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Short-term earnings guidance and accrual-based earnings management

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Abstract: Motivated by recent practitioners' concerns that short-term earnings guidance leads to managerial myopia, we investigate the impact of short-term earnings guidance on earnings management. Using a propensity-score matched control sample, we find strong and consistent evidence that the issuance of short-term quarterly earnings guidance is associated with *less*, rather than more, earnings management. We also find that regular guiders exhibit less earnings management than do less regular guiders. Our findings hold using both abnormal accruals and discretionary revenues to measure earnings management and after controlling for potential reverse causality concerns. Furthermore, in a setting where managers have particularly strong capital market incentives to manage earnings, we corroborate these findings by documenting that earnings guidance either has no impact on or mitigates earnings management. Overall, our evidence does not support the criticism from practitioners that short-term earnings guidance leads to more earnings management.

Keywords: earnings guidance, management forecasts, earnings management, abnormal accruals, discretionary revenues
JEL Descriptors: M40; M41

Short-term earnings guidance and accrual-based earnings management

1. Introduction

Recent studies document that several high profile companies such as McDonald's, Coca-Cola, and AT&T have announced the discontinuation of quarterly earnings guidance (Chen, Matsumoto, and Rajgopal 2011; Houston, Lev, and Tucker 2010).[1] The CFA Institute and the Business Roundtable Institute for Corporate Ethics encourage managers to end the practice of providing quarterly earning guidance because providing such guidance can lead to short-termism (CFA Institute, 2006). The report defines short-termism as the excessive focus that corporate leaders, investors, and analysts place on short-term earnings at the expense of long-term value creation. This focus on short-term earnings can create pressure on managers to engage in myopic behavior, including the use of accounting manipulations, to meet earnings expectations.[2]

Despite the importance of this issue, there has been surprisingly little research that directly addresses whether *short-term* earnings guidance leads to earnings management. Kasznik (1999) finds that firms issuing *long-term* annual earnings forecasts make income-increasing choices when, ex post, earnings fall below their own forecasts. However, recent research has suggested that firms have very different incentives when issuing long-term (i.e., forecasts of annual earnings) versus short-term (i.e., forecasts of quarterly earnings) guidance (Chen et al. 2011, Houston et al. 2010). As a result, and given the heightened concerns expressed by practitioners about the practice of issuing short-term earnings guidance, we seek to answer the question of whether *short-term* earnings guidance impacts earnings management.

[1] As noted by Chen et al. (2011), surveys conducted by the National Investors Relations Institute suggest the number of firms providing quarterly guidance decreased from 75% in 2003 to 27% in 2007.

[2] Accounting manipulations, when revealed, can lead to financial restatements that destroy shareholder value. For example, prior studies document significantly negative average abnormal returns and significant increases in cost of capital surrounding announcements of financial restatement (Palmrose, Richardson, and Scholz 2004; Hribar and Jenkins 2004).

One of the primary concerns expressed by critics of short-term earnings guidance is that it leads to an excessive focus on short-term earnings. Therefore we define a short-term forecast as a quarterly forecast of the subsequent quarter's earnings issued within a window of [-90, 0] days, with day 0 being the fiscal quarter-end date.[3] Note that all annual forecasts are excluded from this definition. Consistent with this definition of short-term earnings guidance, we measure earnings management activity using quarterly absolute abnormal accruals (based on Jones 1991 and modified as suggested by Ball and Shivakumar 2006), and quarterly absolute discretionary revenues (based on Stubben, unpublished dissertation, Stanford University, 2006 and Stubben 2010). Conceptually, absolute abnormal accruals and absolute discretionary revenues capture managerial discretion over financial reporting within existing accounting standards. We believe that, among the available proxies for earnings management, these measures most closely capture the concerns expressed by the CFA Institute (i.e., window dressing designed to influence reported earnings but not actual cash flows).[4]

Using a propensity-score matched sample design to control for the self-selection bias associated with the issuance of guidance, we find firms issuing short-term earnings forecasts exhibit smaller abnormal accruals and smaller discretionary revenues relative to firms providing no earnings forecasts. In addition, within the sample of firms that issue short-term earnings guidance, we find regular guiders report smaller abnormal accruals and smaller discretionary

[3] We exclude forecasts made after the end of the fiscal period but before earnings are announced because these forecasts are usually considered pre-announcements of earnings. In untabulated sensitivity analyses, we include firms issuing earnings preannouncements, and our findings are qualitatively similar. Note that most firms that issue earnings preannouncements also issue quarterly guidance *before* the end of the quarter.

[4] Managers have discretion in financial reporting and can use such discretion opportunistically for rent extraction or efficiently to maximize firm value. We adopt the opportunistic view of earnings management, consistent with Schipper (1989), who defines earnings management as ". . . a purposeful intervention in the external financial reporting process, with the intent of obtaining some private gain. . . . ," and Healy and Wahlen (1999), who state that, "earnings management occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers."

revenues than less regular guiders. Thus, firms providing earnings guidance and more regular earnings guiders, on average, exhibit less, not more, earnings management. These results are robust to Granger-causality tests to mitigate reverse causality concerns and to a changes design that further addresses the issue of self-selection.

The above findings contradict the crux of the criticism of short-term earnings guidance. To lend greater credence to our inference, we also examine a setting where managers are known to have strong short-term capital market incentives to manage earnings: when the firm has impending needs to raise external capital (e.g., Teoh, Welch, and Wong 1998a, b). While critics of short-term earnings guidance might be particularly concerned about guidance leading to more earnings management for firms facing capital market pressure, we find that the issuance of earnings guidance either has no effect on or mitigates earnings management in this setting. Thus, these findings corroborate our main result that earnings guidance does not exacerbate, but mitigates, earnings management.

We conduct an additional analysis to address the specific concern that managers of firms that issue short-term guidance inflate (rather than understate) earnings. Specifically, we partition our sample into subsamples based on the sign of abnormal accruals and discretionary revenues and estimate truncated regressions to assess the impact of earnings guidance on *signed* abnormal accruals. We find that the issuance and regularity of earnings guidance are associated with less positive, as well as less negative, abnormal accruals and discretionary revenues. This result holds regardless of whether managers are guiding market expectations upwards or downwards.

Given the recent concerns about using abnormal accrual models to measure earnings management, we implement careful procedures to enhance the validity of our findings. First, we use discretionary revenues as an additional proxy for earnings management to help mitigate the

potential for both Type I and Type II errors associated with abnormal accrual models (Stubben, unpublished dissertation, Stanford University, 2006; Stubben 2010). Second, we use the Ball and Shivakumar (2006) nonlinear accrual model to incorporate the asymmetry in gain and loss recognition. Third, to purge the impact of economic fundamentals on the abnormal accrual measures (Dechow, Ge, and Schrand 2010), we include multiple proxies that capture the firm's business fundamentals and estimate our accrual measures using industry-adjusted cash from operations. Fourth, we control for operating volatility to mitigate the concern raised in Hribar and Nichols (2007) that the use of *unsigned* abnormal accrual measures can result in over-rejection of the null hypothesis of no earnings management when the partitioning variable of interest is correlated with operating volatility. In addition to the above, we note that all our analyses are based on a propensity-score matched control sample, which helps mitigate the concern that our results are driven by differences in observable firm fundamentals rather than by short-term guidance.

Our study makes the following contributions. First, we inform the debate on whether short-term earnings guidance leads to more earnings management. Our finding that short-term earnings guidance is associated with less earnings management is contrary to recent practitioners' concerns about the potential negative consequences of short-term earnings guidance. In contrast, our evidence is consistent with the views that guidance issuance can serve to discipline managers' reported earnings (Dutta and Gigler 2002) and to better align market expectations (Ajinkya and Gift 1984), which results in managers having less ability and less need to manage earnings.

Second, our research extends existing studies on the relation between voluntary disclosure and earnings management. Our findings complement Jo and Kim's (2007) finding that

more frequent voluntary disclosure via press releases is associated with less earnings management around seasoned equity offerings, and Choi, Myers, Zang, and Ziebart's (2011) finding that more frequent and more precise guidance helps investors better incorporate future earnings into price. Lastly, our study adds to the larger literature on the dynamics between voluntary disclosure and mandatory disclosure. While most studies in this area investigate how mandatory disclosure affects voluntary disclosure (Lennox and Park 2006; Gong, Li, and Xie 2009), we document that voluntary disclosure can also impact mandatory disclosure.

We note three caveats with our study. First, our findings speak to the *average* behavior of firms and cannot be construed as evidence that all earnings guidance constrains earnings management activity for all firms at all times. In some specific settings, earnings guidance may not have this effect, particularly for firms that have extreme financial misstatements (e.g., Feng, Ge, Li, and Nagarajan 2011). Second, because we examine the impact of *voluntary* short-term earnings guidance on earnings management, our findings cannot speak to the effect of any regulatory requirement for firms to issue short-term earnings guidance. Third, our study focuses on accrual-based earnings management and not on real activities manipulation.[5] We believe both these issues present interesting opportunities for future research.

The remainder of the paper is organized as follows. Section 2 reviews relevant literature and develops empirical predictions. Section 3 outlines our research design, and section 4 discusses the results of our main empirical tests as well as additional analyses to address endogeneity. Section 5 provides corroborating evidence by focusing on a specific setting in

[5] While some critics of short-term earnings guidance are also concerned about the impact of guidance on earnings management through real activities, the focus of our paper is accrual-based earnings management. However, in untabulated analyses using annual measures of real activities management advanced by Roychowdhury (2006) (i.e., abnormal operating cash flows, abnormal production costs, and abnormal discretionary expenses), we find evidence that guiding firms exhibit less real activities manipulation than do non-guiding firms. In contrast, Cheng, Subramanyam, and Zhang (2008) examine the association between earnings guidance and real earnings manipulation and find firms that guide frequently invest significantly less in research and development than do firms that guide occasionally.

which firms face capital market pressure to manage earnings. Section 6 addresses the specific concern that guidance firms are more likely to make income-increasing accounting adjustments. Section 7 discusses the inappropriateness of meeting-or-beating analysts' forecasts as a proxy for earnings management in our setting. Section 8 concludes.

