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Do Analysts Sacrifice Forecast Accuracy for Informativeness?

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Analysts deviate from management guidance to correct for perceived earnings management. Although the deviations reduce forecast accuracy, they improve forecast informativeness, bringing the forecasts closer to the unmanaged earnings and reducing accruals mispricing. An implicit assumption in the literature is that more accurate analyst forecasts (i.e., estimates that are closer to the reported earnings) are better for investors, and that analysts' objective is to forecast the reported (managed) earnings accurately. Our analysis suggests that this is not necessarily the case and that an inaccurate forecast can actually be more informative than an accurate one. Prior studies on analysts' deviations from management guidance focus on analysts' incentives to issue estimates that managers can beat. These studies implicitly assume that analysts side with management against the interests of their clients. Our analysis indicates that analysts could also deviate from management guidance to provide useful valuation information to their clients.

Key words: analyst forecasts; forecast accuracy; forecast informativeness; management forecasts; earnings management
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1. Introduction

Managers are often alleged to manage their reported earnings, sometimes with the intent to mislead investors. If managers forecast and report misleading earnings numbers and analysts deviate from the managers' guidance to convey their best estimates of the firms' true (unmanaged) earnings, then the analyst forecasts are likely to be inaccurate. It appears then that an analyst who is primarily concerned about the accuracy of her forecasts has to succumb to the managers' efforts to mislead investors. However, analysts' primary function should be to provide useful valuation information to their clients and to help them uncover mispricing. Failing in this function can have severe valuation consequences, considering that investors often use earnings models, including some crude ones (e.g., forward price-to-earnings multiples), to value firms. It is therefore important to analyze the extent to which analyst earnings estimates contain incrementally useful valuation information over management guidance, when the earnings numbers that managers forecast and report are potentially manipulated.

To conduct our analysis, we examine the association between analysts' deviations from preannounced earnings (the *last* management forecast issued after the end of the fiscal quarter) and earnings management (proxied by abnormal accruals and restatement-related misstatements). An important assumption of our analysis is that both management guidance and reported earnings can be misleading. More specifically, we assume that if a manager plans to report a manipulated earnings number, she will likely issue a forecast that reflects the intended earnings manipulation. This assumption is consistent with the article by Feng et al. (2011), which finds that guidance issued by firms that ultimately restate their earnings "is more in line with their manipulated earnings rather than with their restated true earnings" (p. 1). We conjecture that, if an analyst's primary objective is to provide useful valuation input to her clients and she has reasons to believe that the preannounced earnings do not reflect true performance, then she will be less likely to update her earnings estimates in the direction of the preannounced earnings. Even if the analyst is convinced that managers are manipulating

earnings, she could deem it indiscreet for her to explicitly accuse the managers of such activities. Deviating from (or not responding to) the preannounced earnings could be a less costly means for the analyst to signal her disagreement with the managers than openly accusing them of earnings management.

At first glance, it might appear implausible that analysts would deliberately provide estimates that they know will differ from the reported earnings. However, our reading of hundreds of analyst reports indicates that analysts routinely do exactly that. As we explain in more detail in the next section, analysts often write their reports to leave no doubt in an informed reader's mind that their forecasting models generate both short-term and long-term numbers that conflict with management guidance. Moreover, they often show little concern that the reported earnings would differ from their short-term estimates, arguing that the earnings estimates published in their research reports are targeted toward clients with medium- to long-term horizons (Craig 2009). These clients need information that can help them to ascertain the true underlying value of the firm. Therefore, they are arguably more interested in obtaining the analysts' own estimates of, and opinions about, the firm's performance than accurate forecasts of the potentially managed number that the managers will report in a few weeks or months. Clients who trade on short-term news are likely interested in the exact number that the managers will report. Analysts often communicate with these clients through means other than the regular research reports. These means include phone calls, email alerts, special gatherings, and special reports. The objective is to provide clients information that meets their investment needs. As Craig (2009) noted: "Analysts have a financial incentive to give clients useful information. Goldman sets aside roughly 50% of money allotted each year to analyst compensation to distribute based on feedback from trading customers. The balance of analysts' pay is determined by the performance of their stock picks. That pay system is common among major Wall Street firms." Forecast accuracy per se is not factored into the compensation scheme. Accordingly, using 18 years of compensation data from a large investment bank, Groysberg et al. (2011) found no evidence that analysts' compensation is related to their earnings forecast accuracy. Therefore, the notion that analysts would sacrifice forecast accuracy for informativeness seems quite reasonable. We provide a more detailed discussion of this issue in §2.

The results of our study hold whether we base our analysis on earnings preannouncements or management guidance in general. However, analyst responses to management guidance depend on the managers' forecasting ability (Williams 1996). By using preannounced earnings, we control for cross-sectional variations in managers' forecasting ability. At the time of a preannouncement (i.e., after the end of a fiscal quarter), managers generally know what earnings number they will report. It is difficult to conceive a situation where analysts would know better than managers what the reported earnings will be after the end of the quarter. Hence, although our results also hold for management guidance issued prior to the end of the fiscal quarter, earnings preannouncements offer a better setting to test the notion that analysts deviate from management guidance to provide more value-relevant information to their clients.

We could have examined analysts' forecast errors, instead of analysts' deviations from preannounced earnings. However, there is a clear advantage in using the deviations. A major difference between analysts' deviations from preannounced earnings and analysts' forecast errors is that the preannounced earnings are known to analysts before they provide their estimates, whereas the reported earnings are not. For the deviation, the publication of the benchmark (the preannounced earnings) precedes the analyst estimate, whereas for the forecast error, the publication of the benchmark (the actual earnings) follows the analyst estimate. In addition, many firms do not issue earnings preannouncements, which analysts could use to guide their estimates. Therefore, earnings management may be associated with analyst forecast errors not because analysts want to forecast unmanaged earnings, but because they cannot anticipate earnings management. By using earnings preannouncements, we control for constraints on analysts' forecasting ability.[1]

We are not the first to argue that analysts could sacrifice accuracy to pursue other objectives. There is a vast literature that suggests that analysts routinely bias their estimates for various reasons (see Kothari 2001 for a literature review). Feng and McVay (2010), in particular, found that analysts who wish to curry favor with management overweight management guidance when revising their short-term earnings estimates in response to management guidance. If some analysts sacrifice forecast accuracy to please management by overweighting management guidance, it seems then plausible that those acting in

[1] It might also seem that analyst forecast revisions would be better proxies for analyst responses to the preannouncements than the deviations. However, forecast revisions may not capture the extent to which analysts believe the preannouncements reflect earnings management. For instance, both the initial and the revised estimates could differ from a preannouncement by 1 unit for one firm and by 10 units for another firm. Although both firms would have a revision of zero, analysts' disagreement with the preannouncement is obviously much more pronounced for the second firm. The deviation better captures analysts' assessments of the extent to which the preannouncements reflect earnings management.

the interest of their clients could also sacrifice accuracy by underweighting guidance that they believe does not reflect true performance. Actually, the notion that analysts would issue inaccurate forecasts so that they can have access to management would be quite circular if the analysts' objective is to forecast earnings accurately. It is more likely that the analysts use the access to management to obtain useful information that they can communicate to their clients, which would benefit their brokerage firms. Alternatively, they can bias their forecasts to attract and maintain investment banking relationships, as suggested by Lin and McNichols (1998) and Feng and McVay (2010).

Our conjecture that analysts could sacrifice accuracy for informativeness is consistent with the views of many analysts, including Richard Wayman (2005), cofounder of researchstock.com, who argued that the careers of those who routinely reiterate management guidance "will not last long. They may be successful for a while but they will eventually become known as followers, devoid of any original thinking. A truly successful analyst will use guidance to evaluate management expertise and credibility. Management guidance will be an ingredient in her forecast, but not the only one, and it will be seasoned with a healthy dose of skepticism and additional analysis." Consistent with this view, Hong (2004, p. 111) observed that not all analysts blindly follow managerial guidance or are "able to be cheerleaders for stocks, depending on their moral concerns or aptitude [or career horizons]."[2]

The empirical results are consistent with our expectations. We find a strong negative association between abnormal accruals and analysts' deviations from preannounced earnings (analyst earnings estimates minus preannounced earnings). We also find that analysts are more likely to deviate from earnings preannouncements when the reported earnings include misstatements that ultimately lead to restatements. The evidence also indicates that, on average, analysts could improve their forecast accuracy by simply reiterating the outstanding earnings preannouncements. These findings support the notion that analysts deviate from preannounced earnings to correct for perceived earnings management, which is consistent with our conjecture that they sacrifice forecast accuracy for informativeness.

Comments in the financial press and extant empirical evidence suggest that managers often guide analyst estimates to beatable levels (Fox 1997, McGee 1997, Ip 1997, Vickers 1999, Matsumoto 2002, Bartov et al. 2002). If an analyst has reasons to believe that the managers are playing this game and she wants to be accurate, then she is likely to maintain her forecast above the preannounced earnings, based on the assumption that the preannounced earnings are downward biased. Extant studies generally focus on this feature of the interaction between analyst estimates and management guidance. However, we find no evidence that analysts increase their forecast accuracy by deviating from preannounced earnings. The consensus analyst forecast error actually increases with the absolute deviation, which indicates that, on average, the consensus forecast would be more accurate if analysts simply reiterated the preannounced earnings.

It is also alleged that analysts exert pressure on managers to report higher earnings (Fuller and Jensen 2002, Beyer 2008), presumably to keep stock prices high and create trading volume for their brokerage firms. It might seem then that our findings could result from this potential "game" between managers and analysts. However, although we document a negative association between abnormal accruals and analysts' deviations from preannounced earnings, the strategic game between managers and analysts implies, if anything, a positive association between abnormal accruals and the deviations. The lower the preannounced earnings are below the analyst estimates, the more the managers would have to inflate earnings to meet the estimates, which would result in a positive association between earnings management and the deviations. Hence, it seems unlikely that the game between analysts and managers could explain the negative association between earnings management and the deviations. Consistent with this argument, we also find no evidence that our results are due to cases where analysts might be resisting managers' effort to walk down their earnings estimates to beatable levels or cases where managers might have been pressured to inflate earnings at the last minute to meet overly optimistic analyst estimates.

Finally, we analyze whether the deviation improves the forecast informativeness by examining the price effect of the deviation and its impact on accruals mispricing. The evidence indicates that the information conveyed by the deviation is relevant to investors, who impound it into stock prices. Moreover, if investors are misled by accrual management and analysts deviate from preannounced earnings to communicate their assessments of the firms' true performance, then the deviation should reduce accrual mispricing. Accordingly, we also find that, although analysts are more likely to deviate from preannounced earnings as the persistence of the abnormal accruals decreases, there is no evidence of abnormal accrual mispricing for those cases where analysts deviate from preannounced earnings. These findings are consistent with the notion that the deviation improves analyst forecast informativeness.

