Does Street Earnings Matter More than GAAP Earnings for CEO Turnovers?

Henry JARVA*
Aalto University, Finland
Henry.Jarva@aalto.fi

Juha-Pekka KALLUNKI
University of Oulu, Stockholm School of Economics and Aalto University
Juha-Pekka.Kallunki@oulu.fi

Gilad LIVNE
University of Exeter, United Kingdom
G.Livne@exeter.ac.uk

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* Corresponding author contact information: Tel.: +358 40 701 5840; e-mail: henry.jarva@aalto.fi. We thank workshop participants at The Aalto University, Cass Business School, LMU, University of Exeter, University of Leicester, WHU, the 2014 Nordic Accounting Conference, the 2014 EAA Annual Meeting, and especially Mark Bradshaw, Martin Jacob, Matti Keloharju Sonia Konstandinidi, Per Olsson, Sarayut Rueangsuwan for helpful comments and suggestions. We thank Bianca Beyer, Topi Kämäräinen, and Ashish Khatri for research assistance. All errors are ours.

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Abstract

Street earnings, a non-GAAP measure of profitability, has become the focal point of communication between managers, investors and financial analysts. We therefore ask: Is it also used by boards in CEO retention decisions? We provide evidence that the likelihood and speed of CEO forced turnover is negatively related to GAAP earnings and is unrelated to street earnings. We also find that increasing analysts' expectations of street earnings reduces the likelihood and speed of forced turnover, suggesting that downward expectation management can be costly to managers. Overall, our results suggest that internally boards rely on GAAP earnings as a leading monitoring device although under Regulation G non-GAAP earnings are of higher quality. That boards do not rely on street earnings suggests they are less informative than GAAP earnings. This incongruity between internal and external performance measures raises a concern that boards are complicit in the deployment of street earnings as a perception-management tool.

Keywords: Street earnings, GAAP earnings, beating analyst forecasts, CEO turnovers

JEL classification: G38, J41, K22, M41

1. Introduction

An extensive body of research shows that managers face strong incentives to meet or beat analyst earnings forecasts. The focus of these forecasts is 'street' earnings, or non-GAAP earnings – a measure of GAAP earnings that is adjusted by managers and tracked by analyst forecast databases to exclude certain items that are typically income reducing. The interplay between managers and analysts also involves earnings 'guidance', which refers to managers commenting on analyst expectations of forthcoming street earnings in an attempt to set them at a level closer to what managers privately expect. Managers, analysts, and investors rely on these modified versions of GAAP earnings (Bradshaw and Sloan, 2002; Ford, 2016). Moreover, there has been an increasing use of non-GAAP earnings in recent years. Some estimates indicate that between 2009 and 2016 the percentage of S&P 500 disclosing non-GAAP earnings has increased from 72 percent to 90 percent (Ford, 2016). Yet, it is not clear to what extent boards use these performance measures for internal purposes, such as compensation and retention decisions.

In this paper we explore how the probability of CEO turnover events is related to three performance measures, namely GAAP earnings, non-GAAP earnings and change in analyst forecasts of non-GAAP earnings over the fiscal year. Consistent with prior literature (e.g., Bartov et al, 2002), and for convenience of reference, we call the latter earnings guidance, although any revision in analyst forecasts may be due to "unguided" changes in firm performance over time.

From a legal perspective managers can be fired without cause, which is often the case when boards lose trust in their ability to run the firm.[1] Firing without cause therefore means that boards are free to rely on any performance measure (or a combination of measures) they select as relevant. Hence, GAAP earnings do not carry any particular legal significance for a termination decision.

[1] See, for example, The Wall Street Journal, "How to Fire a CEO," 30 October, 2006.

Moreover, many firms justify the focus on non-GAAP measures because they are used for evaluating performance internally and to determine incentive compensation.[2] It is, however, an open question whether GAAP earnings are more indicative of CEO ability than street earnings in the eyes of boards. Prior research shows that items excluded from GAAP earnings are priced by the market (Marques, 2003) and predict future cash flows (Doyle et al., 2003). This suggests that GAAP earnings should be relevant in retention decisions. On the other hand, street earnings are viewed as more persistent (Bhattacharya et al., 2003), and hence more informative for valuation purposes. Nevertheless, what is excluded from GAAP earnings and is included in non-GAAP earnings is subject to managers' opportunistic behavior. To the extent that boards encourage managers to communicate street earnings to analysts, it stands to reason that they believe that opportunism is less of an issue. Even if managers do not voluntary produce non-GAAP measures or communicate them to analysts, these measures provide information that is relevant to boards in assessing CEO performance because they influence share prices (Banker et al., 2009). Consequently, a non-GAAP measure may be used, and even preferred, by boards for retention decisions. In addition to GAAP earnings and street earnings, boards may be influenced by development during the year in market sentiment, which we proxy for by earnings guidance. In sum, we maintain that the three performance measures should be retention-relevant and explore their relative explanatory power.

Our results indicate that forced CEO turnovers are less likely the higher GAAP earnings and the more positive earnings guidance is, but that the level of street earnings is incrementally unrelated to forced turnovers (Tables 5 and 6). We then explore several contexts where boards

[2] For example, GoPro Inc. states that "management's incentive compensation is determined using non-GAAP measures." Similar statements are made by other companies.

may use less, or more, these performance measures (Table 7). The first context concerns the demand for high quality accounting. We proxy for this demand by the number of analyst following. If greater analyst following involves better accounting, we expect boards to rely relatively more on GAAP earnings than the other two measures. With low quality accounting, the difference in information content between GAAP earnings and street earnings is likely to be lower and so street earnings and guidance may be as good as GAAP earnings. We find greater sensitivity of dismissal events to GAAP earnings with large analyst following than small analyst following, but in neither case street earnings explains dismissal events. We also use accruals as an alternative measure of accounting quality. We find that in the presence of low (high) accruals GAAP earnings (does not) explains forced turnovers, consistent with higher informativeness of low-accruals GAAP earnings. We also find that with high accruals, guidance is related to CEO dismissals. Nevertheless, the lack of an association between street earnings and forced turnovers holds regardless the magnitude of accruals. External demand for high-quality accounting is also expected when a firm is highly leveraged owing to heightened agency problems (Khan and Watts, 2009). With low leverage, agency problems are less severe and so boards may be more inclined to use non-GAAP measures. Consistent with this view, we find that GAAP earnings are related to forced turnovers in highly leveraged firms and non-GAAP earnings are related to forced turnovers in less leveraged firms.

The fourth context we explore is with respect to CEO power and entrenchment. Long-serving CEOs likely benefit from a perception of proven ability, and may have a greater sway over the boards. Hence for long-serving CEOs we would expect that none of the performance measures should be strongly related to forced turnovers. For CEOs with shorter tenure boards are expected to rely on several performance measures. In some contrast with our expectations, we find that GAAP earnings exhibits a negative relation to forced turnovers and that this relation is similar for

long- and short-serving CEOs. However, guidance is negatively related to forced turnovers, but only for long-serving CEOs. The fifth context we examine is whether the firm has been able to beat analyst forecasts. To the extent that exceeding analyst consensus forecast is rewarded by boards, and failing is punished, we expect to find that non-GAAP earnings provide incremental explanatory power for dismissal decisions. Yet, this is not what we find. Nevertheless, we find that GAAP earnings are more closely related to forced turnovers when firms beat consensus forecast than when they fail to do so.

In response to concerns about opportunism in voluntary disclosures of non-GAAP earnings, in March 2013 the SEC introduced Regulation G which requires managers to reconcile non-GAAP earnings to GAAP earnings. Regulation G also restricts what managers can exclude from GAAP earnings in that it requires that only non-recurring items can be excluded. This greater discipline over non-GAAP earnings therefore should reduce managerial discretion and lend greater reliability to non-GAAP earnings following Regulation G. Kolev et al. (2008) report empirical results that are consistent with this conjecture. We therefore explore whether our result that non-GAAP earnings is unrelated to forced CEO turnovers is mostly driven by the period before Regulation G. However, we do not find strong evidence that non-GAAP earnings are used by boards more following Regulation G than before (Table 8).

Overall, our results suggest that GAAP earnings are a prime performance indicator that is used by boards in retention decisions of CEOs, but not street earnings. To further understand what may cause street earnings to be discounted by boards as a retention relevant indicator, we use a regression model to explore which line items in the income statement are driving the exclusions from GAAP earnings. Consistent with prior literature (e.g., Bhattacharya et al., 2003) we find that the exclusions are best explained by income-decreasing special items (Table 9). That boards use

GAAP earnings means that boards do not disregard special items as indicative of CEO performance, although they may support external communication that excludes special items. Interestingly, we do not find that any of our three performance measures is related to CFOs dismissals (Table 10), suggesting that the boards do not judge CFOs by these measures. This is somewhat surprising since CFOs are closely involved in overseeing the preparation of GAAP and non-GAAP earnings as well as communicating with analysts.

Overall, the evidence suggests that the performance measure that is used internally (GAAP EPS) is possibly quite different from the performance measure that is communicated and stressed externally (street earnings). One explanation for this result is that boards do not believe that street earnings are more informative about CEO ability (e.g., because they are more persistent), or that they are aware that street earnings are subject to managerial opportunism. That this concern may still hold post Regulation G is supported by the findings of Heflin and Hsu (2008) that indicate that recurring items are still being excluded from street earnings. In either case, it begs the question as to whether boards are complicit in this, possibly misleading, practice.

The paper contributes to the literature on non-GAAP earnings. In particular, there has been a debate regarding whether non-GAAP earnings are informative or opportunistic (Christensen, 2007). This issue is important in the light of the high frequency in recent years of the disclosure of non-GAAP measures. Addressing this question is also important given the regulatory effort directed at curbing opportunistic disclosures by the SEC. Several prior studies report evidence pointing at the information role of non-GAAP earnings, but on the other hand, a number of studies support the opportunistic motivation hypothesis (see Curtis et al., 2013 for a review). We provide new evidence pertaining to this debate by examining how important insiders (boards) disregard non-GAAP earnings in favor of GAAP earnings, which agrees with the opportunistic motivation

school of thought. Our results also indicate boards on one hand allow, and perhaps encourage, managers to communicate potentially misleading numbers, but on the other hand ignore these numbers internally.

Our second contribution concerns the cost-benefit analysis that managers face in guiding analysts in forming their forecasts. Prior research provides evidence of strong incentives to meet or beat analyst forecasts and that this can be done through earnings expectations management. It may therefore be expected that managers would benefit from very conservative guidance (i.e., aggressive downward guidance) to benefit from a strong positive surprise. But evidence from Degeorge et al. (1999) and follow-up literature suggests that when firms beat analyst forecasts the surprise tends to be rather small. We provide new evidence that suggests CEOs face a personal cost to aggressive downward expectations management.

Finally, while the literature on CEO turnovers is very rich, researchers have largely ignored the consequences of managerial opportunism. A recent study by Hazarika et al. (2012) shows that CEOs are fired when they use extreme earnings management. We extend this line of research by focusing on non-GAAP measures that have been criticized for allowing managers to manipulate market perceptions of firm performance.