2. Background and hypothesis development

While acknowledging the benefits to providing earnings guidance, the CFA Institute and the Business Roundtable Institute for Corporate Ethics list "focus on short-term earnings" or short-termism as one of the most significant costs of providing quarterly earnings guidance (CFA Institute 2006). Short-termism reinforces the focus on short-term performance and creates pressure on managers to behave myopically in order to meet earnings expectations. The same report recommends publicly traded companies end the practice of issuing short-term earnings forecasts in order to mitigate the fixation on short-term earnings results. Consistent with this recommendation, McCafferty (2007) reports that a number of newly listed companies, such as Google and Hanesbrands, choose not to issue earnings guidance. Other high-profile companies, such as McDonald's, Coca-Cola, and AT&T, also publicly announced the discontinuation of issuing short-term quarterly earnings guidance (Chen et al. 2011).

The primary concern expressed by the critics is that providing short-term earnings guidance leads to a focus on short-term earnings performance that puts pressure on managers to undertake actions, including accounting manipulations, in order to meet market expectations. For example, McCafferty (2007) quotes the CFO of Hanesbrands, Lee Wyatt, as saying that his company does not issue short-term quarterly earnings guidance because ". . . we didn't want to worry if we were a penny long or a penny short [each quarter]." The implication is that issuing short-term guidance increases managers' concern about whether reported quarterly earnings are

different from market expectations, which can lead to earnings management in an effort to minimize the earnings surprise. Similarly, Buffett (2000, p. 18) suggests that ". . . for a major corporation to predict that its per-share earnings will grow . . . is to court trouble," and that ". . . they [corporations] sometimes played a wide variety of accounting games to make the numbers . . . accounting shenanigans have a way of snowballing. . . ."

In an earlier study, Kasznik (1999) focuses on *long-term* earnings guidance and finds that managers have incentives to manage earnings toward their own forecasts due to potential legal and reputational cost concerns. He finds that guiding firms that report realized earnings below their own long-term annual forecasts exhibit positive abnormal accruals. However, no study directly addresses whether *short-term* earnings guidance affects earnings management behavior. Given recent research finding that the incentives for issuing short-term versus long-term forecasts can be quite different (e.g., Chen et al. 2011; Houston et al. 2010), and especially given the heightened scrutiny of short-term earnings guidance, it is important to fill this void by providing evidence on the impact of short-term earnings guidance on earnings management.[6]

Although there is limited research that directly addresses the impact of short-term guidance on earnings management, prior academic work provides some insights as to why the concerns expressed by critics of short-term earnings guidance may not be descriptive.[7] Specifically, Ajinkya and Gift (1984) find that managers issue earnings guidance to align market

[6] In an untabulated test, we compare firms that issue only *long-term* annual forecasts in the first three quarters of the current year (the same forecasts examined by Kasznik 1999) to a propensity-score matched control sample of firms that do not issue long-term annual guidance in the same year. We find no difference in absolute annual abnormal accruals or discretionary revenues, our two measures of earnings management, across these two samples. This finding further illustrates (a) that our findings cannot be inferred from Kasznik (1999), and vice versa, and (b) the fundamentally different incentives associated with long-term versus short-term guidance (Chen et al. 2011, Houston et al. 2010).

[7] In a concurrent study, Acito (2011) examines whether quarterly earnings guidance is related to benchmark beating and accounting irregularities. He finds that *both* guiding and non-guiding firms manage earnings to beat earnings benchmarks and concludes that the level of earning management exhibited by both types of firms is similar. In addition, he finds no relation between the issuance of quarterly earnings guidance and the likelihood of accounting irregularities. Thus, his findings are also inconsistent with critics' concerns that firms that issue quarterly earnings guidance exhibit more earnings management than do non-guiding firms.

expectations with their own expectations. Thus, managers may have less need to manage earnings if they are already using management guidance to adjust market expectations. In addition, an implication from Dutta and Gigler's (2002) theoretical study on earnings guidance and earnings management is that earnings guidance allows shareholders to better monitor managers' reporting, and can therefore help deter earnings management.

More recently, Jo and Kim (2007) find that firms providing more voluntary disclosure (in the form of press releases) exhibit *less* earnings management around seasoned equity offerings. Furthermore, Choi et al. (2011) find that firms issuing more frequent short-term and long-term guidance provide more informative disclosures to the capital market. The evidence in Choi et al. (2011) is consistent with arguments that stopping earnings guidance would lead to less information about future earnings.[8] For example, Janjigian (2003) states that, "Without guidance, the gap between actual earnings and the consensus estimate, which is already large, will only be larger."

In summary, recent concerns expressed by practitioners and the limited empirical and theoretical research present contrasting predictions on the effect of earnings guidance on earnings management. Therefore, we present the following non-directional hypothesis:

H1: Earnings management is systematically associated with the issuance of short-term earnings guidance.

A direct implication of the criticism of short-term earnings guidance is that firms that guide regularly face more pressure to manage earnings than do firms that guide less regularly. Alternatively, regular guidance can indicate even less need or ability for

[8] The evidence in Choi et al. (2011) is also consistent with Houston et al. (2010) and Chen et al. (2011), who show that information transparency and disclosure quality deteriorate for firms that cease to issue quarterly earnings guidance. In contrast, Hu, Hwang, and Jiang (2012) find that, upon cessation of quarterly guidance, information asymmetry decreases more for firms that issued guidance in at least three quarters of the previous year than for firms that issued guidance in less than three quarters in the previous year.

managers to manage earnings, leading to the opposite prediction that regular guiders exhibit less earnings management than do less regular guiders. Thus, we present our second non-directional hypothesis:

H2: Earnings management is systematically associated with the regularity of short-term earnings guidance.

3. Empirical design

3.1 Propensity-score matched sample

Firms issuing earnings guidance likely differ from firms that do not. As a result, rather than using all non-issuing firms as a control sample, we use a propensity-score matched control sample and compare firms that issue earnings guidance to a control sample matched on *observable* firm characteristics that prior literature has shown to be associated with the issuance of earnings guidance. This procedure mitigates the concern that observable firm characteristics associated with the choice to issue earnings guidance drive differences in the relation between earnings guidance and earnings management.

We generate propensity scores using a probit regression modeling the likelihood a firm will issue earnings guidance, as outlined by prior literature (e.g., Hutton 2005; Ajinkya, Bhojraj, and Sengupta 2005):

$$MF_{iq} = \alpha + \beta_1 INST_{iq-1} + \beta_2 AC_{iq-1} + \beta_3 DISP_{iq-1} + \beta_4 RVOL_{iq-1} + \beta_5 ROA_{iq-1} + \beta_6 BTM_{iq-1} + \beta_7 SIZE_{iq-1} + \beta_8 PERS_{iq-1} + \beta_9 PRED_{iq-1} + \Sigma IND + \varepsilon_{iq} \quad (1)$$

Detailed variable definitions used in equation (1) are presented in Appendix A.[9] Prior research finds that firms with greater institutional ownership (*INST*), greater analyst following (*AC*), and higher information asymmetry (*DISP, RVOL*) are more likely to issue guidance (Ajinkya et al. 2005, Hutton 2005). We include *ROA* to control for firm performance (Miller

[9] To avoid considerably reducing the sample size, for firms that are not followed by any analysts, we set *AC* (analyst coverage) equal to zero and set *DISP* (forecast dispersion) equal to the sample mean.

2002) and *SIZE* and *BTM* to control for the impact of firm size and growth on disclosure decisions. Another important factor relevant to our setting is earnings predictability; the possibility exists that firms with more predictable earnings are more likely to issue guidance. We thus include earnings persistence (*PERS*) and earnings predictability (*PRED*) in equation (1). We estimate equation (1) separately for each quarter, and for each firm that issues short-term earnings guidance (discussed in detail in section 3.3), we identify a firm in the same quarter that does not issue earnings guidance with the closest predicted probability of issuing guidance.[10]

In addition to mitigating self-selection concerns, this propensity-score matched control sample presents two additional advantages. First, the variance of abnormal accruals is similar across the guidance and control observations. This similarity mitigates concerns of heteroskedasticity leading to incorrect inference of differences in earnings management when there are none (Hribar and Nichols 2007). Second, important firm characteristics, such as firm size, growth, the level of cash flows, and volatility of cash flows, are also insignificantly different across our guidance and control observations. The similarity of the guidance sample and the propensity-matched control sample along these dimensions mitigates the concern that correlations between our partitioning variable (earnings guidance) and these firm characteristics drive our inferences. We report the results of estimating this first-stage probit model used to generate propensity scores in Appendix B.

3.2 Measures of earnings management

While the literature has relied on a variety of empirical measures of earnings management (e.g., meeting-or-beating benchmarks, earnings restatements, accounting frauds,

[10] To ensure that our matching procedure is valid, we calculate the average difference in the predicted probability of guidance issuance between guidance firms and the matched control firms that do not issue guidance. This average difference is very small and is not statistically significant using a t-test. We therefore conclude that our matching procedure is effective.

etc.), we believe abnormal accruals and discretionary revenues best capture managers' use of accounting discretion and are the most appropriate measures for our research question and setting. In particular, critics of earnings guidance are mainly concerned that managers will resort to accounting shenanigans to manage earnings. Since these concerns are focused on managerial discretion over earnings, rather than on outcomes that may follow (e.g., meeting or beating benchmarks, restatements, fraud), we assess earnings management by measuring the extent of managerial intervention. Specifically, we examine the impact of earnings guidance on the absolute magnitude of abnormal accruals and the absolute magnitude of discretionary revenues.

We obtain absolute quarterly abnormal accruals (*ABAC*) from the cross-sectional Jones (1991) model and absolute quarterly discretionary revenues (*ABREV*) from a quarterly version of the cross-sectional Stubben (unpublished dissertation, Stanford University, 2006; 2010) model.[11] Details of estimating *ABAC* and *ABREV* are presented in Appendix A. Larger absolute values of these measures indicate more earnings management.

Note that a concern with using abnormal accruals to proxy for earnings management is the difficulty in distinguishing the impact of managerial discretion from the impact of the firm's operating environment on reported earnings (e.g., Dechow et al. 2010). Empirically, this issue manifests itself when the firm's underlying operating environment is correlated with the partitioning variable (e.g., earnings guidance) used to identify earnings management.

We take multiple steps in order to address this concern. First, in addition to the abnormal accrual measure (*ABAC*), we also use discretionary revenues (*ABREV*), as advanced in Stubben (unpublished dissertation, Stanford University, 2006; 2010), to capture earnings management.

[11] Dechow and Dichev (2002) provide a theoretically sound abnormal accrual model that is widely used to capture earnings management. However, we do not use the Dechow-Dichev model because we focus on the impact of short-term earnings guidance on *quarterly* earnings management, and the Dechow-Dichev model does not lend itself to quarterly estimation.