[2] Hong (2004) noted that many analysts take the risk of being fired or passed over for promotion.

2. Related Issues

2.1. Do Analysts Care Primarily About Forecast Accuracy?

There is an implicit assumption in the literature that analysts' main objective is to accurately forecast the reported earnings number (see, e.g., Clement 1999, Hong and Kubik 2003, Clement and Tse 2003, Bae et al. 2008, Sonney 2009). However, analysts' primary function is actually to provide their clients with valuation input, and because firms allegedly manage earnings, the reported earnings do not always represent analysts' best estimates of a firm's performance. Therefore, an accurate forecast of the reported earnings is not necessarily consistent with analysts' main objective, particularly in the presence of a management forecast. Moreover, extant anecdotal evidence suggests that earnings forecast accuracy is rarely a factor in the determination of analysts' compensation (Eccles and Crane 1988, Dorfman 1991, Craig 2009, Morgenson 1997). Groysberg et al. (2011) also found no evidence that analysts' compensation is related to their earnings forecast accuracy. Analysts are generally compensated for the commissions that they generate and their "helpfulness" to their clients, and more informative forecasts are more likely to generate trades for the brokerage firms. Extant anecdotal evidence also indicates that brokerage firms include trading incentives in their analysts' contracts (Konrad 1989, Laderman 1998, Dorfman 1991, Lauricella 2001, Cowen et al. 2006). According to Cowen et al. (2006, p. 125), "brokerage firms typically reward their research analysts using a single measure of performance: trading volume in the stocks they cover." It is apparent that analysts are likely to generate more trading activities by deviating from preannounced earnings than by simply following management guidance. Consistent with this view, Irvine (2004) found that analysts who deviate from the consensus estimate generate more trading volume. Barth et al. (2001) also suggested that an analyst is more likely to cover a firm when earnings are more difficult to predict. They argue that the analyst is likely to benefit from the potential increase in the informativeness of the forecasts and trading volume, although her forecast accuracy is likely to suffer.

Analysts are also likely to be motivated by the *Institutional Investor* All-Americans ranking, which is based on surveys of buy-side managers (i.e., institutional investors) who select sell-side analysts that they deem "most helpful." The voters are specifically asked to select analysts who have been "most helpful to you and your institution in researching U.S. equities over the past 12 months." It seems unlikely that an analyst would be considered most helpful by simply reiterating outstanding preannounced earnings, although such a strategy is likely to increase her forecast accuracy. StarMine, an analyst scoring service affiliated with Thomson Reuters, ranks analysts by forecast accuracy. However, to get a high accuracy score, an analyst must make timely estimates that are significantly different from other analysts' estimates. Therefore, even if accuracy is an analyst's main objective, a reiteration of preannouncement earnings—when everyone else is doing the same thing—is unlikely to benefit her that much.

Finally, we find strong evidence that, on average, analysts could increase their forecast accuracy by simply confirming the preannounced earnings. However, it does not appear that analysts would add much value by pursuing such a strategy. Even worse, they could mislead some of their clients into thinking that the preannounced earnings and the forthcoming earnings correctly convey true performance when they are actually managed. It therefore appears that any incentive system (promotion or compensation scheme) that would reward analysts for merely reiterating the same (managed) number that the managers have already preannounced would be quite irrational even if the forecasts were accurate. It also seems unlikely that someone could build a good long-term reputation as an analyst by reiterating management guidance. As Wayman (2005) argued, those who adopt this strategy "may be successful for a while but they will eventually become known as followers, devoid of any original thinking."

2.2. How Would a Client Know That Her Analyst Has Forecasted Unmanaged Earnings?

Because forecasts of unmanaged earnings are likely to be inaccurate, one might argue that if analysts were estimating unmanaged earnings, they would need to indicate that to their clients. Implicit in this argument is the assumption that, by default, investors expect analysts to forecast managed earnings. However, this assumption is not necessarily correct. When a firm reports an earnings surprise, investors are likely to ascertain whether the surprise is achieved through earnings management. They do not necessarily assume that the analyst estimates already incorporate the potential earnings management. There are actually many class-actions suits accusing managers of managing earnings to meet analyst estimates. The academic literature also associates earnings surprises with earnings management. For instance, based on a review of the literature, Dechow and Skinner (2000, p. 248) concluded that "firms just beating benchmarks are potentially more likely to be engaging in earnings management."

Moreover, it is not even rational to assume that analysts by default forecast managed earnings. Unless there is an outstanding management forecast, which an analyst can compare to her own forecast, it is difficult for her to know that managers are going to

manage earnings in a certain direction and by a certain amount. Managers have incentives to manage earnings before they trade, issue new shares, engage in stock-for-stock mergers, repurchase shares, receive stock options, etc. However, anticipating these events is generally very difficult. It is possible to anticipate earnings management around certain benchmarks. However, consistent with analysts' general inability to anticipate earnings management, Burgstahler and Eames (2003) found that, on average, analysts forecast losses (the true performance) when it appears that managers have avoided reporting the losses through earnings management.

To provide more useful valuation information to their clients, analysts could estimate the unmanaged earnings (i.e., the true performance), as opposed to the reported (managed) numbers. In instances where stock prices are inflated through earnings management, deviating from the managers' guidance (or abstaining from revising an outstanding forecast) is certainly a much more subtle way for an analyst to convey her disagreement with managers than accusing the managers of earnings manipulations (if only for the potential legal repercussions of such an accusation). By the time of the preannouncement, the managers generally know what their earnings are. Therefore, analysts' deviations from the preannounced earnings per se can convey the analysts' beliefs about the firms' true performance.[3]

Furthermore, analysts do not simply provide earnings estimates; they also produce lengthy reports. When the estimates deviate from management guidance, analysts often refer to their forecasting models, discuss their main assumptions, and explain why the firm's true performance cannot be outside a certain range. Consider, for instance, the case of Hasbro, which preannounced earnings on October 12, 2000. On the same day, Jill Krutick of Salomon Smith Barney issued an estimate of \$0.06, "the low end of the company's preannounced \$0.06–\$0.10 range" (Krutick 2000a, p. 3). After Hasbro announced \$0.08 on October 18, Krutick (2000b, p. 2) wrote: "Hasbro reported third quarter results in line with the October 12th company announced estimates. ... Our 3Q estimated EPS of \$0.06 per share was at the low end of the \$0.06–\$0.10 company announced range, and \$0.02 less than the \$0.08 per share the company reported. We are shaving our fourth quarter estimate of \$0.22 by \$0.02 to \$0.20 to keep our full year 2000 estimate unchanged at \$0.40 per share." Not only does the analyst deviate from the preannounced earnings, more importantly, she does not adjust her full-year estimate after the managers report a third-quarter earnings per share (EPS) that is consistent with the preannounced earnings. Instead, she essentially assumes that the company has shifted \$0.02 from the fourth quarter to the third quarter. Brian McGough of Morgan Stanley also deviated from Hasbro's management guidance. McGough (2000, p. 3) specifically noted in his report: "The company gave guidance of \$540–\$575 million in EBITDA [earnings before interest, tax, and depreciation] for 2000. But even using the most optimistic assumptions in our model, we arrive at a number closer to \$500 million. In order to hit its target, we believe that the company will need to either earn higher EBIT than it guided towards, or accelerate the amortization of some of its licenses." The May 25, 2001, report by James McIlree and Greg Walters of Tucker Anthony Sutro Capital Markets on Pinnacle Holdings is another example of analysts deviating from management forecast and explaining clearly to their clients why they believe that the guidance does not reflect true performance. After a detailed analysis of Pinnacle's performance, McIlree and Walters (2001, p. 9) concluded: "In sum, at best, we get to the low-end of the company's revenue guidance" and "[w]e cannot get to EBITDA guidance either." In a March 9, 2005, research note, Barry Stouffer and Scott Schumann of BB&T Capital Markets also wrote about Landry's Restaurants' reported earnings: "Although Q4'04 operating EPS were a penny better than expected, the quality of fourth quarter EPS was poor" (Stouffer and Schumann 2005, p. 2). They later emphasized that they expressly titled the note "You can't get there from here" "because using management's general assumptions in our earnings model yields estimates that are below management guidance." We assume that analysts would be reluctant to openly accuse managers of earnings management; however, these cases indicate that analysts can be quite explicit in their disagreement with management.

It is important to note that analysts can deviate from the management's short-term guidance with the knowledge that managers can, and likely will, manage their activities and their accruals to achieve the earnings targets. For instance, in a July 12, 2005, report about Avon, after deviating from

[3] For instance, if the managers preannounce an EPS of \$1.2 and analysts forecast \$1, with full knowledge that the preannounced earnings are \$1.2, then it should generally be evident to investors that the analysts believe that the true performance is less than \$1.2. Similarly, if the managers preannounce an EPS of 90¢ and analysts forecast \$1, it should generally be evident to investors that the analysts believe that the true performance is more than 90¢ per share. If the managers have a history of forecasting below the actual earnings to positively surprise the market, then investors could assume that the analyst forecast is higher than the preannounced earnings because analysts believe that the preannounced earnings are downward biased. However, conditional on the investors' knowledge of the managers' forecasting pattern and analysts' responses to the managers' strategy, they should still be able to infer the analysts' beliefs about the firm's true performance from the analysts' deviations from the preannounced earnings.

the management guidance, Justin Hott and Michael Termezy of Bear Stearns stated: "We are less worried about an earnings miss than earnings quality. Avon has many mechanisms to achieve short-term top and bottom line targets. While we are not looking for a 2Q05 earnings miss, the company has provided some lofty targets for 2005 and beyond that could be challenged unless growth accelerates in core markets" (Hott and Termezy 2005, p. 1). Hott and Termezy (2005, p. 2) later added: "Historical (earnings management) mechanisms have included the temporary lowering of representative sign-up fees, which Avon briefly did at the end 2004 to $5 in the U.S., promotions and tax rate management strategies." Nonetheless, they deviated from the management guidance for the quarter.