The remainder of the paper is organized as follows. Section 2 discusses the related previous research. Section 3 develops the research questions to be investigated. Section 4 describes the data, research design and describes the sample. Section 5 provides the results and Section 6 concludes.

2. Literature review and research questions

2.1. Determinants of the forced and voluntary CEO turnovers

There is an extensive literature on the determinants of CEO turnover, which is succinctly summarized here. This literature documents the roles of accounting and stock return performance (e.g., Weisbach, 1988; Murphy and Zimmermann, 1997), industry-related factors such as homogeneity and competition (Parrino, 1997; DeFond and Park, 1999), internal and external monitoring mechanisms (e.g., Goyal and Park, 2002; Huson et al., 2001; Parrino et al., 2003), firm-CEO match (Eisfeldt and Khunen, 2013) and accounting irregularities and earnings management (Leone and Liu, 2010; Hazarika et al, 2012).

While accounting-based performance measures are associated with retention decisions, Engel et al. (2003) show that accounting variables that are measured more accurately attract higher weight. Engel et al. (2003) also show that accounting variables become more retention-relevant as stock prices become more variable. This insight is an extension of the compensation literature, which establishes that multiple performance indicators should be used in optimal contracting, as long as they are not perfectly correlated (Banker and Datar, 1989; Holmstrom and Milgrom, 1991; and Baker, et al., 1994). The relative importance of a performance measure is inversely related to its accuracy. In addition to performance measures that are observed externally, boards may rely on internally-observed variables (Hayes and Schaefer, 2000). This implies that the externally-observed performance measures we examine here may appear retention-relevant in our analysis both because they are directly used by boards and because they are (differentially) correlated with information that is only observed internally.

2.2. Analyst earnings forecasts

The literature on meeting or beating analyst forecasts suggests that firms that meet or beat these forecasts experience higher stock prices. For example, Kasznik and McNichols (2002) find higher stock returns to firms that meet analyst forecasts. Their results suggest that the higher

valuation reflect expected higher future profitability. Bartov et al. (2002) and Kross et al. (2011) report that firms that are successful in meeting or beating analyst forecasts employ expectations management strategy. Such firms tend to dampen analyst expectations, but still obtain higher market valuation.

Farrell and Whidbee (2003) find an inverse relation between the likelihood of CEO turnover and the industry-adjusted analyst forecast errors when there is agreement (less dispersion) among analysts or a relatively large number of analysts follow the firm. While our study shares some common ground with Farrell and Whidbee (2003), we differ in a number of important ways. First, and most importantly, Farrell and Whidbee (2003) do not examine the retention role of street and GAAP earnings, or the effect of management guidance. Second, because we distinguish between forced and voluntary turnovers, unlike Farrell and Whidbee (2003), our evidence speaks more directly as to the use by boards of the various measures – GAAP EPS, street earnings, and guidance – in making retention decisions. Third, their analyst forecast errors are likely subject to errors-in-variables measurement problem. Specifically, their EPS data are taken from Compustat while forecast data are taken from Zacks Investment Research. Hence their measure of forecast error is not based on a consistent definition of EPS since analysts may be forecasting street earnings and not GAAP earnings (Philbrick and Ricks, 1991). Finally, their sample includes only 363 CEO turnovers where as our sample is more comprehensive including 2,071 turnovers.

2.3. Street vs. GAAP earnings

The literature into street earnings establishes a number of relevant findings. Bradshaw and Sloan (2002) report that the difference between GAAP earnings and street earnings has grown over time. They also show that managers "encourage" analysts to focus on their definition of (the higher)

street earnings.[3] They provide evidence that this effort is successful in that markets seem to respond to street earnings rather than GAAP earnings. This evidence is intriguing because experimental evidence (Frederickson and Miller, 2004) suggests that professional investors are not misled by street earnings that are higher than GAAP earnings. Rather, unsophisticated investors, owing to cognitive bias may over-value street earnings. Empirical evidence in Bhattacharya et al., (2007) moreover supports this conjecture.

Although managers prepare and communicate their version of the street earnings (also known as pro-forma earnings), it may not be identical to the definition of analysts' street earnings (Bhattacharya et al., 2003). However, Bradshaw (2003) note that in 65% of the cases pro-forma earnings and street earnings are identical and that the two measures are highly correlated.[4] In this paper we therefore do not make a distinction between analyst street earnings and pro-forma earnings, and we effectively assume they are similar. More recently, Doyle et al. (2013) review the process by which I/B/E/S, managers and analyst communicate and conclude that in the majority of cases non-GAAP earnings and street earnings are based on the same set of exclusions. We provide evidence on the validity of using I/B/E/S actual street earnings as a proxy for non-GAAP in Table 9.

Bhattacharya et al. (2003) find that firms reporting pro-forma earnings tend to be loss firms per GAAP earnings, and that they are concentrated in the service and high-tech sectors. They examine forecast error that are measured relative to pro-forma earnings and GAAP earnings and find that only the former is associated with abnormal returns and analyst forecast revisions, thereby

[3] Consistent with this, Bowen et al. (2005) provide evidence that managers stress in press conferences non-GAAP metrics that are more favourable.

[4] Christensen et al. (2011) reach a similar conclusion: exclusions from street earnings vary from firm to firm, and are strongly influenced by what managers exclude in their pro-forma earnings. This may be explained by analyst incentives to co-operate with managers (Lim, 2001).

suggesting that analysts and investors find pro-forma earnings (and by implication, street earnings) to be more informative. However, as Doyle et al. (2003) find, investors and analysts may fail to understand the importance of excluded expenses. In particular, investors do not seem to appreciate that a greater degree of expense exclusion is associated with lower future cash flows.

Following the enactment of the Sarbanes-Oxley Act in July 2002, the SEC put in force Regulation G which concerns the measurement and reporting of non-GAAP earnings. This regulation requires firms that disclose non-GAAP earnings to provide a clear reconciliation of non-GAAP to GAAP earnings and prohibits the exclusion of recurring income items from non-GAAP. In an early study of Regulation G, Marques (2006) documents market reaction to items excluded from GAAP earnings in non-GAAP earnings and that this reaction is similar before and after Regulation G. Notwithstanding the stricter regulation, Doyle et al. (2013) find evidence indicating that firm managers calculate non-GAAP earnings opportunistically in order to meet or beat analyst expectations in a sample covering the post regulation period. That managers still maintain a considerable degree of flexibility under Regulation G is also confirmed by Heflin and Hsu (2008) who find that recurring items are excluded from street earnings following Regulation G. The SEC has also been concerned about compliance with Regulation G and has published several guidelines and clarification since 2003, with the most recent set published in May 2016.

2.4. Research questions

The previous sections suggest that street earnings has been an increasingly popular measure that is communicated extensively between analysts and managers. At the same time, prior research suggests that investors' reliance on street earnings may be inefficient and may be caused by failure of investors and perhaps analysts to understand the properties of excluded expenses. Prior evidence

also suggests that unsophisticated investors may be most prone to the misunderstanding of street earnings.

Insofar as boards represent shareholders' interest, it may be argued that meeting investor expectations is the prime consideration by boards. Therefore, beating analyst forecasts should be associated with a greater likelihood of retaining the services of the CEO. Nevertheless, board members are expected to be knowledgeable and being insiders are likely to better understand the firm's earnings generation process than outsiders. Moreover, they have access to other information that is not observed by outsiders (and researchers), and they are informed by external auditors and audit committee who can furnish expert and independent advice. Consistent with this, Hazarika et al.'s (2012) evidence suggests that forced turnovers occur when boards suspect earnings management that normally is hard for outsiders to detect. In other words, boards need not only focus on short-term success in meeting or beating analyst forecasts, but also on long-term consequences of current actions (e.g., loss of reputation and subsequent SEC intervention) [5]. It follows that boards that are concerned with the CEO's ability to deliver good performance in the long-run would use other performance measures to judge ability. Evidence in Demerjian (2012a) shows that managerial ability is associated with long-term performance and that market reaction to CEO turnovers is positively related to managerial ability.

To assess a CEO's performance and ability boards would employ multiple signals (Banker and Datar, 1989; Holmstrom and Milgrom, 1991). How they weigh various signals in practice is less clear however, and requires empirical investigation, as we conduct here. Agency models establish that more accurate signals should attract larger weights, but it is generally unknown

[5] The cost of earnings management is borne not only by the firms (and shareholders), but also personally by managers (Desai et al., 2006).

which signals boards regard as more precise. Banker et al. (2009) suggest that valuation-relevant indicators should also be compensation-relevant. The implication is that these indicators are also relevant to the dismissal/retention decision. Consistent with this view, Engel et al., (2003) find that accounting information attracts a greater weight in retention decisions when it is more value-relevant.

It follows that the dismissal-relevance of GAAP earnings, street earnings and guidance depends on their accuracy with respect to CEO ability to lead successfully his/her firm. GAAP earnings are subjected to a higher scrutiny (e.g., by auditors), but are also prone to opportunistic behavior. Street earnings may be a relevant and incremental performance measure, if they capture underlying persistent performance (Bhattacharya et al., 2003) and exclude transitory effects that may not be at the control of the CEO. However, the exclusions from GAAP earnings are not entirely value irrelevant, as Doyle et al. (2003) find. Therefore it is not clear if boards should ignore these exclusions, even if incentive compensation is based on non-GAAP measures, as many companies claim. As prior research suggests, street earning may be employed opportunistically by managers that attempt to mask poor accounting-based performance measures. Therefore, if street earnings are dominated by opportunism rather than by greater informativeness, boards may ignore them in the retention decision because of the high noise-to-signal problem. Nevertheless, poor quality of street earnings may itself suggest to boards that the CEO is of poor ability (Demerjian et al., 2012b). Guidance may also be used by boards because it provides information not included in the other measures. Specifically, the difference between guidance and the other two performance measures is that it captures the change in analyst sentiment. Analysts may turn positive or negative during the year, at least in part, as a result of their assessment of the CEO ability to successfully lead the firm. If this change is an informative signal, boards are expected to use it. Nevertheless,

guidance may be also opportunistic in nature and analysts have an incentive as to not to challenge managers.

It is clear from this discussion that forming directional hypotheses is unwarranted as theory does not provide sufficient guidance in this respect. Instead, we pose the following research question that has not been explored in prior research:

RQ1: Are all the three performance measures – GAAP EPS, street earnings and guidance – used by boards in dismissal decisions? If so, what is their relative importance?

There are several contexts where boards may use less, or more, these performance measures. In particular, prior literature indicates that the use of a given performance measure is related to its precision. Therefore, all else being equal, when the quality of accounting information and GAAP earnings is high, we expect boards to use GAAP earnings more than when its quality is poor. Furthermore, when accounting quality is poor, we expect the other two performance measures to be used more than when accounting quality is high. We therefore ask:

RQ2: Is the relation between the likelihood of CEO dismissal and GAAP earnings (street earning, guidance) stronger when accounting information is of higher quality (poorer quality)?