Stubben (unpublished dissertation, Stanford University, 2006; 2010) argues that discretionary revenues mitigate some of the shortcomings associated with abnormal accrual measures, resulting in fewer Type I and Type II errors. Second, in order to reduce measurement error in the estimation of abnormal accruals, we use a nonlinear accrual model that incorporates the asymmetry in gain and loss recognition (Ball and Shivakumar 2006). Third, when we test the association between earnings guidance and earnings management, we directly include proxies that capture the firm's business fundamentals such as firm size, growth, length of operating cycle, firm performance, and earnings persistence and predictability. Moreover, in our estimation of the abnormal accrual measure (*ABAC*), we include (industry-adjusted) operating cash flows to control for underlying firm performance. These steps help mitigate concerns that our abnormal accrual measure is simply capturing the firm's underlying economic conditions (Dechow et al. 2010).

Another important concern relates to the use of unsigned abnormal accrual measures, which can result in over-rejection of the null hypothesis of no earnings management, especially when the partitioning variable of interest is correlated with firm characteristics such as operating volatility (Hribar and Nichols, 2007). Therefore, as suggested by Hribar and Nichols (2007), we include two measures of operating volatility in our regression models, the standard deviation of operating cash flows and the standard deviation of earnings, to mitigate the concern over the use of unsigned abnormal accruals in tests of earnings management.

3.3 Measures of short-term guidance and regression models for hypotheses testing

To test whether short-term earnings guidance affects earnings management (*EM*), we estimate the following regression:

$$EM_{iq} = \alpha + \beta_1 MF_{iq} + \beta_2 LEV_{iq-1} + \beta_3 BTM_{iq-1} + \beta_4 OPCYCLE_{iq-1} + \beta_5 CAPINT_{iq-1} + \beta_6 ROA_{iq-1} + \beta_7 SIZE_{iq-1} + \beta_8 INST_{iq-1} + \beta_9 \sigma(CFO)_{iq-1} + \beta_{10} \sigma(EARN)_{iq-1} +$$

$$\beta_{11}PERS_{iq-1} + \beta_{12}PRED_{iq-1} + \Sigma IND + \Sigma QTR + \varepsilon_{iq}. \quad (2)$$

EM is captured using the two proxies discussed above: *ABAC* and *ABREV*. We define short-term earnings forecasts as *quarterly* forecasts of the subsequent quarter's earnings issued within a window of [-90, 0] days, with day 0 being the last day of the fiscal quarter.

MF in equation (2) is measured in two ways. The first is a dichotomous variable, *MF_ISSUE*, coded as one for firm-quarters with at least one short-term quarterly earnings forecast during the quarter and zero for a control group of firm-quarters with no forecasts. We examine differences in earnings management between firms that issue short-term guidance (*MF_ISSUE* = 1) and the propensity-score matched control group of firms that do not issue short-term guidance (*MF_ISSUE* = 0). If short-term guidance fosters myopic earnings management, as alleged by critics, β_1 will be positive. On the other hand, if the issuance of short-term earnings guidance is associated with less earnings management, β_1 in equation (2) will be negative. This analysis constitutes our test of Hypothesis 1.

To test Hypothesis 2, we focus on the subset of firms that issue short-term earnings guidance and capture the *regularity* of short-term earnings guidance by counting the number of quarters, over the current and the prior three quarters, in which the guidance firm issues at least one short-term quarterly forecast. Thus the second measure of *MF* in equation (1), *MF_REG*, ranges from 1 to 4. We believe counting the number of quarters with short-term forecasts is a more appropriate way to establish the regularity of guidance than is counting the number of unique short-term forecasts, as the latter approach would be affected by forecast revisions of a single quarter's earnings. To test Hypothesis 2, we examine the coefficient on *MF_REG*, β_1, in equation (2). If regular short-term earnings guidance leads to more earnings management, β_1 will

be positive, and if regular short-term earnings guidance reduces earnings management, β_1 will be negative.[12]

We include several control variables in equation (2). We include the ratio of debt to equity (*LEV*) to control for the effects of leverage on earnings management (DeFond and Jiambalvo 1994, Barton and Waymire 2004). We control for growth opportunities using the book-to-market ratio (*BTM*) because Skinner and Sloan (2002) find growth firms have stronger incentives to manage earnings as the market severely penalizes growth firms for negative earnings surprises. High-growth firms might also have underlying operating environments that differ from those of low-growth firms.

As discussed in the previous section, we include several variables to control for firms' underlying business fundamentals. We control for the length of the operating cycle (*OPCYCLE*) and capital intensity (*CAPINT*), as prior studies find both measures of business activities affect reported accruals (Dechow and Dichew 2002, Cohen 2008). We also control for underlying firm performance using accounting return (*ROA*), firm size using the natural log of sales (*SIZE*), and percentage of institutional ownership (*INST*).

To address the concerns of correlated omitted variables raised in Hribar and Nichols (2007), we have already included controls for firm size (*SIZE*), growth (*BTM*), and leverage (*LEV*) in equation (2), and we directly control for operating cash flows in the estimation of the two abnormal accrual measures (see Appendix A for estimation details).[13] Furthermore, we include both the standard deviation of operating cash flows ($\sigma(CFO)$) and the standard deviation

[12] In equation (2), even though *MF* is measured using the same window as the dependent variable, *EM*, there is a lead-lag relation between the measures of forecast guidance (i.e., *MF_ISSUE* and *MF_REG*) and the abnormal accrual/discretionary revenue proxies (*ABAC* and *ABREV*).

[13] We control for the level of operating cash flows in the estimation of abnormal accruals (*ABAC*), consistent with the approach in Ball and Shivakumar (2006). However, Hribar and Nichols (2007) suggest that the level of operating cash flows can be included again as a control variable in subsequent empirical models with unsigned abnormal accruals as the dependent variable. As a robustness check, we further control for the level of operating cash flows in equation (1). We find similar results (untabulated) in all our primary tests, and our inferences remain unchanged.

of earnings ($\sigma(EARN)$) to control for the volatility of the firm's operating environment. Including the standard deviation of earnings also controls for the association between guidance frequency and earnings volatility documented by Waymire (1985). In addition, although we have already included both variables in the first-stage probit model used to generate propensity scores, we again include earnings persistence (*PERS*) and earnings predictability (*PRED*) in equation (2) to further mitigate the concern that earnings predictability is an omitted variable associated with both earnings guidance and earnings management.

Finally, we include industry dummies (*IND*) in equation (1) based on Fama and French's 12 industry groupings. We also include quarter dummies in equation (2) to mitigate concerns over cross-sectional dependence (i.e., earnings management for firm *i* is correlated with earnings management of firm *j* in a given quarter). We cluster our standard errors by firm and by time to address time-series and cross-sectional dependence in the residuals (Petersen 2009). Detailed definitions of all variables are provided in Appendix A.

4. Sample and empirical results

4.1 Sample and descriptive statistics

We obtain our initial sample from First Call's CIG database from 2001 to 2010. We start our sample in 2001 to mitigate errors in the measurement of earnings guidance that are not captured by the CIG database prior to Regulation Fair Disclosure (Reg FD). Reg FD, which prohibits selective disclosure, took effect in late 2000.

We merge this initial sample with the Compustat database and extract financial statement data to calculate our proxies for earnings management, *ABAC* and *ABREV*. We exclude firms in the utilities and regulated industries (SIC codes 4900 to 4949) because these firms are subject to specific institutional and regulatory constraints. We also exclude firms in the financial services

industry (SIC codes 6000 to 6999) because accruals in the financial services industry are not comparable with accruals in other industries.

Panel A of Table 1 provides summary statistics on the earnings management proxies and control variables. Note that the number of usable observations in each of our empirical tests varies due to data restrictions when calculating the two measures of earnings management. Panel B and Panel C further present the mean and median values of the earnings management proxies classified by guidance issuance (*MF_ISSUE*) and by guidance regularity (*MF_REG*) within the sample of firms that issue short-term earnings guidance.[14]

Panel B reveals that, compared to the propensity-score matched firms that do not issue guidance (*MF_ISSUE* = 0), firms with short-term guidance (*MF_ISSUE* = 1) exhibit significantly lower mean and median values of *ABAC* and *ABREV*. Panel C further reveals that, among the firms that issue short-term guidance, both measures of earnings management decrease monotonically as guidance regularity increases. The differences in *ABAC* and *ABREV* between firms that issue short-term guidance in just the current quarter (*MF_REG* = 1) and firms that issue short-term guidance in each of the four quarters leading up to and including the guidance quarter (*MF_REG* = 4) are statistically significant.[15] These initial findings indicate that firms that issue short-term guidance (firms that issue regular guidance) exhibit less earnings management than firms that do not issue short-term guidance (firms that issue less regular guidance) and contradict the assertion that short-term earnings guidance leads to more earnings management.

[14] For expositional ease, in our regression analyses, we multiply the quarterly earnings management proxies (*ABAC* and *ABREV*) by 100 (see Appendix A). The mean of the quarterly abnormal accrual proxy (*ABAC* = 2.59% or 10.36% on an annual basis) reported in Table 1 is comparable to those reported in prior studies using annual abnormal accruals. For example, Hribar and Nichols (2007) report means of absolute annual abnormal accruals between 10.1% and 13.0% based on the Jones (1991) model.

[15] In terms of economic significance, firms that issue short-term guidance exhibit, on average, between 4.3% (*ABAC*) and 6.1% (*ABREV*) less earnings management than do firms that do not issue short-term guidance. Furthermore, firms that regularly issue short-term guidance (*MF_REG* = 4) exhibit between 10.9% (*ABAC*) and 14.5% (*ABREV*) less earnings management than do non-guiding firms.

4.2 Tests of H1 and H2

Table 2 presents the results of estimating equation (2) to test Hypothesis 1 using both measures of earnings management (*ABAC* and *ABREV*) and using *MF_ISSUE* as our test variable. β_1 is significantly negative in both regressions at the 1% level (two-way clustered t-statistics = -2.36 and -3.36, respectively). These results are consistent with the univariate results presented in Panel B of Table 1 and suggest that, ceteris paribus, short-term earnings guidance issuance is associated with less, rather than more, earnings management.

Table 3 presents the results of estimating equation (2) to test Hypothesis 2. Specifically, within the sample of firms that issue short-term earnings guidance, we examine whether regular guiders exhibit less earnings management than do less regular guiders. The coefficients on *MF_REG* using both measures of earnings management (*ABAC* and *ABREV*) are significantly negative (two-way clustered t-statistics = -2.78 and -3.97, respectively), indicating that, ceteris paribus, more regular guiders manage earnings less than do less regular guiders. These results are consistent with the univariate results presented in Panel C of Table 1.