2.3. How About Clients Who Trade on Short-Term Earnings News?

According to Goldman spokesman Edward Canaday, the objective of the firm is to provide information that meets their clients' investment needs (Craig 2009). He suggested that accurate forecasts of short-term earnings are not very relevant for long-term investors. These clients are interested in information that can help them to ascertain the true underlying value of a firm. Obviously, short-term earnings information can be useful for clients who trade on short-term news. However, as mentioned earlier, analysts do not necessarily target these clients with the earnings estimates published in their regular research reports. They use other means to communicate with these clients. They provide them short-term tips through phone calls, email alerts, special gatherings, and special reports that "identify stocks they think are likely to rise or fall due to earnings announcements, the direction of the overall market or other short-term developments" (Craig 2009). Through these means, analysts "discuss events that may have a near-term or short-term impact on a stock's price, ... even if that is a different direction from an analyst's overall forecast" (Craig 2009). Goldman Sachs used to provide the tips selectively to "clients who have expressed interest in having the information and have short-term investment horizons," arguing that the firm "doesn't want to overload other clients with information that isn't relevant to them" (Craig 2009). Other firms provide the information more broadly. For instance, "Morgan Stanley also generates short-term views on various stocks, which it calls 'Research Tactical Ideas' and distributes widely via email and the firm's Web site" (Craig 2009).

3. Research Design

3.1. Regression Model

We model analysts' deviations from preannounced earnings as a function of earnings management and other factors. More specifically, we use the following model:

$$\begin{aligned} DEVAF_{it} = {} & \alpha_0 + \alpha_1 ABAC_{it} + \alpha_2 ABRET\_BMA_{it} \\ & + \alpha_3 LOSS_{it} + \alpha_4 ROA_{it} + \alpha_5 CHE_{it} \\ & + \alpha_6 ABRETM3_{it} + \alpha_7 LOGMV_{it} + \alpha_8 BM_{it} \\ & + \alpha_9 EVOLATIL_{it} + \alpha_{10} FEVOLATIL_{it} \\ & + \alpha_{11} COVERAGE_{it} + \alpha_{12} PAE_{it} \\ & + \alpha_{13} APPAE_{it} + \varepsilon_{it}, \end{aligned} \tag{1}$$

where

- *DEVAF* is the deviation of the last consensus analyst estimate from the preceding preannounced earnings for quarter 0 (analyst earnings estimates minus preannounced earnings), as a percentage of price on the day prior to the preannouncement, where quarter 0 is the forecasted quarter;
- *ABAC* is abnormal accruals, our proxy for earnings management for quarter 0;
- *ABRET_BMA* is the market-adjusted returns starting two days after the preannouncement date and ending one day before the analyst forecast date;
- *LOSS* is a binary variable taking the value one if earnings for quarter −1 are negative and zero otherwise;
- *ROA* is net income for quarter −1 deflated by total assets at the beginning of quarter −1;
- *CHE* is the change in the earnings for quarter −1 over the earnings in quarter −5 scaled by price at the beginning of quarter −1;
- *ABRETM3* is the market-adjusted returns over the three months prior to the preannouncement month;
- *LOGMV* is the log of market value of equity at the beginning of quarter 0;
- *BM* is the ratio of book value of equity to market value of equity at the beginning of quarter 0;
- *EVOLATIL* is the standard deviation of earnings (as a percentage of price at the beginning of the quarter) over the 20 quarters prior to quarter 0;
- *FEVOLATIL* is the standard deviation of analyst forecast errors (as a percentage of price on the day prior to analyst forecast) over the 20 quarters prior to quarter 0 (analyst forecast error is the difference between the last consensus analyst estimate for the quarter and the reported earnings);
- *COVERAGE* is the log of the number of analysts in the last consensus estimate for quarter 0;
- *PAE* is preannounced earnings minus reported earnings for the quarter, deflated by price on the day prior to the earnings preannouncement; and
- *APPAE* is the average percentage management earnings forecast error over the past eight quarters. For firms with no management guidance over the

eight quarters, we use the sample average to proxy for analysts' expectations of the management forecast errors.

Analysts might deviate from the preannounced earnings because of new information released after the preannouncement. We use the stock returns between the earnings preannouncement date and the analyst forecast date (*ABRET_BMA*) to proxy for events occurring between the two dates. We include an indicator variable for losses (*LOSS*) because managers' incentives to manage investors' expectations are different for losses than for profits (Hwang et al. 1996, Brown 1997). We also control for return on assets (*ROA*) and change in earnings (*CHE*) to control for the notion that analysts are more likely to issue forecasts when they are optimistic about a firm's performance (McNichols and O'Brien 1997). We control for recent stock performance (*ABRETM3*) because previous studies suggest that financial distress affects managers' forecast errors (Koch 2003) and prior stock returns are associated with analyst forecast errors (Ali et al. 1992). These variables also control for analysts' underreaction to recent earnings information. Elgers and Lo (1994) found that prior stock returns and earnings changes are each incrementally associated with analyst forecast errors. We also include firm growth (proxied by *BM*) and firm size (*LOGMV*) because Bamber and Cheon (1998) documented that growth opportunities and firm size affect managers' forecasting behavior. These variables are also associated with analyst forecast errors (Gu and Wu 2003). We control for earnings volatility (*EVOLATIL*) and analyst forecast error volatility (*FEVOLATIL*) because volatile earnings are more difficult to predict, reducing the cost for the managers of issuing erroneous guidance and increasing analyst forecast errors (Gu and Wu 2003). We also control for analyst coverage (*COVERAGE*) because it is likely to be associated with information dissemination about a firm and the accuracy of the forecasts. We include *PAE* and *APPAE* in the model to control for the potential bias in the preannounced earnings.

If analysts deviate from preannounced earnings because they intend to forecast true performance instead of the reported (managed) earnings, then positive (negative) deviations should increase in the extent to which the firms manage earnings downward (upward). Therefore, we expect α_1 to be negative.

3.2. Variable Measurement

3.2.1. Abnormal Accruals as a Proxy for Earnings Management. We proxy for earnings management by the residuals of the following model, estimated for each calendar quarter and each two-digit Standard Industrial Classification (SIC) code using all firms that have the necessary data on Compustat:

$$TA_i = \sum_{j=1}^{4} \lambda_{j-1} Q_{j,i} + \lambda_4 \Delta SALES_i + \lambda_5 PPE_i + \lambda_6 LTA_i + \lambda_7 ASSET_i + \varepsilon_i, \quad (2)$$

where *TA* is the total quarterly accrual; *Q* is a binary variable taking the value of one for *fiscal* quarter *j* and zero otherwise; $\Delta SALES$ is the quarterly change in sales; *PPE* is property, plant, and equipment; *LTA* is the lag of total accruals; *ASSET* is total assets at the beginning of the quarter; and ε is the regression residual. Total accruals are earnings before extraordinary items minus operating cash flows plus extraordinary items/discontinued operations that affect cash flows. All of the variables, including the quarterly intercepts, are scaled by assets at the beginning of the quarter. We winsorize the top and bottom one percentiles of the deflated *TA*, $\Delta SALES$, *PPE*, and *LTA*. In estimating model (2), we require at least 20 observations in each industry in a given quarter. Because we scale all variables by total assets, the explanatory variable, *ASSET*, is transformed into a column of ones, which allows us to estimate the model with a standard intercept. Equation (2) is identical to the model used by Gong et al. (2008).

We adjust the model residuals for performance, as suggested by Kothari et al. (2005). Consistent with Louis (2004), for each calendar quarter and for each two-digit SIC code industry, we create five portfolios by sorting the data into quintiles of ROA measured four quarters prior to the quarter of the portfolio formation. The abnormal accrual for a given firm is the respective residual from the abnormal accrual model for that firm minus the mean residual of the matched portfolio.

Note that the accruals are for the specific quarters for which earnings are forecasted. The accruals are reported to the market at the earnings announcement, at the earliest, and therefore are not known to the analysts at the time of their forecasts. However, as mentioned earlier, we do not assume that analysts forecast the reported earnings and then back out the expected earnings management. We simply assume that analysts form their own estimates of a firm's performance using their own forecasting models, and those who want to convey to their clients useful valuation inputs deviate from the preannounced earnings if they believe that the preannounced earnings do not reflect true performance.

Abnormal accruals may not represent the exact amount of value-irrelevant earnings management. First, it is only an estimate of discretionary accruals, which is noisy even after adjusting for performance (Dechow et al. 2012). Second, managers can

use means other than accruals to manage earnings.[4] Our estimated abnormal accruals measure is only a proxy for earnings management. To the extent that it captures earnings management, the direction of its association with the deviation of analyst forecasts from preannounced earnings (*DEVAF*) should be generally consistent with the direction of the association between earnings management and *DEVAF*. To ensure that we indeed capture the effect of earnings management, we replicate the analysis using restatement data from AuditAnalytics.

3.2.2. Analyst Forecast Deviations. We measure analyst forecasts as the *last* consensus analyst estimates after the earnings preannouncements (the *last* management forecast after the end of the fiscal quarter) that are issued at least three days prior to the earnings announcement. The average number of days between the preannouncement date and the last consensus analyst estimate date is 5.73. We use the stock returns between the preannouncement date and the analyst report date to control for the effects of events occurring between the two dates.

The consensus earnings estimate includes observations with zero individual earnings estimate revisions. Our view is that, if an analyst has an outstanding estimate and managers subsequently make a preannouncement that differs from the estimate because they will manage earnings, the analyst is less likely to revise her forecast if her objective is to provide valuation input to her clients. Therefore, it is necessary to include the zero estimate revisions in our analysis. Note that if First Call Historical Database has not received confirmation of an analyst's last earnings estimate, its editors normally call the brokerage firm to verify whether the stock is still being covered; if it is not, the estimate is excluded from the consensus estimate (First Call Historical Database 2010). An analyst could be busy and not have time to do the necessary research to revise her estimates. However, adjusting an earnings estimate toward the preannounced earnings is one of the least demanding tasks that an analyst could perform, and one that is likely to have the most impact on forecast accuracy. If an analyst's primary objective is to be accurate, it is difficult to conceive that she would find time to do the research and provide an estimate but not enough time to update the estimate in response to subsequent management guidance. Nonetheless, we also analyze the association between abnormal accruals and the deviation using only individual analyst estimates issued after the preannouncement.

[4] Managers can also use earnings management to signal their private information (Louis and Robinson 2005). Therefore, an analyst who wants to provide valuation input to his clients might not adjust management forecasts entirely for earnings management.

Analysts often exclude nonrecurring items from their estimates. However, the actual earnings, the analyst earnings estimates, and the preannounced earnings used in our study refer to some form of "street earnings" from First Call, which reports all three earnings numbers on a comparable basis. It is important to note that forecast accuracy has actually been measured in the literature by comparing analyst earnings estimates with actual earnings numbers reported by First Call, the Institutional Brokers' Estimate System, or Zacks. We use First Call in this study because we want the actual earnings, the analyst earnings estimates, and the preannounced earnings to be from the same source, and First Call is the only one of the three databases that provides preannounced earnings. It is standard in the literature to compare the actual earnings, the analyst earnings estimates, and the management guidance provided by First Call (see, e.g., Bhojraj and Sengupta 2005, Feng and McVay 2010, Hutton et al. 2012). Our reading of analyst reports indicates that analysts leave no doubt that they are forecasting the same numbers as the managers. As the examples provided in §2 show, analysts routinely compare their estimates with the managers' guidance and explain any deviation from the guidance. They often discuss the assumptions under which the guidance would hold. As we explain earlier, when they cannot replicate the managers' guidance under reasonable assumptions, they often say so and deviate from the guidance.