In addition, the ability of boards to monitor and decide on whether to dismiss the CEO may be related to CEO tenure. The ability of long-serving CEOs is likely less in doubt in the eyes of board members than that of short-serving CEOs. Long-serving CEOs may also exert strong influence on boards in part because of reputational effects and in part because they have enough time to nominate friendly board members (Hallock, 1997). Hence, for long-serving CEOs we expect that none of the performance measures should be strongly related to forced turnovers

because they do not convey information not already known to boards. For CEOs with shorter tenure, boards are expected to rely on several performance measures to be able to assess the CEO's ability. Hence our third research question is:

RQ3: Are the three performance measures related to the likelihood of CEO dismissal when the CEO is long-serving?

The literature on meeting or beating analyst forecasts indicates that markets reward firms whose earnings exceed analyst consensus forecast. Since consensus forecasts are based on analyst expectations of non-GAAP earnings, failing to report non-GAAP earnings in excess of analyst consensus forecast can enhance the perception that the CEO has failed as well. We therefore ask:

RQ4: Is the association between street earnings and the likelihood of dismissal stronger in firms that fail to meet or beat analyst consensus forecast than in firms that beat analyst forecasts?

3. Research design, data and sample

3.1. Research design

3.1.1. Multinomial logit model

We use multinomial logit models to examine the relationship between the firm performance measures and the likelihood of CEO turnover. The dependent variable measures the three possible outcomes, i.e. a forced turnover, voluntary turnover, or no CEO turnover in a given firm-year. Hence, we allow regression parameters vary between forced and voluntary turnovers,

because independent variables are likely to have a different effect on the voluntary and forced turnovers.[6] For simplicity, we express two logit functions as follows:

$$g_1(\boldsymbol{x}) = ln\left[\frac{P(Y = forced\ turnover|\boldsymbol{x})}{P(Y = no\ turnover|\boldsymbol{x})}\right] = \boldsymbol{x'\beta_1} \quad (1)$$

$$g_2(\boldsymbol{x}) = ln\left[\frac{P(Y = voluntary\ turnover|\boldsymbol{x})}{P(Y = no\ turnover|\boldsymbol{x})}\right] = \boldsymbol{x'\beta_2} \quad (2)$$

where $\boldsymbol{x'}$ is a vector of explanatory variables and $\boldsymbol{\beta}$ is a vector of parameters. Our main variables of interest are GAAP earnings per share, actual earnings per share as tracked by I/B/E/S (i.e. street earnings, or non-GAAP earnings) and earnings guidance, which is defined as the last consensus forecast for during the fiscal year less consensus forecast three months after the end of the previous fiscal year.[7] Using I/B/E/S actual earnings to proxy for non-GAAP earnings is in line with previous literature (e.g., Doyle et al., 2013, and Kolev et al, 2008).[8]

We control for several firm-specific characteristics that have been shown to be related to CEO turnover based on the previous literature. First, we decompose stock returns into idiosyncratic and industry components, because Jenter and Kanaan (2015) argue that the boards of directors should ignore components of firm performance that are caused by factors beyond the CEO's control. We expect that the lower idiosyncratic return increases the forced turnover probability. We additionally include in our models a measure of firm risk, computed as the standard deviation

[6] For example, in a well-functioning labor market higher earnings could be expected to decrease (increase) forced (voluntary) turnover probability.
[7] It can also serve as a proxy for the boards' expectations (Farrell and Whidbee, 2003) or managerial guidance.
[8] Christensen (2007) argues that non-GAAP figures are reported only in 10% of firm-quarters in the period 1998-2003. However, as indicated in the Introduction, the frequency of reporting non-GAAP earnings has increased dramatically since then. Moreover, managers who did not disclose non-GAAP earnings may still have guided analysts to forecast non-GAAP measures. From a theoretical standpoint, I/B/E/S actual earnings could be retention relevant even if non-GAAP earnings are not disclosed. Nevertheless, we address this concern in our analysis of Regulation G whereby we look separately at the period 2003-2013, a period that is characterized by high frequency of disclosure of non-GAAP measures.

of monthly stock returns of the firm over a twelve-month period. Parrino et al. (2003) and Bushman et al. (2010) show that higher return volatility increases the likelihood of CEO turnover. Fourth, we control for firm size as measured by the market capitalization. Following Hazarika et al. (2012), we control for growth opportunities using the market-to-book ratio, current growth rate using sales growth, and capital structure using debt leverage.

We also control for four CEO characteristics. First, we include CEO tenure as a proxy for proven ability and/or CEO power, and later partition the sample on long- vs. short-serving CEOs in our contextual analysis. If CEO tenure is a good proxy for CEO power, then the longer tenure, the lower the likelihood of forced turnover. Brickley (2003) argue that age of the CEO is more important in explaining CEO turnover than measures of firm performance. Although the retirement-age varies between companies, it is expected that age is the single most important determined of voluntary turnover. Second, and following the reasoning above, we include CEO's age in our model.[9] The next two variables, the CEO's share ownership and a dummy variable indicating whether the CEO is also the Board Chair, are our firm governance related measures. Finally, we include industry (based on the Fama-French 48 industry classification) and year dummies to control for possible industry and time effects.

3.1.2. Proportional hazard model

Following Hazarika et al. (2012), we also examine the likelihood of forced and voluntary CEO turnovers using the Cox proportional hazard model estimations. Unlike the multinomial logit model, the Cox proportional hazard model explicitly accounts for the right-censoring that is prevalent in survival (or duration) time's data. Specifically, the sample censoring occurs because

[9] Unlike prior studies, we examine each CEO turnover case regardless of CEO's age when determining whether the turnover is forced or voluntary. More details are provided in the data section.

the follow up period ends in the end of 2014, before all turnovers for the CEOs have occurred. A second more important difference is that the dependent variable is the number of years the CEO is in office.[10] The Cox proportional hazard model can be expressed as follows:

$$h\big(t\big|\boldsymbol{x}(t)\big) = h_0(t)\exp[\boldsymbol{x}'\boldsymbol{\beta}] \tag{3}$$

where h(t) is the hazard rate, x(t) is the same vector of time-varying covariates as in the multinomial logit model, and $\boldsymbol{\beta}$ is a vector of parameters to be estimated. The hazard function in (3), is the product of two functions. The function, $h_0(t)$, characterizes how the hazard function changes as a function of survival time while the other function, $\exp[\boldsymbol{x}'\boldsymbol{\beta}]$, characterizes how the hazard function changes as a function of subject covariates (Hosmer and Lemeshow, 1999). We use competing-risks hazard models because the occurrence of one event type (forced CEO turnover) precludes the other event type (voluntary CEO turnover). Competing events are treated as censored observations. This means that we get separate coefficients (denoted by vectors $\boldsymbol{\beta_1}$ and $\boldsymbol{\beta_2}$ below) for forced and voluntary turnovers while using data on all observations.

$$h\big(t\big|\boldsymbol{x}(t)\big) = h_{forced}(t)\exp[\boldsymbol{x}'\boldsymbol{\beta_1}] \tag{4}$$

$$h\big(t\big|\boldsymbol{x}(t)\big) = h_{voluntary}(t)\exp[\boldsymbol{x}'\boldsymbol{\beta_2}] \tag{5}$$

Taken together, we use the following covariates for the estimation of the multinomial logit and the Cox proportional hazard models (variable names in parentheses): GAAP earnings per share (*GAAP_EPS*), I/B/E/S earnings per share (*Street_EPS*), change in analysts' earnings expectations (*Guidance*), idiosyncratic return (*Ret_Idio*), industry return (*Ret_Peer*), return volatility (*Std_Ret*), natural logarithm of market capitalization (*LMVE*), market-to-book ratio (*MTB*), annual sales

[10] The use of different estimation methods potentially increase the validity of the results.

growth (*SGR*), leverage (*Lev*), CEO's tenure (*CEO_Tenure*), CEO's age (*CEO_Age*), amount of CEO's equity ownership (*CEO_Owner*), and whether the CEO is also board chair (*CEO_Dual*). Full details on the definition of these variables are provided in the Appendix. *Industry (Year) f.e.* refers to industry (year) fixed affects. To save space, we express the vector of covariates for our models 1–2 and 4–5 here:

$$\begin{aligned} \boldsymbol{x'\beta} = {} & \beta_0 + \beta_1 EPS\_GAAP + \beta_2 EPS\_Street + \beta_3 Guidance + \beta_4 Ret\_Idio \\ & + \beta_5 Ret\_Peer + \beta_6 Std\_Ret + \beta_7 LMVE + \beta_8 MTB + \beta_9 SGR \\ & + \beta_{10} LEV + \beta_{11} CEO\_Tenure + \beta_{12} CEO\_Age + \beta_{13} CEO\_Owner \\ & + \beta_{14} CEO\_Dual + Industry\ f.e. + Year\ f.e. \end{aligned} \quad (6)$$

3.2. Data sources

Our data come from four main sources: ExecuComp for CEO data, Center for Research on Securities Prices (CRSP) for stock returns data, Compustat for accounting data, and I/B/E/S for analyst data. In addition, we use LexisNexis, Factiva, and Google search engines to manually search for news articles published around CEO turnovers. We first identify all CEO turnovers for the sample period from 1993 to 2013.[11] In line with prior research (e.g., Engel et al. 2003; Eisfeldt and Kuhnen, 2013), we record a turnover event if the CEO identifier (i.e. the executive that holds the annual CEO flag) in year t is different from the CEO identifier in year t+1. Identifying whether a CEO departure was forced or voluntary one requires inspection of press releases because forced turnovers are often presented as retirements. We classify each CEO turnover events to forced and voluntary based on the information in the news announcement. Specifically, following prior studies (Parrino 1997; Huson et al., 2001; Fich and Shivdasani, 2006; Bushman et al. 2010;

[11] We begin our sample in 1993 because ExecuComp variable CEOANN (that indicates whether the executive served as CEO for all or most of the indicated fiscal year) is available from 1993.

Hazarika et al. 2012), the turnover is classified as forced if: (i) the CEO is fired, forced out from the position (e.g., due to policy differences), demoted, retires, or resigns under questionable circumstances; or (ii) the departing CEO's age is less than 65, and the announcement does not report the reason as death, poor health, or the acceptance of another position;[12] or (iii) the CEO retires but leaves the job within six months of the retirement announcement and does not take a comparable position elsewhere.

Industries are defined using the Fama-French 48 industry classification. Following prior research, we eliminate utilities (SIC 4400–4999) and financial (SIC 6000–6999) industries. We also eliminate firm-year observations with insufficient data to compute the primary variables used in our tests.

3.3. Sample and preliminary data analysis

Our final sample contains a total of 22,540 firm-year observations, of which 2,071 involve CEO turnovers, for the sample period from 1993 to 2013. The classification process results in 439 forced and 1,632 voluntary CEO turnovers, and a control sample of 20,469 non-turnover firm-year observations. The sample size compares favorably with the recent study of Eisfeldt and Kuhnen (2013). Table 1 reports the distribution of these observations over the years, separately for forced and voluntary turnovers. Note that we identify the year before turnover. The results show that the number of observations increases over time. About one in five turnovers is a forced one, on average in the entire sample period. This, however, conceals sizable variations in the relative frequency of forced turnovers. For example, 2002 features 33 (34.4%) forced turnovers while 2001 features 10

[12] Many papers use the age of 60 years as a threshold.

(12.8%) forced turnovers. As noted earlier, we therefore include in the multivariate analyses year-fixed effects.