Taken together, the results in Tables 1, 2, and 3 all contradict assertions that short-term earnings guidance leads to earnings management. Rather, these findings consistently support the implications from prior research that earnings guidance results in less need (Ajinkya and Gift, 1984) or less ability (Dutta and Gigler 2002) for earnings management. These results are also broadly consistent with recent empirical findings that returns are more informative about future earnings for firms that issue earnings guidance (Choi et al. 2011) and that firms with more transparent disclosures (as measured by the number of press releases) exhibit less earnings management around seasoned equity offerings (Jo and Kim 2007).

4.3 Reverse causality

Our paper is related to an emerging empirical literature that analyzes the relation between earnings attributes and voluntary disclosure. Most of this literature focuses on how earnings attributes impact the issuance of management earnings forecasts. For example, Lennox and Park (2006) find that higher market sensitivity to earnings (i.e., earnings response coefficients from 16-quarter rolling windows) leads to a greater likelihood of management earnings forecasts.[16] Gong et al. (2009) assume that managers' judgment errors cause similar biases in both their earnings forecasts and reported earnings and find management forecast errors for the subsequent year to be positively related to current year's working capital accruals. Xu (2010) uses quarterly accruals and finds similar results to those documented by Gong et al. (2009).

These findings suggest the potential for reverse causality in our research setting. Specifically, while we examine the effect of earnings guidance on earnings management, earnings management can also impact earnings guidance practices. Thus, we assess the robustness of our findings to reverse causality by using a Granger lead-lag test to examine whether the negative relation between earnings guidance and earnings management holds after controlling for potential reverse causality.

For the Granger causality test, we estimate the following equations:

$$EM_{iq} = \alpha + \beta_1 MF_{iq} + \beta_2 EM_{iq-1} + \beta_3 LEV_{iq-1} + \beta_4 BTM_{iq-1} + \beta_5 OPCYCLE_{iq-1} + \beta_6 CAPINT_{iq-1} + \beta_7 ROA_{iq-1} + \beta_8 SIZE_{iq-1} + \beta_9 INST_{iq-1} + \beta_{10} \sigma(CFO)_{iq-1} + \beta_{11} \sigma(EARN)_{iq-1} + \beta_{12} PERS_{iq-1} + \beta_{13} PRED_{iq-1} + \Sigma IND + \Sigma QTR + \varepsilon_{iq} \quad (3a)$$

$$MF_{iq} = \alpha + \beta_1 EM_{iq-1} + \beta_2 MF_{iq-1} + \beta_3 BTM_{iq-1} + \beta_4 SIZE_{iq-1} + \beta_5 INST_{iq-1} + \beta_6 AC_{iq-1} + \beta_7 DISP_{iq-1} + \beta_8 RVOL_{iq-1} + \beta_9 ROA_{iq-1} + \beta_{10} \sigma(EARN)_{iq-1} + \beta_{11} PERS_{iq-1} + \beta_{12} PRED_{iq-1} + \Sigma IND + \Sigma QTR + \varepsilon_{iq} \quad (3b)$$

[16] Francis, Nanda, and Olsson (2008) capture voluntary disclosure *quality* through a self-constructed index based on 2001 annual reports and 10-K filings for 677 firms and find that higher earnings quality drives the quality of disclosure in firms' mandatory filings. However, unlike Lennox and Park (2006), Francis et al. (2008) do not find any relation between management earnings forecast frequency and their earnings quality metric.

Equation (3a) tests whether earnings guidance impacts earnings management after the inclusion of lagged earnings management (EM_{it-1}). A significant β_1 would be consistent with earnings guidance impacting earnings management. Equation (3b) examines whether earnings management impacts earnings guidance after controlling for any association between prior earnings guidance and current earnings management. A significant β_1 would be consistent with earnings management impacting earnings guidance. We estimate the above equations using both measures of earnings management (*ABAC* and *ABREV*) and both measures of earnings guidance (*MF_ISSUE* and *MF_REG*). We estimate equation (3b) using a binary probit model for the dichotomous guidance issuance variable (*MF_ISSUE*) and an ordered probit model for the guidance regularity variable (*MF_REG*).

The results are presented in Panel A of Table 4. To simplify the presentation and highlight our main findings, we do not tabulate the coefficients and t-statistics for the control variables.[17] Panel A1 reports the results of estimating equations (3a) and (3b) using the dichotomous variable, *MF_ISSUE*, and Panel A2 presents the results using the guidance regularity variable, *MF_REG*. The combined results across the two panels show that in the regressions of earnings management on earnings guidance (equation (3a)), the coefficients on earnings guidance proxies (*MF_ISSUE* and *MF_REG*) continue to be significantly negative, even after controlling for any association between prior earnings management and current earnings guidance. These findings corroborate our earlier finding that issuing earnings guidance leads to less earnings management. We also find evidence that earnings management impacts guidance issuance and regularity. This latter finding is not surprising given prior research (e.g., Lennox

[17] For parsimony and expositional purposes, we do not tabulate the coefficients and t-statistics for the control variables in all subsequent tables.

and Park 2005). More importantly, our findings that short-term earnings guidance and short-term guidance regularity are negatively related to earnings management continue to hold.

4.4 Changes test

While we use a propensity-score matched control sample in our primary empirical analyses to address concern about self-selection, this procedure relies only on observable firm characteristics in the probit model to generate the control sample. We further address the concern about self-selection by using each guidance firm as its own control in a changes test. This approach assumes that any underlying firm characteristics associated with the choice to issue earnings guidance remain constant across time. We identify a sample of firms that start ("starters") and a sample of firms that stop ("stoppers") issuing short-term guidance. If guidance mitigates earnings management, this activity should decrease (increase) following guidance initiation (cessation).

We define starters as firms that did not provide short-term guidance for at least eight quarters and then started issuing short-term guidance for at least eight quarters. Similarly, we define stoppers as firms that stopped giving short-term guidance for at least eight quarters after having issued short-term guidance for at least eight quarters. We compare the mean and median abnormal accruals and discretionary revenues for these starters (stoppers), calculated based on the seven quarters before initiating (ceasing) short-term earnings guidance and the seven quarters after guidance initiation (cessation). We exclude the quarter immediately before initiation (cessation) and the quarter of initiation (cessation) in an effort to mitigate the effects any structural changes in firms' fundamentals and operating environment that might drive both the changes in guidance activity and earnings management. Based on these data restrictions, we

identify 57 starters and 110 stoppers with non-missing *ABAC* and 60 starters and 110 stoppers with non-missing *ABREV*.

We present the results of the changes tests in Panel B of Table 4. We find that starters experience a decrease in absolute abnormal accruals (*ABAC*), consistent with less earnings management following the initiation of short-term guidance. We also find that stoppers exhibit an increase in absolute abnormal accruals (*ABAC*) after cessation of earnings guidance. However, we do not find a significant difference in discretionary revenues around initiation or cessation of earnings guidance.

Taken together, the combined evidence in Tables 1 through 4 strongly supports a negative relation between earnings management and the issuance of short-term guidance.

5. Capital market pressure and the impact of guidance on earnings management

The above findings are inconsistent with concerns that short-term earnings guidance leads to more earnings management because of increased pressure on managers to focus on short-term earnings performance. To corroborate the validity of these findings, we identify a setting where prior research has documented that managers have particularly strong incentives to manage earnings, specifically, when firms face external financing needs (Teoh et al. 1988a, b; Dechow, Sloan, and Sweeney 1996). If earnings guidance encourages earnings management, as alleged by critics, it is more likely to manifest itself in such a setting.

We measure external financing needs using both an ex ante and an ex post proxy. Our ex ante measure, *DFCF*, is the decile ranking of the firm's free cash flows, defined as the difference between cash flows from operation and the three-year average of capital expenditures (Dechow et al. 1996). We multiply *DFCF* by negative one, such that higher *DFCF* values are consistent with lower free cash flows and greater need for external capital. Our ex post measure, *ΔSHR*, is

an indicator variable for stock issuance, coded as one if the number of shares outstanding at the end of fiscal year *t+1* is at least 20% higher than the number of shares outstanding at the end of year *t* and zero otherwise (Xu 2010). Following prior studies, both proxies are measured on an annual basis because the decision to raise external capital is a long-term choice that is not likely to vary from quarter to quarter. To be consistent with prior research and with these annual measures of external financing needs, we also measure our earnings management proxies and all control variables on an annual basis. We separately include these two proxies and also interact these proxies with our short-term earnings guidance variable in the following regression models:

$$EM_{it} = \alpha + \beta_1 MF_{it} + \beta_2 DFCF_{it-1} + \beta_3 MF_{it} * DFCF_{i-1t} + \beta_4 LEV_{it-1} + \beta_5 BTM_{it-1} + \beta_6 OPCYCLE_{it-1} + \beta_7 CAPINT_{it-1} + \beta_8 ROA_{it-1} + \beta_9 SIZE_{it-1} + \beta_{10} INST_{it-1} + \beta_{11} \sigma(CFO)_{it-1} + \beta_{12} \sigma(EARN)_{it-1} + \beta_{13} PERS_{it-1} + \beta_{14} PRED_{it-1} + \Sigma IND + \Sigma YEAR + \varepsilon_{it} \quad (2')$$

$$EM_{it} = \alpha + \beta_1 MF_{it} + \beta_2 \Delta SHR_{it+1} + \beta_3 MF_{it} * \Delta SHR_{it+1} + \beta_4 LEV_{it-1} + \beta_5 BTM_{it-1} + \beta_6 OPCYCLE_{it-1} + \beta_7 CAPINT_{it-1} + \beta_8 ROA_{it-1} + \beta_9 SIZE_{it-1} + \beta_{10} INST_{it-1} + \beta_{11} \sigma(CFO)_{it-1} + \beta_{12} \sigma(EARN)_{it-1} + \beta_{13} PERS_{it-1} + \beta_{14} PRED_{it-1} + \Sigma IND + \Sigma YEAR + \varepsilon_{it} \quad (2'')$$

Note that we measure our earnings guidance variables by relying on the issuance (*MF_ISSUE*) and count (*MF_REG*) of quarterly management forecasts issued within 90 days prior to the fiscal quarter end. Thus, in equations (2') and (2''), *MF_ISSUE* is coded as one if the firm issues a short-term quarterly forecast in any of the four quarters in year *t*, and *MF_REG* is the number of quarters in the year in which the firm issues a short-term quarterly forecast in year *t* (i.e., *MF_REG* ranges from 1 to 4). The control sample for both equations is a propensity-score matched sample identified using annual variables. As discussed above, the results of Hypothesis 1 and Hypothesis 2 suggest earnings guidance mitigates earnings management, and we therefore expect β_1 in equations (2') and (2'') to be negative. Consistent with prior research that finds external financing needs create capital market pressure to manage earnings, we expect β_2 to be positive.