Our assumption that First Call reports actual earnings, analyst earnings estimates, and preannounced earnings on the same basis implies that the difference between actual earnings and preannounced earnings would be a surprise to the market, as opposed to some noise created by discrepancies in First Call's definitions of actual earnings and preannounced earnings. Consistent with our assumption, untabulated results show a significantly positive association between the abnormal return over the three days centered on the earnings announcement and the surprise relative to the preannounced earnings (actual earnings minus preannounced earnings scaled by price), with a t-value of 3.76.

3.2.3. Managers' Incentives to Issue Forecasts That Differ from the Actual Earnings. Managers and analysts are allegedly engaged in a game, whereby managers walk analyst earnings estimates to beatable levels and inflate earnings to meet the estimates when the analysts do not cooperate (Fox 1997, McGee 1997, Ip 1997, Vickers 1999). We adjust for managers' efforts to walk down analyst estimates by controlling for the bias in the preannounced earnings, which is proxied by the preannouncement error (preannounced earnings minus reported earnings) of the current quarter (*PAE*). Note that there should be a relationship

between the preannouncement error and the deviation only if analysts adjust for the potential bias in the preannounced earnings.[5] One advantage with using the error in the current preannounced earnings is that it is an exact measure of the actual error. However, it has some potential problems. One concern is that analysts are unlikely to perfectly anticipate the actual error. To address this concern, we also use lagged management forecast errors. However, preannounced earnings are not available every quarter, and the use of the lag substantially reduces the sample size. We mitigate the sample attrition problem by using the average of the management forecast error over the past eight quarters (*APPAE*), which we set to the sample average for firms with no management forecast over the eight quarters. We use the last quarterly management forecasts, whether they are issued before or after the end of the fiscal quarter. The preannouncement error is likely to be different for firms preannouncing for the first time. However, our inferences hold even if we include both the average of the past management forecast errors and the current actual preannouncement error in the model.

To further ensure that our findings are not artifacts of this potential game between managers and analysts, we test the robustness of our results to controlling for cases where analysts might be resisting managers' effort to walk down their estimates to beatable levels and those where managers might inflate earnings at the last minute to meet the estimates of disobliging analysts. See §5.4 for details.

4. Sample Selection, Descriptive Statistics, and Simple Correlations

4.1. Sample Selection

We conduct our analysis over the 1995–2006 period. We compute abnormal returns over the months after the earnings announcement. Because the sample ends in 2006, our results are not affected by the recent financial crisis. To be included in our primary analysis, a firm has to meet the following criteria: (1) the actual quarterly earnings, the quarterly earnings preannouncements, and the quarterly consensus analyst earnings estimates are available on First Call; and (2) the earnings announcement dates for both the current and the prior quarters are available on Compustat. There are 4,141 firm-quarters that satisfy these criteria. Some of the control variables used in our regression models have missing observations on either First Call, the Center for Research in Security Prices, or COMPUSTAT. For our main regression, there are a total of 3,620 firm-quarters that have complete observations.

4.2. Descriptive Statistics and Simple Correlations for the Variables Used in the Regression

Table 1 presents descriptive statistics for the variables used in our main regression analysis. The deviation of analyst earnings estimates from preannounced earnings (*DEVAF*, analyst earnings estimates minus preannounced earnings) has a zero median but a positive mean (0.066% of price).[6] The bottom quartile is −0.034%, and the top quartile is 0.035%. Untabulated results show that the mean absolute value of *DEVAF* is 0.178%. These statistics indicate that analysts' deviations from preannounced earnings can be substantial, although the central-tendency measures are quite small because the positive amounts offset the negative ones, and not every analyst chooses to deviate from the preannounced earnings.[7] They also indicate that the largest observations are concentrated in the right tail of the distribution, as the mean *DEVAF* is more positive than the top quartile. The positive *DEVAF* is consistent with the notion that analysts could provide estimates that exceed the preannounced earnings to pressure managers to report higher earnings. It is also consistent with the notion that managers tend to issue guidance that they can beat, which could induce analysts to deviate from the preannounced earnings to account for the potential bias. The preannouncement error (*PAE*, preannounced earnings minus actual earnings) is negative. The mean (median) *PAE* is −0.041% (−0.021%) of price, which is consistent with the notion that managers tend to guide towards numbers that they can beat.

At first glance, the positive average deviation might seem inconsistent with the notion that some analysts

[5] Consider two firms (*U* and *B*) that have actual earnings of \$1.2, the managers of Firm *U* preannounce \$1.2 (they are unbiased), and the managers of Firm *B* preannounce \$1.0. If analysts do not adjust for the bias and forecast \$1.2 for Firm *U* and \$1.0 for Firm *B*, then there will be no correlation between the errors in the preannounced earnings and the deviations of the analyst forecasts from the preannounced earnings. In contrast, if analysts adjust for the bias and forecast \$1.2 for both firms, then there will be a negative correlation between the errors and the deviations.

[6] One should not draw strong inferences from the fact that the unconditional *DEVAF* mean is positive. For instance, the unconditional *DEVAF* mean could be positive simply because analysts adjust their forecasts for managers' incentives to walk the analysts' forecasts down to beatable levels. This is why we control for various other potential determinants of the deviation in our analysis, including the management forecast error.

[7] Analysts' deviations from preannounced earnings can also be substantial, relative to the average stock prices. The average deflated deviation (*DEVAF*), undeflated deviation, and price for firms with negative (positive) *DEVAF* are −0.0016 (0.0033), −0.0159 (0.0301), and 18.09 (17.74), respectively. For firms in the bottom (top) quintile of *DEVAF*, they are −0.0026 (0.0059), −0.0231 (0.0508), and 12.75 (13.16), respectively. The undeflated deviations are the differences in EPS forecasts between the analysts' estimates and the managers' guidance.

Table 1 Sample Characteristics ($N = 3{,}620$)

	Mean	Std. deviation	25th percentile	Median	75th percentile
DEVAF	0.0007	0.0049	−0.0003	0.0000	0.0004
ABAC	0.0003	0.0544	−0.0244	0.0017	0.0263
ABRET_BMA	0.0028	0.0571	−0.0027	0.0000	0.0030
LOSS	0.2146	0.4106	0.0000	0.0000	0.0000
ROA	0.0073	0.0368	0.0019	0.0125	0.0245
CHE	−0.0002	0.0357	−0.0056	0.0012	0.0061
ABRETM3	−0.0402	0.2721	−0.2127	−0.0467	0.0986
LOGMV	6.5050	1.5443	5.3838	6.3609	7.4816
BM	0.5201	0.4611	0.2674	0.4263	0.6590
EVOLATIL	0.0253	0.0410	0.0066	0.0123	0.0240
FEVOLATIL	0.0041	0.0068	0.0008	0.0018	0.0041
COVERAGE	1.6795	0.8582	1.0986	1.7918	2.3026
PAE	−0.0004	0.0039	−0.0009	−0.0002	0.0000

Notes. The variable *DEVAF* is the last consensus analyst earnings estimate minus the preannounced earning for quarter 0 (the forecasted quarter) scaled by price on the day prior to the earnings preannouncement; *ABAC* is abnormal accruals, our proxy for earnings management for quarter 0; *ABRET_BMA* is the market-adjusted returns starting two days after the preannouncement date and ending one day before the analyst forecast date; *LOSS* is a binary variable taking the value 1 if earnings for quarter −1 are negative and 0 otherwise; *ROA* (return on assets) is net income for quarter −1 deflated by total assets at the beginning of quarter −1; *CHE* is the change in the earnings for quarter −1 over the earnings in quarter −5 scaled by price at the beginning of quarter −1; *ABRETM3* is the market-adjusted returns over the three months ending the month prior to the preannouncement month; *LOGMV* is the logarithm of market value of equity at the beginning of quarter 0; *BM* is the ratio of book value of equity to market value of equity at the beginning of quarter 0; *EVOLATIL* is the standard deviation of earnings (deflated by the beginning of quarter price) over the 20 quarters prior to quarter 0; *FEVOLATIL* is the standard deviation of analyst forecast errors (deflated by price on the trading day prior to analyst forecast) over the 20 quarters prior to quarter 0; analyst forecast error is the difference between the last consensus analyst estimate for the quarter and the reported earnings; *COVERAGE* is the logarithm of the number of analysts included in the last consensus analyst estimate prior to the earnings announcement; and *PAE*, preannouncement error, is preannounced earnings minus reported earnings for the quarter, deflated by price on the day prior to the earnings preannouncement. All of the variables, except for *LOSS* and *COVERAGE*, are winsorized at the top and bottom one percentiles.

estimate unmanaged earnings. The effect of earnings management has to reverse. Therefore, it might appear that, even if the deviation is negatively associated with earnings management, the average effect of earnings management on the deviation would be zero. However, this is not necessarily the case. Analysts are more likely to differentiate managed from unmanaged earnings, and therefore more likely to deviate from preannounced earnings, when the managed amount is large. Managers often inflate earnings by relatively small amounts and deflate them by large amounts through "big baths." Accordingly, analysts are more likely to detect intended downward earnings management (big bath) impounded in the preannounced earnings than intended upward earnings management. This argument is consistent with Abarbanell and Lehavy's (2003) observation that, in general, the analyst forecast error distribution includes relatively high incidences of large positive forecast errors and small negative forecast errors. In our sample, the number of small negative earnings management amounts is greater than the number of large positive earnings management amounts. However, because the small amounts are more difficult to detect and positive earnings management amounts are more likely to be small, analysts' deviations from preannounced earnings and analyst forecast errors are likely to be zero for a relatively large number of firms with positive earnings management. This situation is likely to result in both the deviations and the analyst forecast errors displaying a zero median but a positive mean.

The statistics for the abnormal accruals (*ABAC*) are consistent with the notion that managers tend to inflate earnings by relatively small amounts and deflate earnings by large amounts. The average *ABAC* is essentially zero (0.0003) by construction, whereas the median is 0.0017, which means that the distribution is skewed to the left. The skewness measure is −0.0024, which is significant at the 1% level using D'Agostino and Tietjen's (1973) test.