[Insert Table 1 here]

Table 2 presents the means and standard deviations of GAAP earnings per share (*EPS_GAAP*), non-GAAP earnings per share (*EPS_Street*) and the change in analyst earnings forecast of street EPS during the year (*Guidance*) for each year in the sample period.[13] The mean value of *EPS_GAAP* is lower than the mean value of *EPS_Street* in all years and is negative in 2001-2002 (the dot.com crisis) and 2008 (the recent financial crisis). The standard errors of *EPS_GAAP* are also larger, consistent with the view that street earnings are more persistent. The mean values for Guidance are negative in all years but one, indicating that the final consensus forecast is lower than the consensus nine months earlier. This is consistent with downward expectations management and/or analysts' optimism because the sign of changes in underlying performance is expected to be randomly distributed over time.

[Insert Table 2 here]

Table 3 reports the descriptive statistics for the variables used in the analyses separately for forced and voluntary turnovers and for non-turnover sub-samples. The univariate analysis reported in Panel A reveals that the forced turnovers are associated with poorer performance than voluntary turnovers and no turnovers. This is seen from comparing the means and medians of *EPS_GAAP*, *EPS_Street*, *Guidance* and *Ret_Idio*. Forced turnovers are also different from voluntary turnovers along other dimensions; they are associated with greater returns volatility,

[13] See also Figure 1 which depicts the statistics reported in table 2.

shorter CEO tenure, younger CEOs and weaker CEO power (as measured by CEO-Chairman duality).

Panel B of Table 3 reports the descriptive statistics for the sample. It highlights that the means of *EPS_GAAP*, *EPS_Street* and *Guidance* are lower than their medians, indicating the influence of several observations with large magnitudes. Importantly, the means and medians of *EPS_GAAP* are higher than the mean and medians of *EPS_Street*, respectively. This is consistent with street earnings excluding income decreasing items from GAAP earnings.

[Insert Table 3 here]

Table 4 provides both Pearson and Spearman correlations between the variables. For ease of exposition, we discuss the Pearson correlations. All the earnings variables (*EPS_GAAP*, *EPS_Street*, and *Guidance*) are positively correlated to each other, indicating that they tend to co-move in a similar direction. Market-based measures (*Ret_Idio*, *Ret_Peer*, and *LMVE*) and sales growth (SGR) are positively correlated with the three performance measures. Firm risk is negatively related to the three performance measures, suggesting that better performing firms are perceived as less risky by the market. Finally, all CEO characteristic variables (*CEO_Tenure*, *CEO_Age*, *CEO_Owner*, and *Dual*) are positively correlated to each other.

[Insert Table 4 here]

4. Empirical findings

4.1 Initial analysis

Table 5 presents the results of our multinomial logistic analysis of the relation between CEO turnover and our variables of interest. The dependent variable is CEO turnover, defined as

one if the CEO identifier in year *t* is different from the identifier of the CEO in year *t*+1 and zero otherwise. The table reports results separately for forced and voluntary turnovers. The probability of both turnover types is negatively related to GAAP earnings, as is indicated by the negative and highly significant coefficient on *EPS_GAAP*. The marginal (economic) effect of EPS_GAAP is -1.76% (-0.21%) which is measured when all other variables are set to their median value.[14] To appreciate the magnitude of this effect, note that the predicted probability of a turnover (at the median level of all independent variables) is 0.91%. Hence, the magnitude of the economic effect relative to the predicted probability of a forced turnover is a reduction of 23%. Importantly, forced turnovers are not less likely if street earnings are higher. In contrast, voluntary turnovers are *more* likely the higher the street earnings figure is, holding constant the GAAP earnings figure (*p*-value = 0.001).[15] This may be explained by CEOs wishing to quit at a time when market perceptions of ability are positive. The incidence of forced turnovers is negatively related to guidance, but the significance level is more modest (*p*-value = 0.065). This implies that reducing analyst expectations over the last three quarters of the fiscal year, as most CEOs do (see Table 3), increases the risk of a dismissal. The marginal (economic) effect of this is -2.46% (-0.09%) and the relative magnitude is 10%.

A potential reason for not finding that street EPS is significant may be due to the high correlation it exhibits with GAAP EPS. Multi-collinearity does not cause bias, but may inflate a coefficient's estimated variance. This in turn would result in lower rejection rates. Hence, we would expect both GAAP and street EPS to be insignificant, but this is not the case. We also

[14] Economic effect is calculated as the product of the marginal effect and the standard deviation of the variable.
[15] As the predicted probability of a voluntary CEO turnover is 6.04%, a standard deviation increase in *EPS_Street* (i.e., economic effect) increase the turnover probability by 0.76 percent point.

verified that the estimated variance of the coefficient on street earnings is small and within the normal range.[16]

Inspection of the control variables suggests that forced turnovers are incrementally more likely in risky and larger firms. Forced turnovers are less likely in firms with good growth opportunities, as is indicated by negative coefficient on MTB and in older CEOs. Firm risk, size and growth opportunities play a lesser, or no, role in voluntary turnovers. However, voluntary turnovers are more likely the older the CEO is and are less likely when the CEO is also an owner.

[Insert Table 5 here]

An alternative way to appreciate the average economic significance of the variables of interest is to plot the expected probability of CEO turnover for different performance deciles while keeping all other variables at their median levels. We partition firm-years independently into deciles based on our three performance measures, and compute the mean predicted probability of each performance measure in each decile.

Figure 2 plots expected probability for the three measures as they change from decile 1 to decile 10 (using average values within each decile). For all performance measures, lowest values (decile 1) are associated with the highest probability of turnover - the predicted probability of CEO turnover is around 10%. This figure shows that the predicted probability of forced turnover is changing with GAAP earnings, and to a lesser extent, with guidance. In contrast, the predicted probability of forced turnovers is largely unrelated to non-GAAP earnings. In addition, the

[16] Estimated standard errors do not decline substantially when we drop *EPS_ GAAP* and *EPS_Street* one at a time and re-estimate the model. To examine this is issue further, we first use Fischer's scoring to fit the logistic model and obtain the Hessian weight matrix. Next we use these weights and estimate the equivalent weighted least squares regression. Finally we examine collinearity diagnostics (condition index) and they reveal that multicollinearity is not a problem.

sensitivity of the predicted probability of a dismissal is most sensitive for the most poorly performing firms and, to a lesser extent, the best performing firms. For example, the slope of the *EPS_GAAP* line is steeper for deciles 9 and 10 than for deciles 3-8. In addition, the predicted probability for GAAP earnings more than doubles between the best performing firms in the first decile and the least performing firms in the 10th decile. This range is smaller for *Guidance*, but is still substantial with less than 0.8% probability of dismissal for the most positive guidance and over 1.1% for the most negative guidance.

[Insert Figure 2 here]

We also assess the effect of our variables of interest on the duration of CEO employment, using time-to-event analysis. In our case, a turnover is the underlying event of interest. We next employ the competing-risks hazard model, as outlined in equations 4 and 5. Note that a positive coefficient implies a larger hazard rate, or shorter "survival" rate.

Table 6 reports the results of this analysis and is structured in a similar way to Table 5. As can be seen the results are similar in nature to those reported in Table 5. The only notable difference with respect to the main variables of interest is the greater significance of the negative coefficient on *Guidance* (*p*-value = 0.003). The control variables also largely feature similar relations, but here there is stronger evidence that CEO ownership reduces the probability of both types of turnover.

[Insert Table 6 here]

Taken together, Tables 5 and 6 provide evidence that pertains to our first research question. Specifically, they show that GAAP EPS is dismissal relevant, but that street earnings are not. In addition, walking down analyst expectations carries a greater risk of a forced dismissal. While

prior research on meeting or beating analyst expectations suggests there are benefits to downward expectations management, this result shows there is a personal cost to the CEO, which may balance the incentive to over-deflating expectations.

4.2 Contextual analyses

Research Questions 2-4 concern the use of the three performance measures across several contexts. These are, the quality of accounting information, CEO tenure and whether the CEO managed to beat analyst forecasts. To examine how the quality of accounting information may affect the relative importance of GAAP earnings (our RQ2), we propose three measures for accounting quality. The first two capture demand for high-quality accounting from analysts and creditors. Gao et al. (2015) argue that demand from such parties for accounting information makes it more transparent and hence more informative about CEO performance. As a third proxy, we use accruals as an indicator of accounting quality. Consistent with Hazarika et al., (2012) we define accruals as [Δ(Current assets – cash and short-term investments) - Δ(Current Liabilities – short term debt) – depreciation and amortization] / total $assets_{t-1}$.

Table 7 reports the results of these analyses, and distinguishes between high and low values of the three demand proxies relative to industry-year median levels. When analyst coverage is high (i.e., when demand for good accounting is strong), the coefficient on *EPS_GAAP* is -2.798 and significant at the 0.000 level. In contrast, when analyst following is low, this coefficient is much lower at -1.181 and somewhat less significant. In either case, we do not find that street earnings or guidance are associated with forced turnovers. When leverage is high (proxying for strong demand for high-quality accounting information), the coefficient on *EPS_GAAP* is -2.639 and highly significant. In contrast, with low leverage this coefficient is insignificant. Nevertheless, with weak demand for high-quality accounting information, street earnings are negatively related to forced

turnovers. This is consistent with street earnings serving a greater information role when accounting quality is low. Turning to accruals, we find that when accruals are relatively low (accounting information is relatively high-quality), the probability of forced turnovers is negatively related to GAAP earnings, but not when accruals are high. Furthermore, when accruals are high, walking down analyst forecasts is associated with a greater probability of CEO dismissal. This is consistent with guidance providing additional relevant information to boards when accounting information is of quality.

Next we examine the effect of CEO tenure (RQ3). For short-serving CEOs the negative relation between GAAP earnings and the probability of a dismissal is stronger than for long-serving CEOs (the coefficient on *LOW_EPS_GAAP* = -2.082 and on *HIGH_EPS_GAAP* is -1.677). This is consistent with the notion that earnings are more dismissal-relevant for short-serving CEOs whose ability is not proven yet. However, and somewhat surprising, long-serving CEOs who guide analyst expectations downward face a greater risk of dismissal.

The final contextual analysis reported in Table 7 concerns cases where firms beat or fail to beat analyst forecasts (RQ4). While in both scenarios GAAP earnings are dismissal relevant, the relation is stronger for firms that beat analyst forecasts. We infer from this that beating analyst forecasts reinforces the positive inference boards draw from good accounting performance. The dismissal-relevance of the other performance measures does not vary with the ability to beat analyst forecasts.

In summary, Table 7 indicates that GAAP earnings are more dismissal-relevant when accounting information is of good quality. There is also some evidence that when accounting information is of poorer quality, boards use alternative performance measures. Table 7 also

furnishes evidence that GAAP earnings is used by boards in the retention/dismissal decision for short-serving CEOs and when the manager beats analyst forecasts.