Our focus is on the sign of β_3, the coefficient on the interaction between *MF* and *DFCF*/*ΔSHR*. A positive β_3 indicates that short-term earnings guidance leads to further earnings management in this setting, and a negative β_3 indicates that short-term earnings guidance mitigates the impact of external financing needs on earnings management. The results of estimating equations (2') and (2") are presented in Panels A and B of Table 5. For parsimony, we only tabulate and discuss the results based on the issuance of earnings guidance (*MF_ISSUE*) and note that the results based on regularity of earnings guidance (*MF_REG*) are similar. Consistent with the results of our hypotheses tests, β_1 continues to be significantly negative except in Panel A, Column 2 (i.e., when the ex ante measure of external financing and discretionary revenues are examined). β_2, the coefficient on proxies for external financing needs, is significantly positive in all specifications, consistent with prior literature (e.g., Teoh et al. 1998a).

More importantly, the coefficients on the interaction variables between short-term guidance and proxies for external financing needs are either insignificant or significantly *negative*. Thus, even in a setting where managers are documented to have heightened incentives to manage earnings, we do not find evidence that short-term earnings guidance exacerbates earnings management. And in some instances, we find evidence that short-term earnings guidance deters earnings management.

Overall, we interpret these results as corroborating our primary findings that short-term earnings guidance is associated with less, not more, earnings management.

6. Inflating earnings and the direction of earnings guidance

Our analysis so far has focused on the relation between earnings management and earnings guidance, without specifying the direction of earnings management. This approach is

consistent with the concerns about the expectation gap *in both directions* that have been expressed by some CEOs. However, some opponents of earnings guidance appear to be more concerned that managers would inflate earnings to meet the market's elevated short-term expectations. In this section, we provide additional analyses to address this specific concern.

Specifically, we examine whether short-term earnings guidance is associated with income-increasing earnings management. We partition our sample into subsamples based on the sign of abnormal accruals and discretionary revenues and use a truncated regression model (see Chapter 24 of Greene, 2008) to regress our *signed* earnings management proxies on guidance issuance and guidance regularity. If the critics' concerns are valid, firms providing guidance will be found to report more positive abnormal accruals and discretionary revenues than non-guidance firms. (For example, β_1 in the following truncated regression would be positive (negative) when *Signed_EM* is positive (negative) abnormal accruals or discretionary revenues.)

$$\begin{aligned} Signed\_EM_{iq} = {} & \alpha + \beta_1 MF_{iq} + \beta_2 LEV_{iq-1} + \beta_3 BTM_{iq-1} + \beta_4 OPCYCLE_{iq-1} + \beta_5 CAPINT_{iq-1} \\ & + \beta_6 ROA_{iq-1} + \beta_7 SIZE_{iq-1} + \beta_8 INST_{iq-1} + \beta_9 \sigma(CFO)_{iq-1} + \beta_{10} \sigma(EARN)_{iq-1} \\ & + \beta_{11} PERS_{iq-1} + \beta_{12} PRED_{iq-1} + \Sigma\, IND + \Sigma\, YEAR + \varepsilon_{iq} \end{aligned} \quad (4)$$

In Table 6 we present the results of estimating equation (4) using the income-increasing values of abnormal accruals (*ABAC*) and discretionary revenues (*ABREV*) as the dependent variable. For parsimony and to highlight the focus of this test, we do not tabulate the results with negative *ABAC* and *ABREV* as dependent variables, although we offer a brief discussion of these results below.

A striking pattern emerges from columns (1) – (4) of Table 6: β_1 is significantly negative across both measures of earnings guidance (*MF_ISSUE* and *MF_REG*) and for both measures of earnings management. This finding suggests guiding firms report *less* positive abnormal accruals and *less* positive discretionary revenues than non-guiding firms, again contrary to the contention

that guidance encourages income-increasing earnings management. In addition, regular guiders also report *less* positive abnormal accruals and discretionary revenues than do less regular guiders. In untabulated results, when we estimate equation (4) using negative values of *ABAC* and *ABREV* as the dependent variable, β_1 is significantly positive at the 5% level in all regressions, suggesting earnings guidance is associated with less negative earnings management as well. In summary, these findings indicate that guiding firms and regular guiders exhibit both l*ess* positive and *less* negative abnormal accruals and discretionary revenues, inconsistent with the critics' concerns but consistent with our earlier findings using unsigned measures of earnings management (as reported in Tables 2 through 5).

We further examine whether managers who guide market expectations up are more likely to inflate earnings in order to meet the inflated expectations, a concern expressed by some critics of the practice of short-term guidance. We define three variables to capture the direction of earnings guidance: *UPMF* is coded as one for firms that issue *only* positive short-term forecasts or neutral forecast in the quarter and zero otherwise; *DOWNMF* is coded as one for firms that issue *only* negative short-term forecasts in the quarter and zero otherwise; and *MIDMF* is coded as one for firms that issue *both* positive and negative short-term forecasts in the quarter and zero otherwise. We determine the direction of a management forecast by comparing the forecast to the median of all analyst forecasts issued in the 90 days before the issuance of the earnings guidance. We include only point and range earnings forecasts in this analysis. We use these three variables (*UPMF*, *MIDMF*, and *DOWNMF*) instead of *MF* in equation (4) and report the results in columns (5) and (6) of Table 6.[18]

[18] We do not perform a corresponding analysis on the signed *regularity* of earnings guidance because *UPMF*, *MIDMF*, and *DOWNMF* are already defined based on the direction of every management forecast that the firm issues during the year.

Again, the same striking pattern emerges: whether managers are guiding existing expectations upward (*UPMF*) or downward (*DOWNMF*), earnings guidance is associated with less positive earnings management. Taken together, the results in Table 6 present further evidence that guiding firms and regular guiders exhibit *less* income-increasing earnings management.

7. Meeting or beating analysts' expectations as a proxy for earnings management

An alternative measure of earnings management used in the accounting literature is meeting or beating analysts' expectations. We do not believe meeting or beating analysts' forecasts is an appropriate proxy for earnings management in our setting because it is impossible to separate the impact of managerial reporting discretion from the impact of analysts' forecasting performance on a firm's ability to meet or beat analysts' expectations. This concern is particularly relevant in our study, which compares earnings management between firms that provide analysts with earnings guidance and those that do not.

If earnings guidance helps firms meet or beat analysts' expectations for reasons other than earnings management (e.g., because guidance helps analysts more accurately forecast earnings), guidance firms should be both more likely to meet or narrowly beat analysts' expectations *and* more likely to narrowly *miss* analysts' expectations, relative to firms that provide no guidance. To examine the validity of our logic, we estimate three logistic regressions, replacing the dependent variable in equation (2) with three indicator variables for small *BEAT*, *MEET*, and *MISS*, and estimate the following three logistic regressions:

$$\begin{aligned} BEAT_{iq} \text{ or } MEET_{iq} \text{ or } MISS_{iq} = {} & \alpha + \beta_1 MF\_ISSUE_{iq} + \beta_2 LEV_{iq-1} + \beta_3 BTM_{iq-1} + \\ & \beta_4 OPCYCLE_{iq-1} + \beta_5 CAPINT_{iq-1} + \beta_6 ROA_{iq-1} + \beta_7 SIZE_{iq-1} + \beta_8 INST_{iq-1} + \\ & \beta_9 \sigma(CFO)_{iq-1} + \beta_{10} \sigma(EARN)_{iq-1} + \beta_{11} PERS_{iq-1} + \beta_{12} PRED_{iq-1} + \\ & \Sigma IND + \Sigma QTR + \varepsilon_{iq} \end{aligned} \quad (5)$$

BEAT (MISS) is set to one if the firm's actual earnings per share beats (misses) analysts' consensus forecast prior to the earnings announcement by two cents or less and zero otherwise. *MEET* is set to one if the firm's actual earnings per share is equal to analysts' consensus forecast and zero otherwise. If earnings guidance allows analysts to more accurately forecast earnings, the coefficient on *MF_ISSUE* in equation (5) will be positive in all three regressions.

In untabulated results, we find β_1 to be significantly positive in *all* three regressions. Thus, short-term earnings guidance enhances the information environment and helps analysts forecast earnings with greater precision. Importantly, this evidence suggests meeting or beating analysts' forecasts is *not* an appropriate proxy for earnings management in our setting because, for firms that issue guidance, meeting or beating analysts' expectations is driven, at least in part, by analysts' superior forecasting performance for these firms.[19]

8. Conclusion

Motivated by practitioners' concerns that short-term earnings guidance fosters earnings management, we examine the impact of the issuance and regularity of short-term earnings guidance on earnings management. We capture short-term earnings guidance using the issuance of a quarterly earnings forecast within the 90 days prior to the end of the fiscal quarter, and we capture the regularity of short-term guidance based on a firm's short-term guidance activity over the most recent four quarters. We employ two proxies of earnings management to triangulate our results: absolute abnormal accruals based on Jones (1991) and absolute discretionary revenues based on Stubben (unpublished dissertation, Stanford University, 2006; 2010). We also control for self selection by employing a propensity-score matched control sample constructed based on

[19] These results do not suggest meeting or beating is not an appropriate proxy for earnings management in other research settings. Rather, because our primary independent variable (earnings guidance) is associated with meeting or beating for reasons other than managerial manipulation of earnings, it is not a reliable proxy for earnings management in this setting.

firm characteristics shown by prior studies to impact earnings guidance and earnings management.

We find that firms providing short-term earnings guidance exhibit less earnings management than their propensity-score matched counterparts. We also find that regular earnings guiders exhibit less earnings management than do less regular guiders. Since our findings contradict concerns expressed by many critics, we subject our findings to a battery of additional tests. These tests include (i) the Granger lead-lag test to address the potential for reverse causality, (ii) a changes test to further control for self-selection, (iii) examining the association between short-term guidance and earnings management in a setting where managers have strong incentives to manage earnings (i.e., when firms face external financing needs), and (iv) examining specific concerns that managers inflate earnings after guiding market expectations. Across all these tests, one strikingly consistent result remains: short-term earnings guidance is associated with *less*, not more, earnings management.