5. Regression Results

5.1. Association Between Abnormal Accruals and Analyst Deviations Using the Consensus Estimate

Table 2 reports the main results on the association between abnormal accruals and analysts' deviations from preannounced earnings. Consistent with the conjecture that analysts could deviate from preannouncements of distorted earnings to provide useful valuation information to their clients, we find a significantly negative association between abnormal accruals and analysts' deviations from preannounced earnings. Under column (1), where we control for

Table 2 Association Between Abnormal Accruals and Analysts' Deviations from Preannounced Earnings ($N = 3{,}620$)

	Column (1)	Column (2)	Column (3)
Intercept	0.152	0.144	0.149
	(2.22)	(2.07)	(2.17)
ABAC	−0.676	−0.584	−0.681
	(−3.38)	(−3.04)	(−3.38)
ABRET_BMA	−0.076	−0.121	−0.080
	(−0.32)	(−0.52)	(−0.33)
LOSS	0.037	0.041	0.038
	(1.07)	(1.22)	(1.10)
ROA	−0.326	−0.566	−0.324
	(−0.63)	(−1.16)	(−0.63)
CHE	−0.105	0.004	−0.124
	(−0.22)	(0.01)	(−0.26)
ABRETM3	−0.168	−0.148	−0.169
	(−4.33)	(−3.54)	(−4.24)
LOGMV	−0.020	−0.020	−0.020
	(−2.24)	(−2.26)	(−2.26)
BM	−0.011	0.009	−0.011
	(−0.27)	(0.22)	(−0.26)
EVOLATIL	−0.002	−0.002	−0.002
	(−0.66)	(−0.58)	(−0.67)
FEVOLATIL	0.068	0.070	0.068
	(2.01)	(2.23)	(2.03)
COVERAGE	0.001	0.006	0.001
	(0.05)	(0.43)	(0.05)
PAE	−0.380		−0.377
	(−7.58)	—	(−7.59)
APPAE	—	−0.142	−0.060
		(−1.29)	(−0.62)
Adjusted R^2	0.119	0.034	0.119

Notes. This table reports estimates for the following regression model:

$$\begin{aligned} DEVAF_{it} = {} & \alpha_0 + \alpha_1 ABAC_{it} + \alpha_2 ABRET\_BMA_{it} + \alpha_3 LOSS_{it} + \alpha_4 ROA_{it} \\ & + \alpha_5 CHE_{it} + \alpha_6 ABRETM3_{it} + \alpha_7 LOGMV_{it} + \alpha_8 BM_{it} \\ & + \alpha_9 EVOLATIL_{it} + \alpha_{10} FEVOLATIL_{it} + \alpha_{11} COVERAGE_{it} \\ & + \alpha_{12} PAE_{it} + \alpha_{13} APPAE_{it} + \varepsilon_{it}, \end{aligned}$$

where *APPAE* is the average percentage management earnings forecast error over the past eight quarters. For firms with no management guidance over the eight quarters, we use the sample average to proxy for analysts' expectations of the management forecast errors. The other variables are defined as in Table 1, except that *DEVAF*, *EVOLATIL*, *FEVOLATIL*, and *PAE* are expressed in percentages in this table. Excluding *LOSS* and *COVERAGE*, all of the variables are winsorized at the top and bottom one percentiles. The *t*-statistics, reported in parentheses, are based on standard errors adjusted for clustering at both firm and quarter levels.

the current quarter preannouncement error, the coefficient on abnormal accruals, *ABAC*, is −0.676, with an adjusted *t*-value of −3.38. The untabulated Pearson correlation between *ABAC* and the deviation is also negative.

As expected, the coefficient on the preannouncement error (*PAE*, preannounced earnings minus reported earnings), which proxies for the potential bias in the preannouncement, is negative. We replicate the analysis by controlling for the potential bias in the preannouncement using the average management forecast error over the past eight quarters. The results, reported under columns (2) and (3) of Table 2, are qualitatively similar to those reported under column (1). When we proxy for management forecast bias by the average management forecast error over the past eight quarters, the coefficient on abnormal accruals, *ABAC*, is −0.584, with an adjusted *t*-value of −3.04; and the coefficient on the management forecast error is statistically insignificant. The coefficient (*t*-value) is −0.681 (−3.38) when we control for both the actual preannouncement error and the average management forecast error over the past eight quarters. Untabulated results show that the coefficient (*t*-value) is −0.572 (−3.02) if we do not control for management forecast bias at all. Overall, the results suggest that analyst deviations from preannounced earnings generally depend on the extent to which firms manage earnings.

Consistent with the literature on management guidance, our sample includes both point and range preannounced earnings, but excludes earnings preannouncements that provide only minimum and/or maximum amounts. The range forecasts are converted into point forecasts by taking the average of the minimum and maximum of the range. To assess the effect of this procedure on our results, we limit the sample to the 1,056 cases where managers issue only explicit point forecasts. Untabulated results show that the significant association between abnormal accruals and the deviation still holds for the subsample of observations where managers issue only explicit point forecasts. The coefficient on the abnormal accruals, *ABAC*, is −0.916 for the full model, with a *t*-value of −2.43.

5.2. Association Between Abnormal Accrual and Deviations Using Individual Analyst Forecasts

We also analyze the association between abnormal accruals and the deviation of analyst earnings estimates from preannounced earnings using only individual analysts who issue estimates after the earnings preannouncements. The results, reported in Table 3, are again consistent with the notion that analyst deviations from the preannounced earnings depend on the extent to which a firm manages earnings. The coefficient on *ABAC* is −0.303, with a *t*-value of −3.65. This coefficient is much smaller than the coefficient (−0.681) reported in Table 2, where we use First Call analyst consensus estimates. The reason is that analysts who issue estimates after the preannouncement are more likely to be those who are responsive to the preannouncement. On average, the earnings estimates for this group get closer to the preannounced earnings, reducing then the deviation (our dependent variable) and resulting in smaller coefficients.

Table 3 Association Between Abnormal Accruals and Analysts' Deviations from Preannounced Earnings Using Only Individual Forecasts Issued After the Preannouncements ($N = 3{,}864$)

	Coefficient	*t*-value
Intercept	−0.042	−1.52
ABAC	−0.303	−3.65
ABRET_BMA	−0.043	−0.53
LOSS	−0.004	−0.22
ROA	0.272	1.26
CHE	0.236	1.26
ABRETM3	0.010	0.79
LOGMV	0.002	0.59
BM	−0.013	−0.75
EVOLATIL	0.000	0.00
FEVOLATIL	−0.003	−0.28
COVERAGE	0.008	1.51
PAE	−0.290	−8.76
APPAE	−0.067	−1.61
Adjusted R^2	0.213	

Notes. This table reports estimates for the following regression model:

$$DEVAF_{it} = \alpha_0 + \alpha_1 ABAC_{it} + \alpha_2 ABRET\_BMA_{it} + \alpha_3 LOSS_{it} + \alpha_4 ROA_{it} + \alpha_5 CHE_{it} + \alpha_6 ABRETM3_{it} + \alpha_7 LOGMV_{it} + \alpha_8 BM_{it} + \alpha_9 EVOLATIL_{it} + \alpha_{10} FEVOLATIL_{it} + \alpha_{11} COVERAGE_{it} + \alpha_{12} PAE_{it} + \alpha_{13} APPAE_{it} + \varepsilon_{it}.$$

The variables are defined as in Tables 1 and 2, except that *DEVAF*, *EVOLATIL*, *FEVOLATIL*, and *PAE* are expressed in percentages in this table. Excluding *LOSS* and *COVERAGE*, all of the variables are winsorized at the top and bottom one percentiles. The *t*-statistics, reported in parentheses, are based on standard errors adjusted for clustering at both firm and quarter levels.

For instance, as reported in Table 1, the mean deviation is 0.066% when we use First Call consensus estimates; in contrast, it is only −0.006% when we construct the consensus using only individual analysts who issue estimates after the preannouncement. Similarly, the minimum and maximum deviations are −1.308% and 3.294% when we use First Call consensus estimates, but only −1.194% and 1.362% when we construct the consensus using only individual analysts who issue estimates after the preannouncement. However, it is worth noting that although the coefficient is smaller, the *t*-value is actually slightly larger and the inference exactly the same.

5.3. Association Between Restatement-Related Misstatements and Analyst Deviations

It is not obvious why the abnormal accruals and the deviation would have the strong association that we document if the abnormal accruals do not capture earnings management. Nonetheless, to further ensure that we capture the effect of earnings management, we replicate the analysis using restatement data from AuditAnalytics. AuditAnalytics indicates whether a restatement is income increasing or decreasing and the period that is affected; however, it does not provide the amount of the restatement. Accordingly, we create an indicator variable *RESTATE*, which takes the value −0.5 if a restatement results in an increase in the earnings of the restated period (i.e., the reported earnings were understated), 0.5 if it results in a decrease in the earnings of the restated period (i.e., the reported earnings were overstated), and 0 if there is no restatement. Our sample includes 624 misstatement cases. We expect a negative association between the deviation and earnings misstatement. This prediction should hold whether the misstatement is intentional or not, as long as the reported earnings are materially different from what the economic activities of the firm indicate that they should be.

Consistent with the notion that analyst deviations from the preannounced earnings depend on the extent to which a firm manages earnings, the results reported in Table 4 show that the deviation has a significantly negative association with *RESTATE*. The coefficient on *RESTATE* is −0.101, with a *t*-value of −3.35. Therefore, it is less likely that the effect that we document is simply spurious.

Table 4 Association Between Earnings Restatements and Analysts' Deviations from Preannounced Earnings ($N = 4{,}082$)

	Coefficient	*t*-value
Intercept	0.163	2.66
RESTATE	−0.101	−3.35
ABRET_BMA	−0.081	−0.36
LOSS	0.053	1.68
ROA	−0.113	−0.24
CHE	0.039	0.09
ABRETM3	−0.174	−4.94
LOGMV	−0.024	−2.89
BM	0.001	0.03
EVOLATIL	−0.003	−0.89
FEVOLATIL	0.059	2.05
COVERAGE	0.007	0.53
PAE	−0.374	−8.21
APPAE	−0.043	−0.53
Adjusted R^2	0.127	

Notes. This table reports estimates for the following regression model:

$$DEVAF_{it} = \alpha_0 + \alpha_1 RESTATE_{it} + \alpha_2 ABRET\_BMA_{it} + \alpha_3 LOSS_{it} + \alpha_4 ROA_{it} + \alpha_5 CHE_{it} + \alpha_6 ABRETM3_{it} + \alpha_7 LOGMV_{it} + \alpha_8 BM_{it} + \alpha_9 EVOLATIL_{it} + \alpha_{10} FEVOLATIL_{it} + \alpha_{11} COVERAGE_{it} + \alpha_{12} PAE_{it} + \alpha_{13} APPAE_{it} + \varepsilon_{it},$$

where *RESTATE* is an indicator variable taking the value −0.5 if a restatement results in an increase in the net income of the restated period (i.e., net income was understated), 0.5 if a restatement results in a decrease in the net income of the restated period (i.e., net income was overstated), and 0 if there is no restatement. The other variables are defined as in Tables 1 and 2, except that *DEVAF*, *EVOLATIL*, *FEVOLATIL*, and *PAE* are expressed in percentages in this table. Excluding *LOSS* and *COVERAGE*, all of the variables are winsorized at the top and bottom one percentiles. The *t*-statistics, reported in parentheses, are based on standard errors adjusted for clustering at both firm and quarter levels.