[Insert Table 7 here]

4.3. Regulation G

Suspecting that companies use street earnings to manage market expectations, and given the increasing disclosure of street earnings by companies, in 2003 the SEC has put in force Regulation G. This regulation stresses that only transitory items can be excluded form GAAP earnings and that firms disclosing non-GAAP measures have to reconcile GAAP earnings to the alternative measures they report. In May 2016 the SEC has provided further guidelines to ensure the rules are clear in an attempt to reduce opportunistic behavior.[17] Figure 1 does not provide evidence that the gap between GAAP earnings and street earnings has decreased since Regulation G. Nevertheless, bearing in mind that the voluntary disclosure of non-GAAP earnings has significantly increased since early 2000s, we repeat the analysis conducted in Table 5 to examine whether our results differ by time period. Specifically, we allow the coefficients to vary between pre- and post-Regulation G periods (i.e., 1990-2002 vs. 2003-2013). If Regulation G has increased the reliability of non-GAAP earnings, we expect to find that street earnings is more dismissal-relevant in the post-Regulation G period.

Table 8 provides the results. The estimated coefficients are very similar for both periods. *EPS_GAAP* continues to be negative and significant in all four columns while *EPS_Street* is significantly positive only for voluntary CEO turnovers. *Guidance* is significantly negative only for forced turnovers in the pre-Regulation G period. Taken together, we are unable to document

[17] See https://www.sec.gov/divisions/corpfin/guidance/nongaapinterp.htm

any meaningful difference in pattern of the use of GAAP earnings and street earnings by boards across the two periods (for brevity, we do not discuss other covariates).

[Insert Table 8 here]

4.4. Additional analyses

4.4.1 What is excluded from GAAP earnings?

The analyses above indicate that boards largely ignore steer earnings, implying they consider all income items in the retention/dismissal decision. Prior literature identified special items as one of the main causes for the difference between non-GAAP and GAAP earnings. Therefore, we also examine if this is the case in the turnovers sample. Specifically, we regress the following model:

$$EPS\_GAAP - EPS\_Street = \alpha_0 + \alpha_1 COGS + \alpha_2 SGA + \alpha_3 Depr + \alpha_4 Tax + \alpha_5 SI + \alpha_6 Other + \varepsilon \quad (7)$$

The left hand side of equation 7 is the difference between GAAP earnings and street earnings. The explanatory variables are expense line-items in the income statement, including cost of goods sold (*COGS*), sales, general and administrative expenses (*SGA*), depreciation and amortization (*Depr*), tax expense (*Tax*), special items (*SI*) and all other expenses.[18] To the extent that street earnings tend to exclude income decreasing items from GAAP earnings (as Table 3 indicates), the left hand side is negative on average. The descriptive statistics for this analysis are presented in Panel A of Table 9. The largest expense in magnitude is cost of goods sold followed by SG&A. The smallest expenses are the other expenses and special items. The persistence of the various variables can be assessed and compared using a measure of standardized variability - the coefficient of variation. The largest coefficient of variation is for SI (3.28) followed by that of

[18] All independent variables are scaled by lagged market value of equity.

other expenses (2.31). SG&A and depreciation exhibit the highest persistence (coefficient of variation is 1.16 and 1.15, respectively). Panel B reports the results of the estimation of equation 7. The findings indicate that the exclusions strongly relate to special items and, to a much lesser extent other expenses. To the extent that the other line items are more persistent, this result is consistent with the argument that street earnings exclude transitory items. Nevertheless, this result combined with the previous analyses indicate that boards draw inferences regarding CEO ability from special items and other expenses.[19]

4.4.2 Turnovers of Chief Finance Officers (CFOs)

Do boards use the three performance measures in making retention/dismissal decisions of CFOs? The scrutiny the press and SEC have applied to street earnings, suggests that they may be manipulated. Prior academic evidence also indicates this possibility. Since CFOs are intimately involved in preparing financial figures, and can expertly advise CEOs as to what can be excluded from GAAP earnings, boards suspecting manipulations in street earnings may also hold CFOs accountable for misleading markets.[20] Alternatively, boards may not judge a CFO's ability and performance the same way they assess CEO ability and may use alternative metrics. We therefore explore if the likelihood of CFO forced turnover, unlike CEO forced turnover, is positively related to street earnings. Our conjecture is that, holding GAAP earnings constant, higher street earnings is more prone to manipulations. The results of this analysis are reported in Table 10. We do not find that any of the three variables of interest is associated with any type of CFO turnover. However, like CEOs, the probability of CFO dismissal is negatively related to idiosyncratic returns and positively to returns volatility.

[19] Here too, we examine the effect of Regulation G but fail to find evidence of differences in coefficient estimates between the pre- and post-periods.

[20] More broadly, CFOs may be held accountable for not ensuring the quality of the financials is sufficiently high (Li et al., 2010).

4.4.3 Further Robustness Tests

We conduct several additional tests to verify the robustness of our results to alternative specifications, as follows.

To address the concern that finding that GAAP earnings is the main explanatory variable is driven by a subset of firms who are involved in accounting manipulations we add to the models explored in Table 5 an indicator for adverse restatements (data source: AuditAnalytics). The results remain the same. We also explore if the difference between non-GAAP and GAAP earnings is driven by restatements, but do not find support for this conjecture.

Our variables are deflated by lagged share price. To the extent that markets anticipate forced turnovers, this could affect our inferences. Share prices tend to decrease prior to turnovers and increase subsequently (see, for example, Huson et al., 2004, and discussion of prior literature). Hence, our deflated performance measures are likely larger for turnover firm-years and lower for other firm-years. While this works against finding a negative relation between the performance measures in question and subsequent CEO dismissal, we use an alternative deflator. Specifically, we use average total assets per share and find that the results reported in Table 5 hold, although the significance of GAAP EPS is lower and turns marginal.

It can be argued that the dismissal decision is not a function of just one year's performance and that boards act only after a long period of disappointment. We therefore add to the main model in Table 5 lagged performance measures. The results do not change and we do not find that lagged performance measures are associated with future turnovers.

If a CEO turnover takes place early in the year, but before the earnings numbers are released, the new CEO can recognize more expenses and special items to shift blame on the outgoing CEO. If this is the case, our results misattribute the dismissal to the earnings prepared by

the outgoing CEO. We therefore exclude early dismissals and re-estimate Table 5, but find similar results.

Finally, we perform further contextual analysis and partition the sample between loss and profitable years. We find that EPS_GAAP is significantly negative for both loss and profitable firms.

5. Summary

Prior research has documented that managers and analysts increasingly focus on earnings measures that differ from GAAP earnings. These measures are known as street earnings and are typically higher than GAAP earnings. Some justification for the attention given to street earnings may stem from the differences in statistical properties of street earnings vs. GAAP earnings. For example, Bhattacharya et al., (2003) find that street earnings are more permanent than GAAP earnings. As the importance of street earnings has increased over time, managers have exerted effort to guide analyst expectations towards the forthcoming street earnings. The latter is motivated by rewards to firms that beat analyst expectations in the form of higher returns and higher prices (e.g., Kasznik and McNichols, 2002). Nevertheless, prior literature has also suggested that analysts do not want to conflict with managers over which number to use. In addition, investors may fail to understand the predictive ability of items that are excluded from GAAP earnings.

Against this background, it is an open question whether boards also discard GAAP earnings in favor of street earnings. Regarding boards as sophisticated monitors of CEO performance, it may be argued they are better positioned to understand GAAP earnings, and they do not face same incentives as analysts to agree with managers. We explore this question and find that boards do indeed employ GAAP earnings as a leading accounting-based indicator of CEO performance. At

the same time boards do not use street earnings in dismissal decisions. This suggests that boards do not regard street earnings as sufficiently reliable for internal retention/dismissal decisions. This, in turn, begs the question as to whether analysts should focus on street earnings if boards are suspicious of this measure. This result also provides support to the SEC's recent concern that street earnings are subject to manipulations. Nevertheless, when firms voluntary provide non-GAAP earnings it raises a concern that boards are complicit in attempts to mislead markets.

We also find that lowering analyst expectations (perception management) carries increased dismissal risk for CEOs. Prior literature has highlighted the benefits this practice may bring to firms that beat analyst forecast. Our evidence suggests there is a personal cost for this practice, implying that CEOs have to balance the incentive to beat analyst forecasts with this personal cost.

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Appendix

Variable name	Measurement and source of data
Dependent variables	
CEO_TO=	Indicator variable: Chief executive officer (CEO) turnover is identified based on whether the same individual (ExecuComp variable: CO_PER_ROL) holds the CEO title (ExecuComp variable: CEOANN="CEO") during the current and subsequent year. 1 if the CEO in year *t* is different from the CEO in year *t+1*; 0 otherwise.
F_CEO_TO=	Indicator variable: 1 if CEO turnover is classified forced; 0 otherwise.
V_CEO_TO=	Indicator variable: 1 if CEO turnover is classified voluntary/routine; 0 otherwise.
logMaxTenure	Log of the number of years the CEO is in the office (i.e. CEO's survival time).
CFO_TO=	Indicator variable: Chief financial officer (CFO) turnover is identified based on whether the same individual (ExecuComp variable: CO_PER_ROL) holds the CFO title (ExecuComp variable: CFOANN="CFO") during the current and subsequent year. 1 if the CFO in year *t* is different from the CEO in year *t+1*; 0 otherwise.
Main variables	
EPS_GAAP=	Earnings per share (EPS) excluding extraordinary items from Compustat (Compustat variable: EPSPX) scaled by lagged stock price (I/B/E/S variable PRICE).
EPS_Street=	EPS reported by I/B/E/S (I/B/E/S variable FY0A) scaled by lagged stock price (I/B/E/S variable PRICE).
Guidance=	Mean consensus EPS estimate from the last month of the fiscal-year reported by I/B/E/S (I/B/E/S variable MEANEST) minus same estimate made nine months earlier scaled by lagged stock price (I/B/E/S variable PRICE).
Control variables	