We caution that three caveats exist when interpreting our results. First, our findings represent average results, which may not apply to firms in specific settings or circumstances. In some settings, firms that issue short-term guidance may engage in more earnings management and other myopic behavior. Second, because we only examine the impact of *voluntary* earnings guidance on earnings management, our findings cannot speak to the effect of any regulatory requirement for firms to issue earnings guidance. Third, we focus exclusively on accounting earnings management and do not examine whether short-term earnings guidance impacts real earnings management. Future research can examine the cross-sectional and temporal variation in the extent to which short-term guidance influences earnings management, as well as whether guidance firms substitute real earnings management for accounting-based earnings management.

Our paper informs the debate on whether firms that issue short-term earnings guidance are more likely to engage in myopic earnings management behavior. We document consistent, robust findings that these firms exhibit less accounting-based earnings management than non-guidance firms. We also extend the voluntary disclosure literature on the relation between earnings guidance and earnings management and the literature on the dynamic interactions between voluntary and mandatory disclosure. While most studies examine how mandatory disclosure attributes affect voluntary disclosure, we find that voluntary disclosure can also have an important impact on mandatory disclosure attributes.

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Appendix A
Definition of Variables

Variables	Definition
ABAC	Absolute value of the residuals based on the Jones (1991) model after controlling for economic losses as in Ball and Shivakumar (2006). The following regression model is estimated quarterly for each industry (based on 2-digit SIC codes) with at least 20 observations: $ACC_{iq} = \beta_0 + \beta_1 \Delta REV_{iq} + \beta_2 NPPE_{iq} + \beta_3 INDADJ\_CFO_{iq} + \beta_4 DIND_{iq} + \beta_5 (DIND_{iq} \times INDADJ\_CFO_{iq}) + \varepsilon_{iq}$. *ACC* is total accruals calculated from statement of cash flow (SCF) data as earnings before extraordinary items minus cash flows from operations. Quarterly earnings before extraordinary items and quarterly cash flow from operations are calculated using the year-to-date data items IBCY and OANCFY in Compustat. ΔREV is change in revenue (SALEQ). *NPPE* is net property, plant, and equipment (PPENTQ) at the beginning of the quarter. We use net PP&E at the beginning of the quarter because quarterly gross PP&E (PPEGTQ) is missing for a large number of observations in Compustat. *INDADJ_CFO* is quarterly cash flows from operations minus the median cash flows from operations for all firms in the same industry (based on 2-digit SIC code) in the same quarter. *DIND* is a dummy variable set to one if *INDADJ_CFO* is less than zero and set to zero otherwise. All variables except *DIND* are deflated by average total assets (ATQ), and all input variables are winsorized at the extreme 1% and 99% level. The absolute values of the regression residuals ($\varepsilon_{i,t}$), multiplied by 100, is our measure of abnormal accruals (*ABAC*). Larger values of *ABAC* indicate more earnings management.
ABREV	Absolute value of the residuals based on the Stubben (unpublished dissertation, Stanford University, 2006) model. The following regression model is estimated quarterly for each industry (based on two-digit SIC codes) with at least 20 observations: $\Delta AR_{iq} = \beta_0 + \beta_1 (1/ASSET_{iq}) + \beta_2 \Delta R_{iq} + \varepsilon_{iq}$. ΔAR is quarterly change in accounts receivables (RECTQ). ΔR is the quarterly change in revenue. *ASSET* is average total assets (ATQ). ΔR and ΔAR are both deflated by average total assets (ATQ), and all input variables are winsorized at the extreme 1% and 99% level. The absolute value of the regression residuals ($\varepsilon_{i,t}$), multiplied by 100, is our measure of discretionary revenues (*AREV*). Larger values of *ABREV* indicate more earnings management.
MF_ISSUE	An indicator variable coded as 1 if a firm issues a short-term quarterly earnings guidance within a [-90, 0] day window of the fiscal quarter end and 0 if the firm issues no guidance within the same window.
MF_REG	The number of unique quarters in the current and prior three quarters in which the firm issues at least one short-term quarterly earnings forecast within the [-90, 0] day window, where day 0 is the last day of the fiscal quarter. This variable ranges from 1 to 4.
LEV	Proportion of long-term debt (DLTTQ) to total assets (ATQ).
BTM	Ratio of book to market value of equity calculated as book value of equity (CEQQ) scaled by market value of equity at the end of the fiscal quarter.
OPCYCLE	Natural log of the firm's operating cycle measured in days, based on turnover in accounts receivable and inventory. Specifically, the firm's operating cycle is calculated as: $180((AR_t+AR_{t-1})/SALES_t + (INV_t+INV_{t-1})/COGS_t)$. *AR* is accounts receivable (RECT). *SALES* is sales revenue (SALE). *INV* is inventory (INVT). *COGS* is cost of goods sold (COGS).
CAPINT	Capital intensity calculated as net property, plant, and equipment (PPENTQ) divided by total assets (ATQ).
ROA	Returns on assets, measured as net income (NIQ) divided by total assets (ATQ).

Appendix A (continued)
Definition of Variables

Variables	Definition
SIZE	Natural log of total sales (SALEQ).
INST	Shares held by institutional investors (13F filers) as a percentage of total shares outstanding.
σ(CFO)	Standard deviation of quarterly operating cash flows deflated by average total assets over the current and past 19 quarters. Quarterly operating cash flows are calculated using year-to-date cash flows from operations (OANCFY).
σ(EARN)	Standard deviation of quarterly earnings before extraordinary items (IBQ) deflated by average total assets over the current and past 19 quarters.
PERS	Earnings persistence, measured by coefficient β from the following seasonally adjusted AR(1) model of quarterly earnings $E_q = \alpha + \beta \times E_{q-4} + \varepsilon_q$, where E_q is split-adjusted basic earnings per share (EPS) excluding extraordinary items for quarter q. The model is estimated using a rolling window of 20 quarters, with at least 15 non-missing quarterly earnings. In Table 5, earnings persistence is measured using rolling window of 10 years based on $E_t = \alpha + \beta \times E_{t-1} + \varepsilon_t$, where E_t is split-adjusted basic EPS excluding extraordinary items for year *t*.
PRED	Earnings predictability, measured by the standard deviation of regression residuals from the following seasonally adjusted AR(1) model of quarterly earnings $E_q = \alpha + \beta \times E_{q-4} + \varepsilon_q$, where E_q is split-adjusted basic EPS excluding extraordinary items for quarter q. The model is estimated using a rolling window of 20 quarters, with at least 15 non-missing quarterly earnings. In Table 5, earnings predictability is the standard deviation of regression residuals using rolling window of 10 years based on $E_t = \alpha + \beta \times E_{t-1} + \varepsilon_t$, where E_t is split-adjusted basic EPS excluding extraordinary items for year *t*.
AC	Number of analysts following the firm.
DISP	Forecast dispersion, measured as the standard deviation of one-year-ahead earnings per share forecasts scaled by the absolute consensus forecast. We use the most recent consensus forecast before the announcement of actual earnings.
RVOL	Return volatility measured as the standard deviation of daily stock returns over the fiscal quarter.
UPMF	An indicator variable coded as 1 if a firm issues only positive short-term quarterly earnings guidance in quarter t and 0 otherwise. The sign of a management forecast is determined by comparing the forecast to the median analyst forecast based on all analyst forecasts issued within 90 days before the issuance of the management forecast. Neutral forecasts (forecasts that are equal to analysts' consensus) are included with the positive forecasts. Only point or range management forecasts are used to facilitate numerical comparisons. We use the mid-point of range forecasts to determine the sign of these forecasts.
DOWNMF	An indicator variable coded as 1 if a firm issues only negative short-term quarterly earnings guidance in quarter *q* and 0 otherwise.
MIDMF	An indicator variable coded as 1 if a firm issues both positive and negative short-term quarterly earnings guidance in quarter *q* and 0 otherwise.

This table presents the definitions of variables. Compustat mnemonics are in parentheses.

Appendix B
Parameter Estimates from First Stage Probit Regression

Model:

$$MF_{iq} = \alpha + \beta_1 INST_{iq-1} + \beta_2 AC_{iq-1} + \beta_3 DISP_{iq-1} + \beta_4 RVOL_{iq-1} + \beta_5 ROA_{iq-1} + \beta_6 BTM_{iq-1} + \beta_7 SIZE_{iq-1} + \beta_8 PERS_{iq-1} + \beta_9 PRED_{iq-1} + \Sigma IND + \varepsilon_{iq} \quad (1)$$

Independent Variables	Predicted Sign	***ABAC Sample*** ***(1)***	***ABREV Sample*** ***(2)***
INTERCEPT	+/-	-3.191***	-3.090***
		(-13.23)	(-13.31)
$INST_{it-1}$	+	1.325***	1.267***
		(36.42)	(32.94)
AC_{it-1}	+	0.229***	0.233***
		(24.09)	(24.59)
$DISP_{it-1}$	–	-0.199***	-0.208***
		(-7.93)	(-8.14)
$RVOL_{it-1}$	–	-1.296	-1.134
		(-1.49)	(-1.33)
ROA_{it-1}	+	1.424***	1.439***
		(5.76)	(5.86)
BTM_{it-1}	+/–	-0.225***	-0.215***
		(-14.29)	(-13.23)
$SIZE_{it-1}$	+	0.123***	0.139***
		(21.05)	(21.24)
$PERS_{it}$	+	0.036*	0.019
		(1.96)	(0.98)
$PRED_{it-1}$	–	-0.278***	-0.268***
		(-11.68)	(-11.59)
INDUSTRY DUMMIES		Included	Included
N		84,798	82,384

Notes to Appendix B:
We report the mean coefficients from 41 quarterly regressions. T-statistics are calculated based on the average quarterly regression coefficients. *,**, and *** denote significance at the 10%, 5%, and 1% level (two-sided), respectively

Table 1
Descriptive Statistics

Panel A: Summary Statistics

Variable	N	Mean	Std Dev	Q1	Median	Q3
ABAC	33,776	2.585	3.771	0.726	1.607	3.127
ABREV	33,132	1.489	1.866	0.375	0.880	1.870
LEV	33,776	0.149	0.159	0.000	0.111	0.251
BTM	33,776	0.532	0.491	0.268	0.426	0.655
OPCYCLE	33,776	4.579	0.690	4.225	4.660	5.014
CAPINT	33,776	0.226	0.195	0.077	0.162	0.318
ROA	33,776	0.010	0.040	0.003	0.013	0.025
SIZE	33,776	5.512	1.759	4.254	5.460	6.686
INST	33,776	0.707	0.205	0.599	0.753	0.860
σ(CFO)	33,776	0.027	0.024	0.014	0.021	0.032
σ(EARN)	33,776	0.027	0.060	0.007	0.012	0.024
PERS	33,776	0.299	0.448	-0.021	0.202	0.596
PRED	33,776	0.500	0.381	0.293	0.410	0.583