There are more observations in Table 4 than in the previous tables because we release the requirement that a firm has the necessary data to compute abnormal accruals because the analysis in Table 4 does not involve abnormal accruals. However, untabulated results show that requiring the abnormal accrual data does not qualitatively alter our inferences. The coefficient on *RESTATE* is −0.094, with a *t*-value of −2.95 for the sample of firms with abnormal accrual data.

5.4. The Potential Effect of the Strategic "Earnings Game" Between Managers and Analysts

5.4.1. Are the Results Due to Analyst Resistance to the Managers? To ensure that our inferences are not due to the potential strategic game played by analysts and managers, we create a binary variable, *RESIST*, which takes the value one if analysts might have been resisting managers' efforts to walk down their forecasts and zero otherwise. Analysts are deemed to have been resisting managers' efforts to walk down their forecasts if (1) the preannounced earnings are lower than the preceding consensus analyst earnings estimates and (2) the last First Call consensus analyst estimates issued after the earnings preannouncement remain at least as high as the last consensus analyst estimates issued prior to the earnings preannouncement. We then estimate the following model:

$$\begin{aligned} DEVAF_{it} = {} & \alpha_0 + \alpha_1 ABAC_{it} + \alpha_2 RESIST_{it} + \alpha_3 ABAC_{it} \\ & * RESIST_{it} + \alpha_4 ABRET\_BMA_{it} + \alpha_5 LOSS_{it} \\ & + \alpha_6 ROA_{it} + \alpha_7 CHE_{it} + \alpha_8 ABRETM3_{it} \\ & + \alpha_9 LOGMV_{it} + \alpha_{10} BM_{it} + \alpha_{11} EVOLATIL_{it} \\ & + \alpha_{12} FEVOLATIL_{it} + \alpha_{13} COVERAGE_{it} \\ & + \alpha_{14} PAE_{it} + \alpha_{15} APPAE_{it} + \varepsilon_{it}. \end{aligned} \quad (3)$$

The results, which we report in column (1) of Table 5, show that the association between *DEVAF* and *ABAC* for those cases where the analysts are unlikely to have been resisting the managers, α_1, is significantly negative (−0.644 with a *t*-value of −3.58). It is very close to the value of −0.681 that we report in column (3) of Table 2. Therefore, our inferences hold even for those cases where analysts are less likely to have been resisting managers' efforts to walk down their forecasts to beatable levels.

5.4.2. Are the Results Due to Analyst Pressure on the Managers to Inflate Earnings? If the analysts' earnings estimates are indeed too high and the analysts do not respond to the managers' efforts to walk down the estimates, then the managers could ultimately have to resort to earnings management to meet the estimates. Analysts allegedly exert pressure on managers to report higher earnings (Fuller and Jensen 2002, Beyer 2008), presumably to keep stock prices high and create trading volume for their brokerage firms. As Fuller and Jensen (2002) explained, in the game between managers and analysts, the latter sometimes have the last word. Managers can be forced to inflate earnings at the last minute to meet overly optimistic estimates by disobliging analysts and avoid the punishment associated with missing analyst estimates. We assume that at the time of a preannouncement (i.e., after the end of a fiscal quarter), managers generally know what earnings number they are likely to report. An implicit assumption of our study then is that managers include in their preannounced earnings the abnormal accruals they will include in the reported earnings. However, this assumption will not hold if the managers decide at the last minute to inflate earnings to meet or beat analyst estimates because the analysts do not respond to the managers' effort to walk down the estimates.

To ensure that our results are not driven by cases where managers might inflate earnings at the last minute to meet the estimates of disobliging analysts, we create a binary variable, *PRESSURE*, which takes the value one if the managers might have been pressured to inflate earnings at the last minute to meet overly optimistic estimates by disobliging analysts and zero otherwise. Managers are deemed most likely to inflate earnings at the last minute to meet overly optimistic estimates by disobliging analysts if (1) the *last* consensus analyst estimates issued after the earnings preannouncements are higher than the preannounced earnings and (2) the managers would miss the analyst estimates if they did not inflate earnings (as indicated by the abnormal accruals).[8] We then estimate the following model:

$$\begin{aligned} DEVAF_{it} = {} & \alpha_0 + \alpha_1 ABAC_{it} + \alpha_2 PRESSURE_{it} \\ & + \alpha_3 ABAC_{it} * PRESSURE_{it} \\ & + \alpha_4 ABRET\_BMA_{it} + \alpha_5 LOSS_{it} + \alpha_6 ROA_{it} \\ & + \alpha_7 CHE_{it} + \alpha_8 ABRETM_{it} + \alpha_9 LOGMV_{it} \\ & + \alpha_{10} BM_{it} + \alpha_{11} EVOLATIL_{it} \\ & + \alpha_{12} FEVOLATIL_{it} + \alpha_{13} COVERAGE_{it} \\ & + \alpha_{14} PAE_{it} + \alpha_{15} APPAE_{it} + \varepsilon_{it}. \end{aligned} \quad (4)$$

[8] Abnormal accruals are scaled by lagged assets, and estimated and reported earnings are scaled by price. Therefore, when estimating whether managers would have missed the analyst estimates if they did not inflate earnings, we put the abnormal accruals and the estimated and reported earnings on the same scale by multiplying the abnormal accruals by lagged assets and dividing them by market value. We deem that managers would have missed the analyst estimates if they did not inflate earnings if the earnings surprise was nonnegative and the surprise minus the adjusted abnormal accruals was negative.

Table 5 Association Between Abnormal Accruals and Analysts' Deviations from Preannounced Earnings Conditional on Analysts Resisting or Pressuring Managers ($N = 3{,}620$)

	Column (1)		Column (2)		Column (3)	
	Coefficient	*t*-value	Coefficient	*t*-value	Coefficient	*t*-value
Intercept	0.144	2.18	0.145	2.10	0.140	2.12
ABAC	−0.644	−3.58	−0.806	−3.67	−0.738	−3.81
RESIST	0.263	3.72	—	—	0.255	3.59
ABAC ∗ *RESIST*	−0.567	−0.37	—	—	−0.754	−0.47
PRESSURE	—	—	0.059	2.02	0.024	0.83
ABAC ∗ *PRESSURE*	—	—	0.539	1.17	0.750	1.46
ABRET_BMA	−0.079	−0.33	−0.077	−0.32	−0.078	−0.32
LOSS	0.041	1.20	0.037	1.04	0.040	1.15
ROA	−0.349	−0.69	−0.353	−0.69	−0.366	−0.72
CHE	−0.079	−0.17	−0.107	−0.23	−0.068	−0.15
ABRETM3	−0.177	−4.51	−0.174	−4.37	−0.180	−4.58
LOGMV	−0.020	−2.28	−0.020	−2.21	−0.020	−2.22
BM	−0.004	−0.11	−0.012	−0.28	−0.005	−0.13
EVOLATIL	−0.002	−0.72	−0.003	−0.71	−0.003	−0.74
FEVOLATIL	0.066	1.99	0.069	2.07	0.067	2.02
COVERAGE	−0.006	−0.44	−0.002	−0.14	−0.008	−0.54
PAE	−0.365	−7.23	−0.371	−7.42	−0.360	−7.10
APPAE	−0.057	−0.59	−0.058	−0.60	−0.055	−0.57
Adjusted R^2	0.133		0.121		0.134	

Notes. This table reports estimates for the following regression model:

$$DEVAF_{it} = \alpha_0 + \alpha_1 ABAC_{it} + \alpha_{2r} RESIST_{it} + \alpha_{3r} ABAC_{it} * RESIST_{it} + \alpha_{2p} PRESSURE_{it} + \alpha_{3p} ABAC_{it} * PRESSURE_t + \alpha_4 ABRET\_BMA_{it} + \alpha_5 LOSS_{it} + \alpha_6 ROA_{it} + \alpha_7 CHE_{it} + \alpha_8 ABRETM3_{it} + \alpha_9 LOGMV_{it} + \alpha_{10} BM_{it} + \alpha_{11} EVOLATIL_{it} + \alpha_{12} FEVOLATIL_{it} + \alpha_{13} COVERAGE_{it} + \alpha_{14} PAE_{it} + \alpha_{15} APPAE_{it} + \varepsilon_{it},$$

where *RESIST* is a binary variable that takes the value one if the analysts might have been resisting managers' efforts to walk down their forecasts and zero otherwise. (Analysts are deemed to have been resisting managers' efforts to walk down their forecasts if (1) the preannounced earnings are lower than the preceding consensus analyst estimates and (2) the last consensus analyst estimates issued after the earnings preannouncement remain at least as high as the last consensus analyst estimates issued prior to the earnings preannouncement.) *PRESSURE* is a binary variable that takes the value one if the managers might have been pressured to inflate earnings at the last minute to meet overly optimistic estimates by disobliging analysts and zero otherwise. Managers are deemed most likely to inflate earnings at the last minute to meet overly optimistic estimates by disobliging analysts if (1) the last consensus analyst estimates issued after the earnings preannouncements are higher than the preannounced earnings and (2) the managers would have missed the analyst forecasts if they did not inflate earnings (as indicated by the abnormal accruals.) The other variables are defined as in Tables 1 and 2, except that *DEVAF*, *EVOLATIL*, *FEVOLATIL*, and *PAE* are expressed in percentages in this table. Excluding *RESIST*, *PRESSURE*, *LOSS*, and *COVERAGE*, all of the variables are winsorized at the top and bottom one percentiles. The *t*-statistics are based on standard errors adjusted for clustering at firm and quarter levels.

The results, which we report in column (2) of Table 5, show that the association between *DEVAF* and *ABAC* for those cases where the managers were less likely to have been pressured to inflate earnings at the last minute to meet overly optimistic estimates by disobliging analysts, α_1, is significantly negative (t-value $= -3.67$). If anything, the coefficient (-0.806) is larger than the -0.681 that we report in Table 2. Accordingly, α_3, which captures the incremental effect of those cases where the managers might have been pressured to inflate earnings at the last minute to meet overly optimistic estimates by disobliging analysts, is actually positive (t-value $= 1.17$). Hence, our inferences are unlikely to be driven by last-minute earnings inflation by managers to meet overly optimistic estimates by disobliging analysts.

