients. *t*-statistics are reported in parentheses below coefficients and are based on standard errors that are clustered by industry. ***, **, and * indicate significance at the 1, 5, and 10 percent level, respectively.

Panel A: Baseline comparisons

Independent Variable	Y = Future OI				
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Non-GAAP Net Income	0.807***			0.543***	-0.026
	(16.53)			(6.37)	(-0.84)
GAAP Net Income		0.784***		0.293***	
		(18.90)		(4.51)	
GAAP Operating Income			0.892***		0.916***
			(52.05)		(28.55)
Year Fixed Effects?	Yes	Yes	Yes	Yes	Yes
R²	0.6562	0.6174	0.7985	0.6720	0.7986
N	2848	2848	2848	2848	2848

Panel B: Indicator for firms with Non-GAAP Adjustment = 4

Independent Variable	Y = Future OI	
	(1)	**(2)**
Non-GAAP Net Income	0.756***	-0.012
	(6.72)	(-0.39)
Non-GAAP Net Income x $\mathbf{1}_{Non\text{-}GAAP\ Adjustment\ =\ 4}$	-0.128***	-0.034
	(-2.74)	(-1.48)
$\mathbf{1}_{Non\text{-}GAAP\ Adjustment\ =\ 4}$	-0.014	0.026
	(-0.24)	(1.45)
GAAP Net Income	0.115	
	(1.18)	
GAAP Operating Income		0.910***
		(30.44)
Year Fixed Effects?	Yes	Yes
R²	0.6827	0.7989
N	2848	2848