Panel B: Abnormal Accruals by Issuance of a Short-term Quarterly Forecast

	ABAC			*ABREV*		
MF_ISSUE	N	Mean	Median	N	Mean	Median
0	16,888	2.642	1.658	16,566	1.536	0.901
1	16,888	2.528	1.560	16,566	1.443	0.861
Test: 0 - 1		0.114***	0.098***		0.093***	0.040***

Panel C: Abnormal Accruals by Forecast Regularity (1 to 4)

	ABAC			*ABREV*		
MF_REG	N	Mean	Median	N	Mean	Median
1	2,311	2.930	1.838	2,257	1.764	1.034
2	2,254	2.812	1.676	2,192	1.548	0.898
3	3,296	2.532	1.568	3,230	1.501	0.925
4	9,027	2.353	1.485	8,887	1.314	0.799
Test: 1 - 4		0.577***	0.353***		0.450***	0.235***

Notes to Table 1:
See Appendix A for variable definitions. The sample consists of firm-quarter observations from 2001Q1 to 2011Q1. We winsorize the input variables to estimate *ABAC* and *ABREV* at the top and bottom 1% levels. Other continuous variables are winsorized at the top and bottom 1% levels. Tests of difference of mean are based on t-tests, and tests of difference of median are based on Wilcoxon sign-rank tests. *,**, and *** denote significance at the 10%, 5%, and 1% level (two-sided), respectively.

Table 2
Testing H1: Short-Term Management Forecast Issuance and Earnings Management

Model:

$$EM_{iq} = \alpha + \beta_1 MF_{iq} + \beta_2 LEV_{iq-1} + \beta_3 BTM_{iq-1} + \beta_4 OPCYCLE_{iq-1} + \beta_5 CAPINT_{iq-1} + \beta_6 ROA_{iq-1} + \beta_7 SIZE_{iq-1} + \beta_8 INST_{iq-1} + \beta_9 \sigma(CFO)_{iq-1} + \beta_{10} \sigma(EARN)_{iq-1} + \beta_{11} PERS_{iq-1} + \beta_{12} PRED_{iq-1} + \Sigma IND + \Sigma QTR + \varepsilon_{iq} \quad (2)$$

Independent Variables	Predicted Sign	$ABAC_{it}$	$ABREV_{it}$
INTERCEPT	+/-	4.258***	1.630***
		(7.90)	(7.28)
MF_ISSUE_{iq}	**+/-**	**-0.124*** **	**-0.116*** **
		(-2.36)	**(-3.36)**
LEV_{iq-1}	+/-	-0.621***	-0.414***
		(-2.37)	(-3.65)
BTM_{iq-1}	+/-	0.184	0.017
		(1.11)	(0.53)
$OPCYCLE_{iq-1}$	+	-0.002	0.073**
		(-0.03)	(2.01)
$CAPINT_{iq-1}$	-	-0.204	-1.128***
		(-0.68)	(-10.09)
ROA_{iq-1}	+	-4.231***	0.975**
		(-2.62)	(2.08)
$SIZE_{iq-1}$	-	-0.111***	-0.054***
		(-4.58)	(-3.47)
$INST_{iq-1}$	-	-0.629***	-0.779***
		(-2.53)	(-7.75)
$\sigma(CFO)_{iq-1}$	+	19.439***	21.343***
		(8.43)	(13.73)
$\sigma(EARN)_{iq-1}$	+	-1.375	-2.302***
		(-1.43)	(-4.77)
$PERS_{iq-1}$	-	0.333***	0.023
		(3.09)	(0.53)
$PRED_{iq-1}$	+	0.411**	0.044
		(2.23)	(0.68)
INDUSTRY & QUARTER DUMMIES		Included	Included
N		33,776	33,132
ADJ-R^2		6.2%	13.4%

Notes to Table 2:
See Appendix A for variable definitions. We winsorize the input variables to estimate *ABAC* and *ABREV* at the top and bottom 1% levels. Other continuous variables are winsorized at the top and bottom 1% levels. Firm-quarter two-way clustered t-statistics are reported in parentheses. *,**, and *** denote significance at the 10%, 5%, and 1% level (two-sided), respectively.

Table 3
Testing H2: Short-Term Management Forecast Regularity and Earnings Management

Model:

$$EM_{iq} = \alpha + \beta_1 MF_{iq} + \beta_2 LEV_{iq-1} + \beta_3 BTM_{iq-1} + \beta_4 OPCYCLE_{iq-1} + \beta_5 CAPINT_{iq-1} + \beta_6 ROA_{iq-1} + \beta_7 SIZE_{iq-1} + \beta_8 INST_{iq-1} + \beta_9 \sigma(CFO)_{iq-1} + \beta_{10} \sigma(EARN)_{iq-1} + \beta_{11} PERS_{iq-1} + \beta_{12} PRED_{iq-1} + \Sigma IND + \Sigma QTR + \varepsilon_{iq} \quad (2)$$

Independent Variables	Predicted Sign	$ABAC_{it}$	$ABREV_{it}$
INTERCEPT	+/-	4.493***	1.921***
		(7.88)	(7.07)
MF_REG_{iq}	+/-	**-0.117*** **	**-0.065*** **
		(-2.78)	**(-3.97)**
LEV_{iq-1}	+/-	-1.308***	-0.48***
		(-3.37)	(-3.02)
BTM_{iq-1}	+/-	0.243	-0.106**
		(1.12)	(-2.53)
$OPCYCLE_{iq-1}$	+	-0.019	0.068
		(-0.28)	(1.57)
$CAPINT_{iq-1}$	-	0.208	-1.236***
		(0.65)	(-9.20)
ROA_{iq-1}	+	-5.569**	-0.275
		(-2.41)	(-0.53)
$SIZE_{iq-1}$	-	-0.075***	-0.065***
		(-2.77)	(-3.63)
$INST_{iq-1}$	-	-0.701**	-0.67***
		(-2.41)	(-5.38)
$\sigma(CFO)_{iq-1}$	+	17.307***	18.68***
		(5.40)	(10.25)
$\sigma(EARN)_{iq-1}$	+	-1.872**	-2.36***
		(-2.21)	(-4.08)
$PERS_{iq-1}$	-	0.301**	0.008
		(2.08)	(0.15)
$PRED_{iq-1}$	+	0.535**	0.118
		(2.16)	(1.36)
INDUSTRY & QUARTER DUMMIES		Included	Included
N		16,888	16,566
ADJ-R^2		6.74%	13.35%

Notes to Table 3:
See Appendix A for variable definitions. We winsorize the input variables to estimate *ABAC* and *ABREV* at the top and bottom 1% levels. Other continuous variables are winsorized at the top and bottom 1% levels. Firm-clustered t-statistics are reported in parentheses. *,**, and *** denote significance at the 10%, 5%, and 1% level (two-sided), respectively.

Table 4
Addressing Endogeneity Concerns

Panel A: Granger Causality Tests

Models:

$$EM_{iq} = \alpha + \beta_1 MF_{iq} + \beta_2 EM_{iq-1} + \beta_3 LEV_{iq-1} + \beta_4 BTM_{iq-1} + \beta_5 OPCYCLE_{iq-1} + \beta_6 CAPINT_{iq-1} + \beta_7 ROA_{iq-1} + \beta_8 SIZE_{iq-1} + \beta_9 INST_{iq-1} + \beta_{10} \sigma(CFO)_{iq-1} + \beta_{11} \sigma(EARN)_{iq-1} + \beta_{12} PERS_{iq-1} + \beta_{13} PRED_{iq-1} + \Sigma IND + \Sigma QTR + \varepsilon_{iq} \quad (3a)$$

$$MF_{iq} = \alpha + \beta_1 EM_{iq-1} + \beta_2 MF_{iq-1} + \beta_3 BTM_{iq-1} + \beta_4 SIZE_{iq-1} + \beta_5 INST_{iq-1} + \beta_6 AC_{iq-1} + \beta_7 DISP_{iq-1} + \beta_8 RVOL_{iq-1} + \beta_9 ROA_{iq-1} + \beta_{10} \sigma(EARN)_{iq-1} + \beta_{11} PERS_{iq-1} + \beta_{12} PRED_{iq-1} + \Sigma IND + \Sigma QTR + \varepsilon_{iq} \quad (3b)$$

Panel A1: MF is defined as MF_ISSUE (0 or 1)

Variables	Predicted Sign	*Dependent Variable*			
		$ABAC_{it}$ (3a)	MF_{it} (3b)	$ABREV_{it}$ (3a)	MF_{it} (3b)
INTERCEPT	+/-	4.018***	-0.090	1.203***	-0.292
		(7.20)	(-0.31)	(6.33)	(-1.03)
MF_{iq}	**+/-**	**-0.130*** **		**-0.081*** **	
		(-2.45)		**(-2.74)**	
EM_{iq-1}	+	0.110***	-0.010*	0.270***	-0.028**
		(7.00)	(-1.66)	(14.16)	(-2.20)
MF_{iq-1}	+		4.177***		4.176***
			(58.49)		(56.36)
CONTROL VARIABLES, IND. & QTR DUMMIES		Included	Included	Included	Included
N		30,069	30,069	29,443	29,443

Panel A2: MF is defined as MF_REG (1 to 4)

Variables	Predicted Sign	*Dependent Variable*			
		$ABAC_{it}$ (3a)	MF_{it} (3b)	$ABREV_{it}$ (3a)	MF_{it} (3b)
INTERCEPT	+/-	4.174***	0.100	1.448***	0.086
		(7.15)	(0.94)	(6.49)	(0.80)
MF_{iq}	**+/-**	**-0.119** **		**-0.045*** **	
		(-2.31)		**(-3.10)**	
EM_{iq-1}	+	0.109***	-0.013***	0.281***	-0.015***
		(8.38)	(-4.71)	(13.90)	(-2.64)
MF_{iq-1}	+		0.515***		0.515***
			(63.86)		(63.10)
CONTROL VARIABLES, IND. & QTR DUMMIES		Included	Included	Included	Included
N		15,032	14,137	14,741	13,841