5.4.3. Controlling for the Effects of Both Analyst Resistance and Analyst Pressure. We then combine model (3) and model (4) to simultaneously control for the effects of *RESIST* and *PRESSURE*. The results are reported in column (3) of Table 5. The coefficient on *ABAC*, α_1, which captures the association between *DEVAF* and *ABAC* for those cases where the analysts were less likely to have been resisting the managers and the managers were less likely to have been pressured to inflate earnings at the last minute to meet overly optimistic estimates by disobliging analysts, is significantly negative (t-value $= -3.81$). Taken together, the results in Tables 5 indicate that our inferences are unlikely to be due to the potential "game" between analysts and managers.[9]

[9] Managers who play the "earnings game" are probably more likely to guide analysts on a somewhat regular basis. Therefore, we compare the association between *DEVAF* and *ABAC* across occasional and regular guiders. A firm is deemed an occasional guider if the managers did not provide guidance in the previous year and a regular guider if the managers provided guidance in the previous year. Untabulated results show that the association between *DEVAF*

5.5. Other Determinants of the Association Between Abnormal Accruals and the Deviation

As discussed in §4.2, analyst deviations are widespread and often substantial, with bottom and top quartiles of −0.034% and 0.035% of price, respectively. The results in Table 2 suggest that, besides earnings management, recent performance, size, recent forecast error volatility, and management forecast errors are the main determinants of the deviation. However, it is not obvious which factors impact the earnings management effect. The results in Table 5 do not support the conjecture that the association between abnormal accruals and the deviation could be driven by analysts' resistance to the managers' efforts to walk down their estimates to beatable levels or by managerial pressure to inflate earnings at the last minute to meet overly optimistic estimates by disobliging analysts. In an effort to gain further insight into the cross-sectional determinants of the abnormal accrual effect, we interact abnormal accruals with the same potential determinants of the deviation that we include in the regression models.

The results are reported in Table 6. We observe a significant abnormal accrual effect even after interacting abnormal accruals with the other potential determinants of the deviation, which indicates that the abnormal accrual effect is quite pervasive. Recent performance seems to be the strongest determinant of the abnormal accrual effect, with the interaction effects of both past-quarter ROA and abnormal stock returns over the previous three months being significantly positive. The evidence that the negative effect of earnings management on the deviation decreases with firm performance suggests that analysts' ability to anticipate earnings management and/or their motivation to convey information to their clients are stronger for poorly performing firms.

Table 6 **Other Cross-Sectional Determinants of the Association Between Abnormal Accruals and Analysts' Deviations from Preannounced Earnings** ($N = 3{,}620$)

	Coefficient	*t*-value
Intercept	0.176	2.839
ABAC	−2.869	−2.283
ABRET_BMA	−0.040	−0.168
LOSS	0.031	0.954
ROA	−0.567	−1.265
CHE	−0.198	−0.459
ABRETM3	−0.159	−3.997
LOGMV	−0.022	−2.724
BM	−0.040	−1.066
EVOLATIL	−0.001	−0.428
FEVOLATIL	0.065	2.042
COVERAGE	0.003	0.211
PAE	−0.401	−8.296
APPAE	−0.063	−0.684
ABAC ∗ *ABRET_BMA*	−1.635	−0.432
ABAC ∗ *LOSS*	0.916	1.088
ABAC ∗ *ROA*	21.090	2.055
ABAC ∗ *CHE*	3.305	0.445
ABAC ∗ *ABRETM3*	1.302	2.356
ABAC ∗ *LOGMV*	0.336	1.727
ABAC ∗ *BM*	0.371	1.349
ABAC ∗ *EVOLATIL*	0.032	0.627
ABAC ∗ *FEVOLATIL*	−0.301	−1.303
ABAC ∗ *COVERAGE*	−0.090	−0.352
ABAC ∗ *PAE*	−1.215	−1.821
ABAC ∗ *APPAE*	1.223	0.790
Adjusted R^2	0.142	

Notes. This table reports estimates for the following regression model:

$$\begin{aligned} DEVAF_{it} = {} & \alpha_0 + \alpha_1 ABAC_{it} + \alpha_2 ABRET\_BMA_{it} + \alpha_3 LOSS_{it} + \alpha_4 ROA_{it} \\ & + \alpha_5 CHE_{it} + \alpha_6 ABRETM3_{it} + \alpha_7 LOGMV_{it} + \alpha_8 BM_{it} \\ & + \alpha_9 EVOLATIL_{it} + \alpha_{10} FEVOLATIL_{it} + \alpha_{11} COVERAGE_{it} \\ & + \alpha_{12} PAE_{it} + \alpha_{13} APPAE_{it} + \alpha_{14} ABAC * ABRET\_BMA_{it} \\ & + \alpha_{15} ABAC * LOSS_{it} + \alpha_{16} ABAC * ROA_{it} + \alpha_{17} ABAC * CHE_{it} \\ & + \alpha_{18} ABAC * ABRETM3_{it} + \alpha_{19} ABAC * LOGMV_{it} \\ & + \alpha_{20} ABAC * BM_{it} + \alpha_{21} ABAC * EVOLATIL_{it} \\ & + \alpha_{22} ABAC * FEVOLATIL_{it} + \alpha_{23} ABAC * COVERAGE_{it} \\ & + \alpha_{24} ABAC * PAE_{it} + \alpha_{25} ABAC * APPAE_{it} + \varepsilon_{it}, \end{aligned}$$

where *APPAE* is the average percentage management forecast error over the past eight quarters. For firms with no management forecasts over the eight quarters, we use the sample average. The other variables are defined as in Table 1, except that *DEVAF*, *EVOLATIL*, *FEVOLATIL*, and *PAE* are expressed in percentages in this table. Excluding *LOSS* and *COVERAGE*, all of the variables are winsorized at the top and bottom one percentiles. The *t*-statistics, reported in parentheses, are based on standard errors adjusted for clustering at both firm and quarter levels.

5.6. The Effect of Deviations on Analyst Forecast Errors

Knowing the managers' incentives to preannounce earnings that are lower than the actual earnings, to reduce their forecast errors, analysts could choose to deviate from the preannounced earnings by issuing forecasts that exceed the outstanding management forecasts. We therefore analyze whether analyst deviations from preannounced earnings reduce analyst forecast errors. The results, reported in Table 7, show a very strong positive association between the absolute values of the forecast errors and the absolute values of the deviations. The *t*-value for the coefficient on the absolute values of the deviation is 20.40. Therefore, on average, analysts do not increase their forecast accuracy by deviating from preannounced earnings. If this is their objective, then it does not

and *ABAC* for the occasional guiders is significantly negative, with an adjusted *t*-value of −2.49. The incremental effect of the regular guiders is insignificantly positive, which is contrary to what we would expect if our results were driven by cases where managers engage in the "earnings game" to meet analyst forecasts on a regular basis.

Table 7 Association Between Forecast Accuracy and the Absolute Values of Analysts' Deviations from Preannounced Earnings ($N = 3{,}620$)

Forecast accuracy →	*ABS_AFE*	*AFE*
Intercept	0.164	0.001
	(5.33)	(0.06)
ABS_DEVAF	0.700	—
	(20.40)	
DEVAF	—	0.930
		(32.11)
ABRET_BMA	−0.037	−0.106
	(−0.23)	(−1.57)
LOSS	0.037	0.017
	(1.74)	(1.17)
ROA	−1.086	0.133
	(−3.65)	(0.55)
CHE	0.112	−0.163
	(0.39)	(−1.45)
ABRETM3	−0.063	−0.012
	(−2.83)	(−0.89)
LOGMV	−0.007	−0.001
	(−1.60)	(−0.44)
BM	0.031	0.013
	(1.67)	(0.98)
EVOLATIL	0.001	0.001
	(0.65)	(0.92)
FEVOLATIL	0.031	−0.003
	(2.21)	(−0.24)
COVERAGE	−0.029	−0.002
	(−3.26)	(−0.43)
PAE	0.214	0.988
	(3.38)	(29.22)
APPAE	0.060	0.078
	(0.98)	(1.68)
Adjusted R^2	0.567	0.894

Notes. This table reports estimates for the following regression model:

$$\begin{aligned} &ForecastAccuracy_{it} \\ &\quad = \alpha_0 + \alpha_{1a} ABS\_DEVAF_{it} + \alpha_{1b} DEVAF_{it} + \alpha_2 ABRET\_BMA_{it} \\ &\qquad + \alpha_3 LOSS_{it} + \alpha_4 ROA_{it} + \alpha_5 CHE_{it} + \alpha_6 ABRETM3_{it} + \alpha_7 LOGMV_{it} \\ &\qquad + \alpha_8 BM_{it} + \alpha_9 EVOLATIL_{it} + \alpha_{10} FEVOLATIL_{it} + \alpha_{11} COVERAGE_{it} \\ &\qquad + \alpha_{12} PAE_{it} + \alpha_{13} APPAE_{it} + \varepsilon_{it}, \end{aligned}$$

where *AFE*, analyst forecast error, is analyst forecast minus actual earnings; *ABS_AFE* is the absolute value of *AFE*; and *ABS_DEVAF* is the absolute value of *DEVAF*, the deviation of the average analyst forecast from the preceding preannounced earnings for the quarter. These variables are expressed as a percentage of price on the day prior to the preannouncement. The other variables are defined as in Tables 1 and 2, except that *ABS_AFE*, *ABS_DEVAF*, *AFE*, *DEVAF*, *EVOLATIL*, *FEVOLATIL*, and *PAE* are expressed in percentages in this table. Excluding *LOSS* and *COVERAGE*, all of the variables are winsorized at the top and bottom one percentiles. The *t*-statistics, reported in parentheses, are based on standard errors adjusted for clustering at both firm and quarter levels.

seem that they have succeeded. The results clearly indicate that, on average, analysts could improve their forecast accuracy by reiterating the outstanding earnings preannouncements. The association between signed forecast errors and signed deviations is even stronger, with a *t*-value of 32.11. Note that this result, as well as all the previous results that we report in the paper, holds whether we control for the preannouncement error (*PAE*), for the average management forecast error over the past eight quarters (*APPAE*), or for none of them.