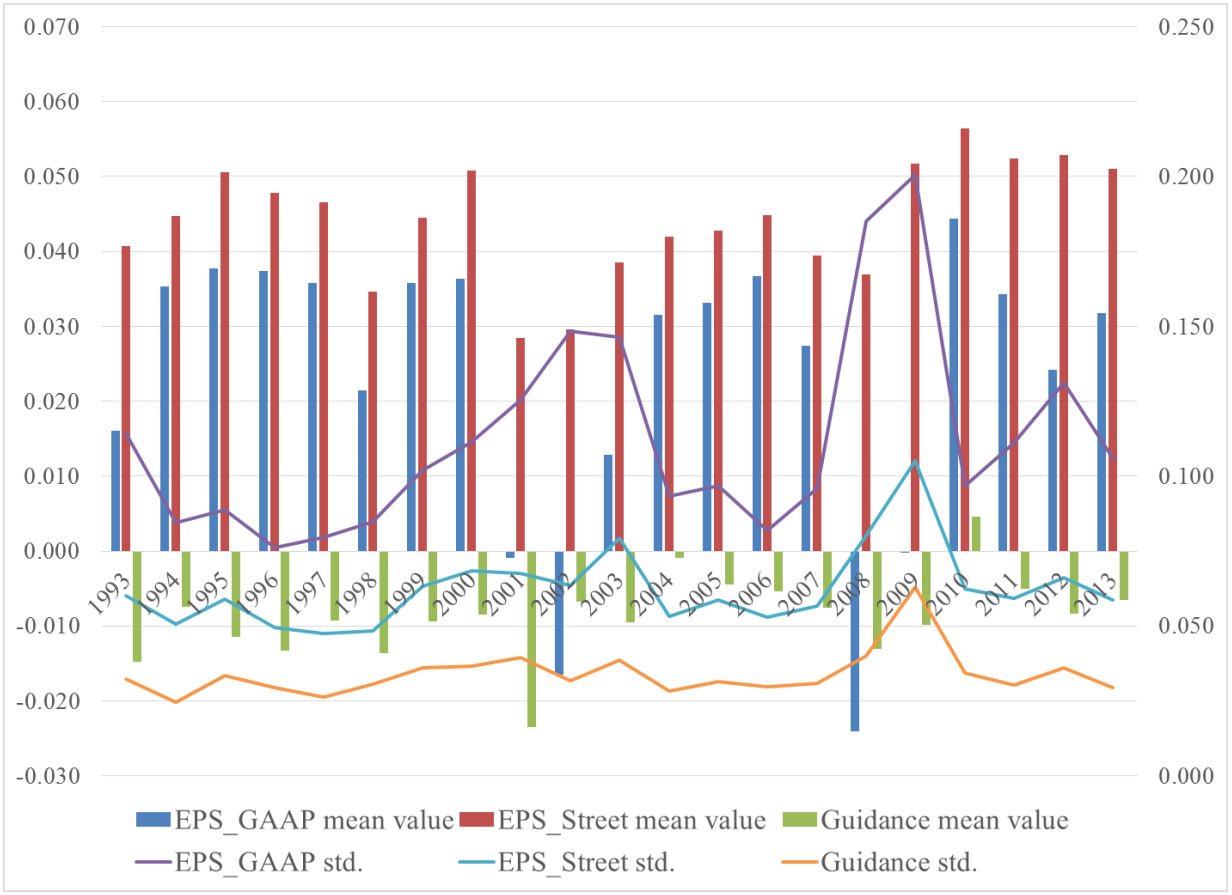
Ret_Idio=	The residual value from the annual cross-sectional (using the two-digit SIC code classification) regressions that use an intercept to predict firm annual returns (calculated from the CRSP monthly return files).
Ret_Peer=	The fitted value from the annual cross-sectional (using the two-digit SIC code classification) regressions that use an intercept to predict firm annual returns (calculated from the CRSP monthly return files).
Std_Ret=	Standard deviation of firm's stock return over the 12 months ending at the fiscal year-end.

Appendix (continued)

Variable name	Measurement and source of data
MTB=	Market-to-book ratio is the sum of total liabilities (Compustat item LT) plus market value of equity (Compustat item PRCC_F times CSHO) deflated by the firm's total assets (Compustat item AT).
LMVE=	The natural logarithm of market value of equity (Compustat item PRCC_F times CSHO).
SGR=	Sales growth is defined as $(Sales_t – Sales_{t–1})/ Sales_{t–1}$ (Compustat item SALE).
LEV=	Book leverage ratio defined as long-term debt (Compustat item DLTT) plus current portion of long-term debt (Compustat item DLC) deflated by total assets (Compustat item AT).
CEO_Tenure=	CEO's time in the office (Compustat item DATADATE minus ExecuComp variable BECAMECEO divided by 365; hand-collection).
CEO_Age=	CEO's age measured in years (ExecuComp variable: AGE; hand-collection).
CEO_Ownership=	CEO's shareholding in the firm (ExecuComp variable: SHROWN_TOT_PCT).
CEO_Dual=	Indicator variable: 1 if CEO is also the chairman (using information in ExecuComp variable: TITLEANN); 0 otherwise.
CFO_Age=	CFO's age measured in years (ExecuComp variable: AGE).
CFO_Ownership=	CFO's shareholding in the firm (ExecuComp variable: SHROWN_TOT_PCT).

Figure 1

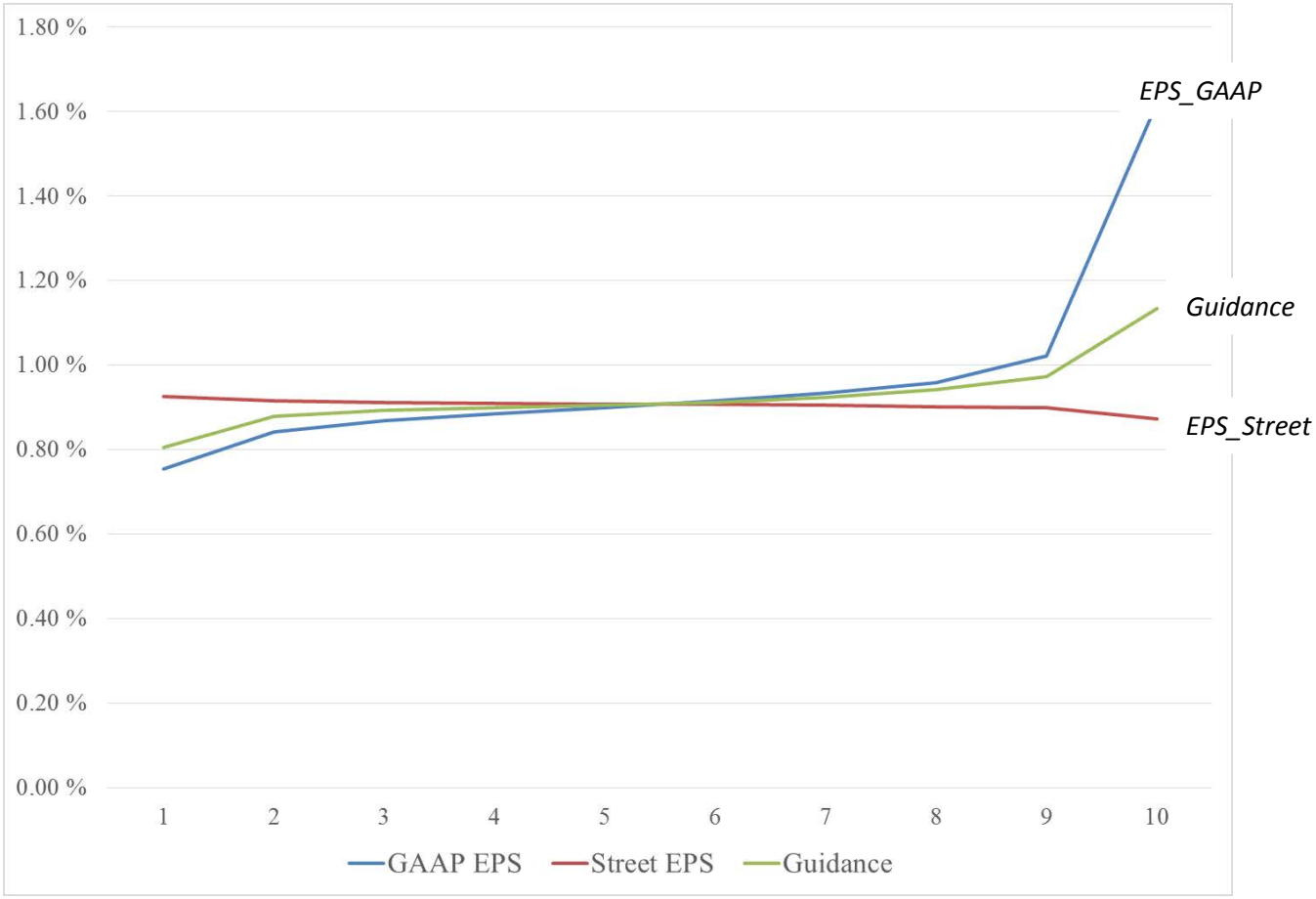
GAAP earnings versus Street earnings



This figure plots mean (depicted as columns and left axis) and standard deviation (depicted as lines and right axis) values of *EPS_GAAP*, *EPS_Street*, and *Guidance* from year 1993 to year 2013. *EPS_GAAP* is earnings per share including extraordinary items (Compustat item EPSPI). *EPS_Street* is earnings per share from I/B/E/S. *Guidance* is mean consensus EPS estimate from the last month of the fiscal-year (I/B/E/S variable MEANEST) minus same estimate made nine months earlier. All three variables are scaled by lagged stock price (I/B/E/S variable PRICE).

Figure 2

Implied probabilities of forced CEO turnover by GAAP EPS, Street EPS, and Guidance deciles



This figure plots average implied probabilities of forced CEO turnover by performance deciles. We first partition firm-years independently into deciles based on *EPS_GAAP*, *EPS_Street*, and *Guidance* and compute the mean values of each performance measure for each decile. Decile 1 (10) contains firms with extreme good (bad) performance. To calculate the fitted value, the parameter estimates from Table 5 in Column 'Forced' are used, with all right-hand side variables except the performance variable of interest set to their median levels. The solid line represents the implied probability of a forced CEO turnover.

Table 1

Frequencies of CEO turnovers.

This table reports the total number of firm-year observations and CEO turnovers from 1993–2013. Data on CEO turnovers come from the ExecuComp database. A turnover is classified as forced based on the classification scheme proposed by Parrino (1997). The data exclude CEO's first year in office and firms in the financial and utility sectors (SIC codes between 6000–6999 and 4900–4999).

Year	Number of observations	Number of turnovers	Number of forced turnovers	Forced as a % of total turnovers
1993	662	67	10	14.9 %
1994	894	100	16	16.0 %
1995	929	92	14	15.2 %
1996	951	79	14	17.7 %
1997	980	85	17	20.0 %
1998	1,033	93	17	18.3 %
1999	1,060	110	26	23.6 %
2000	1,049	122	25	20.5 %
2001	1,000	78	10	12.8 %
2002	1,024	96	33	34.4 %
2003	1,101	79	13	16.5 %
2004	1,100	105	18	17.1 %
2005	1,056	83	16	19.3 %
2006	1,129	93	21	22.6 %
2007	1,268	161	46	28.6 %
2008	1,243	119	25	21.0 %
2009	1,260	91	23	25.3 %
2010	1,265	106	24	22.6 %
2011	1,208	139	42	30.2 %
2012	1,181	119	20	16.8 %
2013	1,147	54	9	16.7 %
Total	**22,540**	**2,071**	**439**	**21.2 %**

Table 2

GAAP earnings vs. Street earnings: mean values and standard deviations.

This table shows mean and standard deviation values of GAAP EPS and Street EPS from year 1993 to year 2013. The data exclude CEO's first year in office and firms in the financial and utility sectors (SIC codes between 6000–6999 and 4900–4999). *EPS_Street* is earnings per share from I/B/E/S. *Guidance* is mean consensus EPS estimate from the last month of the fiscal-year (I/B/E/S variable MEANEST) minus same estimate made nine months earlier. All three variables are scaled by lagged stock price (I/B/E/S variable PRICE).