Table 4 (continued)
Addressing Endogeneity Concerns

Panel B: Changes Tests - Abnormal Accruals and Discretionary Revenues Before and After Guidance Initiation and Cessation

Panel B1: Guidance Initiation Sample. MF=0 (MF=1) indicates the period before (after) guidance initiation

		ABAC			***ABREV***	
MF	N	Mean	Median	N	Mean	Median
0	399	2.97%	1.78%	420	1.47%	0.95%
1	399	2.30%	1.34%	420	1.46%	0.94%
Test: 0 - 1		0.67%**	0.44%***		0.01%	0.01%

Panel B2: Guidance Cessation Sample. MF=1 (MF=0) indicates the period before (after) guidance cessation

		ABAC			***ABREV***	
MF	N	Mean	Median	N	Mean	Median
1	770	2.31%	1.44%	770	1.28%	0.75%
0	770	2.65%	1.69%	770	1.35%	0.85%
Test: 0 - 1		0.34%**	0.25%**		0.07%	0.10%

Notes to Table 4:
See Appendix A for definitions of variables for Panel A. Panel B tabulates the univariate tests on the mean and median differences of the two earnings management proxies, *ABAC* and *ABREV*, for the seven quarters before and seven quarters after MF initiation (Panel B1) and MF cessation (Panel B2) events. The MF initiation sample in Panel B1 consists of firms with at least eight consecutive quarters where MF=0 is followed by at least eight consecutive quarters where MF=1 (starters). The MF cessation sample in Panel B2 consists of firms with at least eight consecutive quarters where MF=1 is followed by at least eight consecutive quarters where MF=0 (stoppers). To mitigate the impact of abnormal corporate events associated with the MF initiation/cessation decision, we exclude the quarter immediately before guidance initiation (cessation) and the quarter of initiation (cessation). We identify 57 starters and 110 stoppers with non-missing *ABAC*, and 60 starters and 110 stoppers with non-missing *ABREV*
*,**, and *** denote significance levels at 10%, 5%, and 1% (two-sided) for t-statistics for mean differences and z-statistics for median differences.

Table 5
Capital Market Pressure, Short-Term Management Forecasts, and Earnings Management

Panel A: Ex Ante Measure of Capital Market Pressure

Model:

$$EM_{it} = \alpha + \beta_1 MF_{it} + \beta_2 DFCF_{it-1} + \beta_3 MF_{it}*DFCF_{it-1} + \beta_4 LEV_{it-1} + \beta_5 BTM_{it-1} + \beta_6 OPCYCLE_{it-1} + \beta_7 CAPINT_{it-1} + \beta_8 LOSS_{it-1} + \beta_9 SIZE_{it-1} + \beta_{10} INST_{it-1} + \beta_{11}\sigma(CFO)_{it-1} + \beta_{12}\sigma(EARN)_{it-1} + \beta_{13} PERS_{it-1} + \beta_{14} PRED_{it-1} + \Sigma IND + \Sigma YEAR + \varepsilon_{it} \quad (2')$$

		MF = MF_ISSUE (0 or 1)	
Independent Variables	Predicted Sign	$ABAC_{it}$ ***(1)***	$ABREV_{it}$ ***(2)***
INTERCEPT	+/-	14.47***	2.47***
		(12.45)	(9.25)
MF_{it}	+/-	-2.08***	0.03
		(-4.28)	(0.18)
$DFCF_{it-1}$	+	0.37***	0.08***
		(6.10)	(6.31)
$MF_{it}*DFCF_{it-1}$	+/-	**-0.27*** **	**0.03**
		(-3.71)	**(1.22)**
CONTROL VARIABLES, IND. & YEAR DUMMIES		Included	Included
N		22,866	22,685
ADJ-R^2		22.2%	10.8%

Panel B: Ex Post Measure of Capital Market Pressure

Model:

$$EM_{it} = \alpha + \beta_1 MF_{it} + \beta_2 \Delta SHR_{it+1} + \beta_3 MF_{it}*\Delta SHR_{it+1} + \beta_4 LEV_{it-1} + \beta_5 BTM_{it-1} + \beta_6 OPCYCLE_{it-1} + \beta_7 CAPINT_{it-1} + \beta_8 LOSS_{it-1} + \beta_9 SIZE_{it-1} + \beta_{10} INST_{it-1} + \beta_{11}\sigma(CFO)_{it-1} + \beta_{12}\sigma(EARN)_{it-1} + \beta_{13} PERS_{it-1} + \beta_{14} PRED_{it-1} + \Sigma IND + \Sigma YEAR + \varepsilon_{it} \quad (2'')$$

		MF = MF_ISSUE (0 or 1)	
Independent Variables	Predicted Sign	$ABAC_{it}$ ***(1)***	$ABREV_{it}$ ***(2)***
INTERCEPT	+/-	11.23***	1.85***
		(11.31)	(6.75)
MF_{it}	+/-	-0.43***	-0.29***
		(-2.67)	(-4.61)
ΔSHR_{it+1}	+	2.57***	0.40***
		(4.70)	(3.33)
$MF_{it}*\Delta SHR_{it+1}$	+/-	**-1.70****	**0.24**
		(-1.97)	**(0.99)**
CONTROL VARIABLES, IND. & YEAR DUMMIES		Included	Included
N		21,194	21,025
ADJ-R^2		21.8%	10.6%

Table 5 (continued)
Capital Market Pressure, Management Forecasts, and Earnings Management

Notes to Table 5:

Definitions of variables:

MF_ISSUE	Indicator variable coded as 1 if a firm issues a short-term quarterly earnings forecast within 90 days prior to fiscal quarter end in any of the four quarters in year *t* and zero otherwise.
DFCF	The decile ranking of the firm's free cash flows, defined as the difference between cash flows from operations and the three-year average of capital expenditure. We multiply *DFCF* by negative one, such that higher *DFCF* values are consistent with lower free cash flows and greater need for external capital.
ΔSHR	An indicator variable coded as one if the firm increases the number of shares outstanding in year *t* (CSHO) by at least 20% and zero otherwise.
LEV	Proportion of long-term debt (DLTT) to total assets (AT)
BTM	Ratio of book to market value of equity calculated as book value of equity (CEQ) scaled by market value of equity (CSHO x PRCC_F).
OPCYCLE	Natural log of the firm's operating cycle measured in days, based on turnover in accounts receivable and inventory. Specifically, the firm's operating cycle is calculated as $180 \times ((AR_t+AR_{t-1})/SALES_t + (INV_t+INV_{t-1})/COGS_t)$. *AR* is accounts receivable (RECT). *SALES* is sales revenue (SALE). *INV* is inventory (INVT). *COGS* is cost of goods sold (COGS).
CAPINT	Capital intensity calculated as net property, plant, and equipment (PPENT) divided by total assets (AT).
ROA	Returns on assets, measured as net income (NI) divided by total assets (AT).
SIZE	Natural log of total sales (SALE).
INST	Shares held by institutional investors (13F filers) as a percentage of total shares outstanding.
σ(CFO)	Standard deviation of cash flows (OANCF) deflated by average total assets. Standard deviations are calculated over the current and prior 9 years.
σ(EARN)	Standard deviation of earnings before extraordinary items (IB) deflated by average total assets. Standard deviations are calculated over the current and prior 9 years.
PERS	Earnings persistence, measured by coefficient β from the following AR(1) model of annual earnings $E_t = \alpha + \beta \times E_{t-1} + \varepsilon_t$, where E_t is split-adjusted basic earnings per share (EPS) excluding extraordinary items for year *t*. The model is estimated using a rolling window of 10 years, with at least 5 non-missing annual earnings.
PRED	Earnings predictability, measured by the standard deviation of regression residuals from the following AR(1) model of annual earnings $E_t = \alpha + \beta \times E_{t-1} + \varepsilon_t$, where E_t is split-adjusted basic EPS excluding extraordinary items for year *t*. The model is estimated using a rolling window of 10 years, with at least 5 non-missing annual earnings.

Firm-clustered t-statistics are reported in parentheses. *,**, and *** denote significance at the 10%, 5%, and 1% level (two-sided), respectively.

Table 6
Signed Abnormal Accruals/Discretionary Revenues and Earnings Guidance

Model:

$$Signed\_EM_{iq} = \alpha + \beta_1 MF_{iq} + \beta_2 LEV_{iq-1} + \beta_3 BTM_{iq-1} + \beta_4 OPCYCLE_{iq-1} + \beta_5 CAPINT_{iq-1} + \beta_6 ROA_{iq-1} + \beta_7 SIZE_{iq-1} + \beta_8 INST_{iq-1} + \beta_9 \sigma(CFO)_{iq-1} + \beta_{10} \sigma(EARN)_{iq-1} + \beta_{11} PERS_{iq-1} + \beta_{12} PRED_{iq-1} + \Sigma IND + \Sigma QTR + \varepsilon_{iq} \quad (4)$$

	MF = MF_ISSUE		***MF = MF_REG***		***MF = UPMF, MIDMF or DOWNMF***	
Independent Variables	***Positive ABAC (1)***	***Positive ABREV (2)***	***Positive ABAC (3)***	***Positive ABREV (4)***	***Positive ABAC (5)***	***Positive ABREV (6)***
INTERCEPT	-18.51***	-59.99***	-15.03	-50.38***	-15.62***	-66.49***
	(-3.42)	(-5.37)	(-1.61)	(-3.34)	(-3.07)	(-5.15)
MF_ISSUE_{iq}	-3.32***	-2.59***				
	(-3.87)	(-3.08)				
MF_REG_{iq}			-3.23**	-1.72***		
			(-4.12)	(-2.79)		
$UPMF_{iq}$					-3.01***	-2.82**
					(-2.71)	(-2.28)
$MIDMF_{iq}$					-3.63	0.77
					(-1.33)	(0.25)
$DOWNMF_{iq}$					-4.45***	-2.91***
					(-4.22)	(-2.65)
CONTROL VARIABLES, IND. & QTR DUMMIES	Included	Included	Included	Included	Included	Included
N	23,423	16,816	11,707	8,324	20,531	14,778

Notes to Table 6:

See Appendix A for definitions of variables. The percentage of *UPMF*, *DOWMF*, and *MIDMF* observations in column 5 (6) are as follows: *UPMF* = 39% (38%), *DOWNMF* = 55% (57%), *MIDMF* = 6% (5%). Continuous variables are winsorized at the top and bottom 1% levels. We report firm- and time-clustered t-statistics in parentheses. *,**, and *** denote significance at the 10%, 5%, and 1% level (two-sided), respectively.