Year	*EPS_GAAP* Mean value	*EPS_GAAP* Std.	*EPS_Street* Mean value	*EPS_Street* Std.	*Guidance* Mean value	*Guidance* Std.
1993	0.016	0.114	0.041	0.060	–0.015	0.032
1994	0.035	0.084	0.045	0.051	–0.007	0.025
1995	0.038	0.089	0.051	0.059	–0.011	0.033
1996	0.037	0.076	0.048	0.050	–0.013	0.029
1997	0.036	0.080	0.047	0.048	–0.009	0.026
1998	0.021	0.085	0.035	0.048	–0.014	0.031
1999	0.036	0.102	0.044	0.063	–0.009	0.036
2000	0.036	0.111	0.051	0.068	–0.008	0.037
2001	–0.001	0.125	0.028	0.067	–0.024	0.039
2002	–0.016	0.149	0.030	0.064	–0.007	0.032
2003	0.013	0.146	0.039	0.079	–0.010	0.039
2004	0.031	0.093	0.042	0.053	–0.001	0.028
2005	0.033	0.097	0.043	0.059	–0.004	0.031
2006	0.037	0.082	0.045	0.053	–0.005	0.030
2007	0.027	0.096	0.039	0.057	–0.008	0.031
2008	–0.024	0.185	0.037	0.080	–0.013	0.040
2009	0.000	0.201	0.052	0.105	–0.010	0.063
2010	0.044	0.097	0.056	0.062	0.005	0.034
2011	0.034	0.111	0.052	0.059	–0.005	0.030
2012	0.024	0.131	0.053	0.066	–0.008	0.036
2013	0.032	0.106	0.051	0.059	–0.006	0.029

Table 3

Panel A: Univariate comparisons.

This table reports means and medians for selected variables for sub-groups of CEO turnover over the period 1993–2013. Data on CEO turnovers come from the ExecuComp database. A turnover is classified as forced based on the classification scheme proposed by Parrino (1997). The data exclude CEO's first year in office and firms in the financial and utility sectors (SIC codes between 6000–6999 and 4900–4999). Forced turnovers sample consists of 439 observations. Voluntary turnovers sample consists of 1,632 observations. No turnover sample consists of 20,475 observations. All variables are defined in the Appendix. Two-sided *p*-values for *t*-tests and Wilcoxon tests for the differences are reported.

Variable	Forced turnovers		Voluntary turnovers		No turnovers		*p*-values for tests of equality: Forced vs. voluntary		Forced vs. No turnovers	
	Mean	Median	Mean	Median	Mean	Median	*t*-test	*z*-test	*t*-test	*z*-test
EPS_GAAP	–0.047	0.018	0.010	0.045	0.026	0.047	0.000	0.000	0.000	0.000
EPS_Street	0.015	0.037	0.044	0.053	0.045	0.052	0.000	0.000	0.000	0.000
Guidance	–0.024	–0.010	–0.012	–0.004	–0.008	–0.002	0.000	0.000	0.000	0.000
Ret_Idio	–0.180	–0.206	–0.058	–0.086	0.008	–0.035	0.000	0.000	0.000	0.000
Ret_Peer	0.132	0.127	0.151	0.148	0.177	0.170	0.204	0.044	0.000	0.044
Std_Ret	0.137	0.119	0.113	0.098	0.117	0.101	0.000	0.000	0.000	0.000
LMVE	7.267	7.085	7.479	7.351	7.400	7.231	0.019	0.009	0.118	0.009
MTB	1.825	1.375	1.930	1.533	2.059	1.638	0.121	0.000	0.000	0.000
SGR	0.086	0.045	0.102	0.067	0.130	0.088	0.267	0.016	0.000	0.016
LEV	0.228	0.217	0.221	0.206	0.213	0.198	0.454	0.602	0.066	0.602
CEO_Tenure	7.235	5.592	10.299	7.841	8.589	6.088	0.000	0.000	0.000	0.000
CEO_Age	52.733	53.000	60.988	61.000	55.321	55.000	0.000	0.000	0.000	0.000
CEO_Owner	0.907	0.000	0.687	0.000	1.123	0.000	0.136	0.085	0.121	0.085
CEO_Dual	0.528	1.000	0.711	1.000	0.597	1.000	0.000	0.000	0.004	0.000

Panel B: Descriptive statistics

Variable	N	Mean	Std.	P5	P25	Median	P75	P95
EPS_GAAP	22,540	0.023	0.120	–0.171	0.019	0.047	0.069	0.124
EPS_Street	22,540	0.044	0.065	–0.053	0.031	0.052	0.072	0.118
Guidance	22,540	–0.008	0.036	–0.064	–0.015	–0.002	0.004	0.030
Ret_Idio	22,540	0.000	0.442	–0.609	–0.253	–0.042	0.178	0.781
Ret_Peer	22,540	0.174	0.267	–0.308	0.019	0.167	0.334	0.578
Std_Ret	22,540	0.117	0.065	0.046	0.072	0.101	0.143	0.247
LMVE	22,540	7.403	1.601	5.056	6.282	7.235	8.388	10.318
MTB	22,540	2.045	1.312	0.929	1.232	1.626	2.341	4.771
SGR	22,540	0.127	0.262	–0.200	0.003	0.086	0.197	0.580
LEV	22,540	0.214	0.176	0.000	0.053	0.199	0.324	0.543
CEO_Tenure	22,540	8.686	7.646	1.542	3.334	6.252	11.258	24.849
CEO_Age	22,540	55.680	7.498	44.000	51.000	56.000	60.000	68.000
CEO_Owner	22,540	1.087	3.254	0.000	0.000	0.000	0.553	5.616
CEO_Dual	22,540	0.604	0.489	0.000	0.000	1.000	1.000	1.000

Table 4

Correlations

This table reports Pearson correlations below diagonal and Spearman correlations above diagonal. The sample consists of 22,540 firm-year observations from 1993 to 2013. Correlation for which the absolute value is greater than 0.015 are significant at <.01. All variables are defined in the Appendix.

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(1) EPS_GAAP		.803	.457	.236	.124	–.277	.170	.013	.107	.018	.006	.104	.043	.066
(2) EPS_Street	.717		.478	.207	.122	–.248	.153	–.110	.041	.093	–.015	.103	.091	.064
(3) Guidance	.503	.569		.354	.150	–.127	.193	.220	.282	–.070	–.021	–.015	.096	–.012
(4) Ret_Idio	.165	.157	.289		–.058	–.075	.172	.296	.185	–.044	.005	.002	.016	.000
(5) Ret_Peer	.097	.086	.110	.000		–.057	.099	.196	.034	–.057	.011	–.004	.041	.014
(6) Std_Ret	–.346	–.310	–.154	.072	–.007		–.405	–.105	.027	–.077	.006	–.153	–.007	–.103
(7) LMVE	.245	.231	.210	.118	.097	–.357		.331	.072	.099	–.039	.095	–.044	.150
(8) MTB	.070	–.057	.138	.318	.169	.061	.252		.302	–.323	.044	–.092	–.054	–.021
(9) SGR	.144	.086	.244	.180	.054	.085	.043	.285		–.090	.096	–.078	–.082	–.018
(10) LEV	–.135	–.053	–.100	–.055	–.051	–.013	.049	–.254	–.048		–.048	.070	–.078	.101
(11) CEO_Tenure	.035	.013	–.005	–.001	.006	–.019	–.041	.024	.027	–.059		.326	.158	.282
(12) CEO_Age	.054	.068	.000	–.020	–.004	–.154	.094	–.119	–.099	.052	.426		.046	.275
(13) CEO_Owner	–.001	–.001	.011	.007	–.038	.005	–.083	–.011	–.024	–.083	.288	.106		–.079
(14) CEO_Dual	.046	.056	–.014	–.016	.019	–.088	.153	–.032	–.024	.077	.251	.272	.052	

Table 5

Multinomial logistic regression relating CEO turnovers to performance measures.

Estimates from multinomial logistic regressions that examine the likelihood of forced and voluntary CEO turnovers, based on our sample of 439 forced CEO turnovers (*F_CEO_TO*) and 1,632 voluntary CEO turnovers (*V_CEO_TO*) from 1993–2013. Data on CEO turnovers come from the ExecuComp database. A turnover is classified as forced based on the classification scheme proposed by Parrino (1997). The data exclude CEO's first year in office and firms in the financial and utility sectors (SIC codes between 6000–6999 and 4900–4999). A positive (negative) coefficient indicates that an increase in the covariate increases (decreases) the probability of CEO turnover. Year dummies and industry indicators are not reported. Industry indicators are based on the Fama-French 48 industry classification. Economic effects are calculated as the product of three terms: the coefficient estimate times mean turnover density (at the median values of all variables) times the standard deviation of the variable (except for *CEO_DUAL*). All variables are defined in the Appendix. ***, **, * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Variable	Forced	Marginal effect [Economic]	Voluntary	Marginal effect [Economic]
EPS_GAAP	–1.961***	–1.76%	–1.697***	–9.63%
	(0.000)	[–0.21%]	(0.000)	[–1.16%]
EPS_Street	0.262	0.24%	2.058***	11.68%
	(0.772)	[0.02%]	(0.001)	[0.76%]
Guidance	–2.735*	–2.46%	–1.125	–6.38%
	(0.065)	[–0.09%]	(0.267)	[–0.23%]
Ret_Idio	–0.851***	–0.76%	–0.377***	–2.14%
	(0.000)	[–0.34%]	(0.000)	[–0.95%]
Ret_Peer	–0.128	–0.11%	–0.235	–1.33%
	(0.635)	[–0.03%]	(0.121)	[–0.36%]
Std_Ret	2.752***	2.47%	0.817	4.63%
	(0.003)	[0.16%]	(0.162)	[0.30%]
LMVE	0.176***	0.16%	0.041*	0.23%
	(0.000)	[0.25%]	(0.052)	[0.37%]
MTB	–0.099*	–0.09%	0.048	0.27%
	(0.071)	[–0.12%]	(0.087)	[0.36%]
SGR	–0.339	–0.30%	–0.188	–1.07%
	(0.110)	[–0.08%]	(0.143)	[–0.28%]
LEV	–0.121	–0.11%	–0.057	–0.32%
	(0.692)	[–0.02%]	(0.744)	[–0.06%]
CEO_Tenure	–0.003	–0.00%	–0.017***	–0.09%
	(0.741)	[–0.02%]	(0.000)	[–0.72%]
CEO_Age	–0.040***	–0.04%	0.121***	0.69%
	(0.000)	[–0.27%]	(0.000)	[5.17%]
CEO_Owner	–0.025	–0.02%	–0.109***	–0.62%
	(0.224)	[–0.07%]	(0.000)	[–2.00%]
CEO_Dual	–0.106	–0.10%	0.117*	0.66%
	(0.332)	[–0.10%]	(0.069)	[0.66%]
Intercept	–3.590***		–9.990***	
	(0.000)		(0.000)	
Industry indicators	Yes		Yes	
Year indicators	Yes		Yes	
Number of turnovers	439		1,632	
Number of firm-years	22,540			
Likelihood ratio	1,608.16			

Table 6

Competing-risks hazard regression relating CEO turnover to GAAP and Street earnings.

Estimates from competing-risks hazard regressions that examine the likelihood of forced and voluntary CEO turnovers, based on our sample of 439 forced CEO turnovers and 1,632 voluntary CEO turnovers from 1993–2013. Data on CEO turnovers come from the ExecuComp database. A turnover is classified as forced based on the classification scheme proposed by Parrino (1997). The data exclude CEO's first year in office and firms in the financial and utility sectors (SIC codes between 6000–6999 and 4900–4999). The Cox Proportional Hazard model is estimated with a CEO's time-to-turnover measured as the number of years the CEO is in office (*logMaxTenure*). Time-to-turnover for CEOs in office as of December 31, 2013 is right censored. A positive (negative) coefficient indicates a lower (longer) expected time as a CEO. Intercept, year dummies, and industry indicators are not reported. Intercept, year dummies, and industry indicators are not reported. Industry indicators are based on the Fama-French 48 industry classification. All variables are defined in the Appendix. ***, **, * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	Turnover Type	
Variable	Forced	Voluntary
EPS_GAAP	–0.938***	–0.560***
	(0.000)	(0.000)
EPS_Street	–0.196	0.760**
	(0.715)	(0.011)
Guidance	–2.490***	–0.603
	(0.003)	(0.195)
Ret_Idio	–0.230***	–0.107***
	(0.000)	(0.001)
Ret_Peer	–0.094	–0.003
	(0.453)	(0.966)
Std_Ret	2.691***	0.211
	(0.000)	(0.401)
LMVE	0.165***	0.087***
	(0.000)	(0.000)
MTB	–0.067***	–0.008
	(0.003)	(0.477)
SGR	0.002	–0.061
	(0.982)	(0.226)
LEV	–0.131	0.290***
	(0.389)	(0.000)
CEO_Tenure	–0.176***	–0.235***
	(0.000)	(0.000)
CEO_Age	–0.044***	0.102***
	(0.000)	(0.000)
CEO_Owner	–0.038***	–0.082***
	(0.001)	(0.000)
CEO_Dual	–0.064	0.050*
	(0.216)	(0.064)
Industry & Year indicators	Yes	Yes
Number of turnovers	439	1,632
Number of firm-years	22,540	22,540
Likelihood ratio	2,762.06	12,521.19

Table 7

Logistic regression relating forced CEO turnovers to earnings performance measures.

Estimates from logistic regressions that examine the likelihood of forced CEO turnovers, based on our sample of 439 forced CEO turnovers from 1993–2013. Data on CEO turnovers come from the ExecuComp database. A turnover is classified as forced based on the classification scheme proposed by Parrino (1997). The data exclude CEO's first year in office, voluntary turnovers and firms in the financial and utility sectors (SIC codes between 6000–6999 and 4900–4999). A positive (negative) coefficient indicates that an increase in the covariate increases (decreases) the probability of CEO turnover. Intercept, year dummies, and industry indicators are not reported. Industry indicators are based on the Fama-French 48 industry classification. Both *EPS_GAAP* and *EPS_Street* are split into two variables, *LOW* indicates that the performance variable of interest (except Analyst estimates is based on the company's ability to beat analysts' consensus estimate) is equal or below industry-year median and *HIGH* indicates that the performance variable of interest is above industry-year median. Analyst coverage is measured the number of estimates, Meet analysts estimate is the last forecast error minus I/B/E/S actual EPS, CEO tenure is the CEO's time in the office, Leverage is the company's relative leverage, and accruals are the company's working capital accruals minus depreciation. All other variables are defined in the Appendix. ***, **, * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Variable	Analyst coverage	Accruals	Leverage	Meet analysts estimate	CEO tenure
LOW_EPS_GAAP	–1.181**	–2.547***	0.246	–1.393*	–2.082***
	(0.026)	(0.000)	(0.789)	(0.062)	(0.000)
HIGH_EPS_GAAP	–2.798***	–0.370	–2.639***	–2.365***	–1.677**
	(0.000)	(0.649)	(0.000)	(0.000)	(0.013)
LOW_EPS_Street	–0.326	0.332	–3.851**	0.956	–0.240
	(0.771)	(0.733)	(0.014)	(0.558)	(0.819)
HIGH_EPS_Street	0.232	–0.862	1.498	–0.162	0.886
	(0.851)	(0.555)	(0.128)	(0.879)	(0.509)
LOW_Guidance	–2.936	–0.588	–3.280	–3.719	–1.023
	(0.101)	(0.722)	(0.149)	(0.114)	(0.549)
HIGH_Guidance	–1.669	–5.722***	–2.134	–0.198	–4.874**
	(0.413)	(0.009)	(0.204)	(0.912)	(0.027)
Control variables			Yes		
Industry & Year indicators			Yes		
Number of turnovers			439		
Number of firm-years			20,908		

Table 8

Did Regulation G improve CEO turnover-performance sensitivity?

Estimates from multinomial logistic regressions that examine the likelihood of forced and voluntary CEO turnovers, based on our sample of 439 forced CEO turnovers (*F_CEO_TO*) and 1,632 voluntary CEO turnovers (*V_CEO_TO*) from 1993–2013. The sample is divided into pre- and post-Regulation G periods. Data on CEO turnovers come from the ExecuComp database. A turnover is classified as forced based on the classification scheme proposed by Parrino (1997). The data exclude CEO's first year in office and firms in the financial and utility sectors (SIC codes between 6000–6999 and 4900–4999). A positive (negative) coefficient indicates that an increase in the covariate increases (decreases) the probability of CEO turnover. Year dummies and industry indicators are not reported. Industry indicators are based on the Fama-French 48 industry classification. All variables are defined in the Appendix. ***, **, * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Variable	Pre-Regulation G period		Post-Regulation G period	
	Forced	Voluntary	Forced	Voluntary
EPS_GAAP	–2.222***	–1.243**	–1.722**	–1.853***
	(0.000)	(0.016)	(0.001)	(0.000)
EPS_Street	1.952	1.637***	–1.260	2.436***
	(0.234)	(0.137)	(0.247)	(0.002)
Guidance	–4.901**	–0.794	–0.986	–1.354
	(0.065)	(0.613)	(0.591)	(0.318)
Ret_Idio	–0.811***	–0.354***	–0.972***	–0.432***
	(0.000)	(0.001)	(0.000)	(0.000)
Ret_Peer	–0.452	–0.079	–0.720***	–0.725***
	(0.142)	(0.631)	(0.003)	(0.000)
Std_Ret	2.875**	0.822	0.676	–0.326
	(0.013)	(0.255)	(0.584)	(0.675)
LMVE	0.213***	0.069**	0.114**	–0.004
	(0.000)	(0.023)	(0.021)	(0.895)
MTB	–0.068	0.059	–0.121	0.008
	(0.381)	(0.133)	(0.123)	(0.841)
SGR	–0.264	–0.227	–0.251	0.039
	(0.315)	(0.190)	(0.444)	(0.829)
LEV	0.315	0.239	–0.223	–0.194
	(0.502)	(0.377)	(0.584)	(0.401)
CEO_Tenure	–0.014	–0.014***	0.009	–0.018***
	(0.314)	(0.006)	(0.448)	(0.001)
CEO_Age	–0.044***	0.122***	–0.045***	0.120***
	(0.000)	(0.000)	(0.000)	(0.000)
CEO_Owner	0.110**	0.009***	–0.031	–0.105***
	(0.042)	(0.841)	(0.154)	(0.000)
CEO_Dual	–0.120	0.036	0.099	0.167**
	(0.474)	(0.719)	(0.492)	(0.043)
Intercept	–3.121***	–9.920***	–1.939***	–9.184***
	(0.000)	(0.000)	(0.000)	(0.000)
Industry indicators	Yes		Yes	
Year indicators	No		No	
Number of turnovers	183	746	256	886
Number of firm-years	9,705		12,835	

Table 9

What income statement components drive the difference between GAAP and Street earnings?

This table reports the summary statistics of the estimated coefficients and adjusted R-square of 43 industry-level regressions from 1993–2013, where industries are classified using the Fama-French 48 industry classification. We disaggregate total expenses following the approach in Donelson et al. (2011). *COGS* is cost of goods sold, *SGA* is selling, general, and administrative expenses, *RD* is research and development expenses, *Depr* is depreciation expense, *Tax* is tax expense, *SI* is special items, and *Other* is other expenses. The estimated model is as follows: $EPS\_GAAP - EPS\_Street = \alpha_0 + \alpha_1 COGS + \alpha_2 SGA + \alpha_3 Depr + \alpha_4 Tax + \alpha_5 SI + \alpha_6 Other + \varepsilon$

Panel A: Descriptive statistics					
Variable	Mean	Std.	P25	Median	P75
COGS	–1.042	1.453	–1.217	–0.557	–0.224
SGA	–0.262	0.304	–0.321	–0.170	–0.085
Depr	–0.059	0.068	–0.070	–0.037	–0.020
Tax	–0.024	0.033	–0.039	–0.025	–0.009
SI	–0.018	0.059	–0.012	–0.001	0.000
Other	–0.022	0.051	–0.025	–0.007	0.001
Panel B: Summary Statistics of the Estimated Coefficients					
Estimate	Mean	t-value	*p*-value	Median	Std.
Intercept	0.002	0.70	0.486	0.002	0.014
COGS	–0.002	–0.27	0.792	–0.002	0.041
SGA	0.004	0.11	0.913	–0.002	0.242
Depr	–0.031	–0.33	0.743	0.032	0.625
Tax	0.032	0.48	0.632	0.171	0.432
SI	0.900	29.07	0.000	0.915	0.203
Other	0.199	4.76	0.000	0.176	0.274
Adj. R^2	0.609	21.10	0.000	0.634	0.189

Table 10

Logistic regression relating CFO turnovers to earnings performance measures.

Estimates from logistic regressions that examine the likelihood of CFO turnovers, based on our sample of 1,005 CFO turnovers from 2006–2013. Data on CFO turnovers come from the ExecuComp database. We omit cases where CFO is promoted to CEO in the same company. The data exclude firms in the financial and utility sectors (SIC codes between 6000–6999 and 4900–4999). A positive (negative) coefficient indicates that an increase in the covariate increases (decreases) the probability of CFO turnover. Intercept, year dummies, and industry indicators are not reported. Industry indicators are based on the Fama-French 48 industry classification. All variables are defined in the Appendix. ***, **, * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Variable	(1)	(2)
EPS_GAAP	–0.265	–0.270
	(0.435)	(0.436)
EPS_Street	0.739	0.625
	(0.300)	(0.395)
Guidance	–1.947	–1.791
	(0.105)	(0.145)
Ret_Idio	–0.460***	–0.459***
	(0.000)	(0.000)
Ret_Peer	–0.008	–0.169
	(0.973)	(0.494)
Std_Ret	1.662**	1.746*
	(0.026)	(0.023)
LMVE	–0.013	–0.016
	(0.629)	(0.559)
MTB	0.051	0.039
	(0.145)	(0.300)
SGR	–0.059	–0.042
	(0.729)	(0.807)
LEV	0.336*	0.244
	(0.083)	(0.248)
CFO_Age	0.051***	0.051***
	(0.000)	(0.000)
CFO_Owner	–0.508***	–0.484***
	(0.000)	(0.000)
Industry indicators	No	Yes
Year indicators	No	Yes
Number of turnovers	1,005	1,005
Number of firm-years	8,861	8,861
Likelihood ratio	255.10	308.64