5.7. The Stock Price Effect of Analyst Deviations

To analyze whether the deviation improves analyst forecast informativeness, we first examine the stock price effect of the deviation. Because many analysts issue their reports on the day of the earnings preannouncement or the day after, we estimate the effect of the preannouncement and the effect of the deviation simultaneously. To conduct the analysis, for each firm, we compute a deviation from the preannouncement each time that an analyst issues an estimate. We focus on the dates of the estimates (as opposed to the First Call consensus forecast dates) because these are the dates when investors receive, and likely react to, the information. We then regress the cumulative abnormal returns from the day prior to the preannouncement date to the day after the analyst report date on the preannouncement surprise and the deviation. More specifically, we use the following regression model:

$$CAR_{it} = \alpha_0 + \alpha_1 PAS_{it} + \alpha_2 DDEVAF_{it} + \varepsilon_{it}, \qquad (5)$$

where *CAR* is the cumulative market-adjusted return from the day before the earnings preannouncement to the day after the forecast date; *PAS*, the preannouncement surprise, is the difference between the preannounced earnings and the last preceding analyst consensus earnings estimate; and *DDEVAF* is the analyst deviation from the preceding preannounced earnings. We average *CAR* and *DDEVAF* for all the analysts' forecasts issued for a firm in a given quarter. Both *PAS* and *DDEVAF* are expressed as a percentage of price two days prior to the preannouncement. Earnings preannouncement surprises should positively affect stock prices. If analyst deviations from earnings preannouncements are effective, then they should also be positively associated with the abnormal returns.

The results are reported in Table 8. As expected, the coefficients on both the preannouncement surprise (*PAS*) and the deviation are significantly positive, with *t*-values of 10.71 and 2.70, respectively. The significant positive coefficient on *DDEVAF* suggests that the deviation that arises when analysts forecast their own estimate of a firm's performance instead of reported earnings is relevant to investors, who recognize the deviation and respond to it.

Table 8 The Stock Price Effect of Analysts' Deviations from Preannounced Earnings ($N = 4{,}492$)

	Coefficient	*t*-value
Intercept	−0.037	−6.13
PAS	0.032	10.71
DDEVAF	0.042	2.70
Adjusted R^2	0.102	

Notes. This table reports estimates for the following regression model:

$$CAR_{it} = \alpha_0 + \alpha_1 PAS_{it} + \alpha_2 DDEVAF_{it} + \varepsilon_{it},$$

where *CAR* is the market-adjusted abnormal return measured from the day before the earnings preannouncement to the day after the analyst forecast date; *PAS*, the preannouncement surprise, is the difference between the preannounced earnings and the last preceding analysts' consensus earnings estimate; and *DDEVAF* is the analyst deviation from the preceding preannounced earnings. We average *CAR* and *DDEVAF* for all the analysts' forecasts issued for a firm in a given quarter. Both *PAS* and *DDEVAF* are expressed as a percentage of price two days prior to the preannouncement. The *t*-statistics are based on standard errors adjusted for clustering at both firm and quarter levels.

5.8. The Association Between Analyst Deviations and Earnings Persistence

All abnormal accruals are not created equal. For instance, some abnormal accruals can be due to managerial opportunism, whereas others can be related to favorable information about future performance, resulting in cross-sectional differences in the persistence of the abnormal accruals. In addition, Barth and Hutton (2004) found that, in fulfilling their role as information intermediaries, analysts are able to distinguish between high and low accrual persistence. Therefore, the probability that analysts would deviate from preannounced earnings to communicate more useful valuation information to their clients should depend on the persistence of the abnormal accruals. Accordingly, we expect abnormal accruals to have a weaker association with future earnings for cases where the analysts deviate from the preannounced earnings than for those cases where they do not deviate. To test this conjecture, we use a design similar to Sloan's (1996). More specifically, we estimate the following model:

$$E_{it+1} = \sum_{d=0}^{1} (\alpha_{0,d} + \alpha_{1,d} NDE_{it,d} + \alpha_{2,d} ABAC_{it,d}) + \varepsilon_{it}, \quad (6)$$

where E is quarterly earnings before extraordinary items scaled by assets at the beginning of the quarter; *NDE*, nondiscretionary earnings, is earnings (E) minus abnormal accruals (*ABAC*); and d is a binary variable taking the value one if analysts deviate from the preannounced earnings and zero otherwise.

The results are reported in Table 9. We first present the performance of firms with analyst deviations and those without analyst deviations in panel A of Table 9. In general, firms with analyst deviations tend to have lower operating performance than those without analyst deviations, which is consistent with the earlier evidence that suggests that analysts' ability to anticipate earnings management and/or their motivation to convey information to their clients is stronger for poorly performing firms. However, there is no evidence that the two groups of firms have different average abnormal accruals. As expected, the results reported in panel B of Table 9 show that the abnormal accruals are less persistent than the nondiscretionary earnings, whether the analysts deviate from the preannounced earnings or not. However, the *F*-statistic for comparing the persistence of the two earnings components is 112.45 for the cases where the analysts deviate from the preannounced earnings, whereas it is only 6.64 for those cases where the analysts do not deviate. Moreover, although the average abnormal accruals are not statistically different and the persistence of the nondiscretionary earnings is virtually the same across the two groups of firms, the persistence of the abnormal accruals is significantly lower when analysts deviate from the preannounced earnings, 0.598 versus 0.495, with an *F*-statistics of 5.25 for the difference.[10] These observations suggest that analyst deviations from preannounced earnings are related to the persistence, but not necessarily to the magnitudes, of the accruals.

We also conduct the analysis with the fourth lead of earnings (E_{it+4}) as the dependent variable. The *F*-statistics for comparing the persistence of two earnings components is 89.91 for the cases where the analysts deviate from the preannounced earnings, whereas it is only 20.52 for those cases where the analysts do not deviate. The persistence of the abnormal accruals is significantly lower for the cases where the analysts deviate from the preannounced earnings than for the cases where the analysts do not deviate (0.286 versus 0.481), with an *F*-value of 22.59.

5.9. The Impact of Analyst Deviations on Abnormal Accrual Mispricing

Finally, we examine the impact of analysts' deviations from preannounced earnings on the abnormal accrual mispricing. Prior studies suggested that investors overprice (abnormal) accruals (Sloan 1996, Xie 2001). Sloan (1996) and Xie (2001) found a negative association between (abnormal) accruals and

[10] There is no evidence that the persistence of the abnormal accruals is lower for cases where the preannounced earnings are different from the reported earnings than for cases where they are not different. The coefficient on *ABAC* is 0.595 for those cases where the preannounced earnings are different from the reported earnings and 0.530 for the cases where they are the same, with an *F*-statistics of 1.91 for the difference.

Table 9 Analysts' Deviations from Preannounced Earnings and Earnings Characteristics ($N = 3{,}577$)

Panel A: Performance characteristics of firms with analyst deviations and those without analyst deviations

	Column (1) $d = 0$ ($N = 1{,}007$)		Column (2) $d = 1$ ($N = 2{,}570$)		Difference (1)–(2)	
	Mean	Median	Mean	Median	Mean	Median
LOSS	0.1787	0.0000	0.2272	0.0000	−0.0485***	0.0000***
ROA	0.0109	0.0128	0.0061	0.0123	0.0049***	0.0005*
CHE	0.0005	0.0011	−0.0004	0.0013	0.0010	−0.0001
EVOLATIL	0.0234	0.0112	0.0256	0.0127	−0.0023	−0.0015***
NDE	0.0026	0.0047	−0.0018	0.0041	0.0045**	0.0006
ABAC	0.0021	0.0019	−0.0004	0.0003	0.0025	0.0016

Panel B: Analysts' deviations from preannounced earnings and earnings persistence

	Column (1) $d = 0$	Column (2) $d = 1$	F-value for the difference between (1) and (2)
Intercept	−0.000	−0.001	0.50
	(−0.21)	(−1.00)	
NDE	0.664	0.656	0.04
	(11.45)	(15.08)	
ABAC	0.598	0.495	5.25**
	(9.29)	(11.37)	
F-value for $NDE = ABAC$	6.64***	112.45***	
Adjusted R^2	0.345		

Notes. This table reports estimates for the following regression model:

$$E_{it+1} = \sum_{d=0}^{1}(\alpha_{0,d} + \alpha_{1,d} NDE_{it,d} + \alpha_{2,d} ABAC_{it,d}) + \varepsilon_{it},$$

where E is quarterly earnings before extraordinary items scaled by total assets at the beginning of the quarter; *NDE*, quarterly nondiscretionary earnings, is earnings (E) minus abnormal accruals (*ABAC*); and d is a binary variable taking the value one if analysts deviate from the preannounced earnings and zero otherwise. The other variables are defined as in Table 1. The t-statistics, reported in parentheses, are based on standard errors adjusted for clustering at both firm and quarter levels.

*10% significance level; **5% significance level; ***1% significance level (two-tailed test).

subsequent returns. Xie (2001), in particular, suggested that investors are misled by accrual management. In Table 9, we find that abnormal accruals are less persistent for those cases where analysts deviate from the preannounced earnings than for those cases where they do not deviate. Therefore, to the extent that the (abnormal) accrual anomaly is driven by the differential persistence of the earnings components, as suggested by Sloan (1996) and Xie (2001), we would expect accrual mispricing to be more pronounced for those cases where analysts deviate from the preannounced earnings. However, if analysts deviate from preannounced (managed) earnings to provide incrementally useful valuation information to their clients, and if the strategy is successful, then the deviation should reduce the abnormal accruals mispricing; that is, the negative association between abnormal accruals and future abnormal returns could actually be lower when the analyst deviation corrects for the potential forthcoming earnings management impounded in the preannounced earnings.

To test our conjecture that analysts' deviations from preannounced earnings mitigate the abnormal accrual mispricing, we use the following regression model:

$$AR_{it} = \alpha_0 + \alpha_1 ABACQ_{it} + \alpha_2 DEV_{it} + \alpha_3 LOGMV_{it} + \alpha_4 BM_{it} + \alpha_5 ABACQ_{it} * DEV_{it} + \varepsilon_{it}, \quad (7)$$

where AR is the buy-and-hold abnormal return over the six month after the earnings announcement month, based on the Fama–French–momentum four-factor model;[11] *ABACQ* is abnormal accruals quintiles scaled to range from −0.5 (for the bottom quintile) and 0.5 (for the top quintile); and *DEV* is an indicator variable that takes the value one if the abnormal accruals are positive and *DEVAF* (analyst earnings estimates minus preannounced earnings) is in the bottom terciles or the abnormal accruals are negative and *DEVAF* is in the top tercile, and zero otherwise. We focus on observations in the top and bottom quintiles of abnormal accruals to increase the probability

[11] The model is estimated over a maximum of 60 months ending one year prior to the earnings announcement month. The model parameters are used to compute the abnormal returns after the earnings announcement month. Each firm's raw return is adjusted by its conditional expected return based on its risk factor loadings.

that analysts would be able to determine when the numbers that the managers intend to report are likely to substantially deviate from the true earnings numbers. The results can be interpreted in terms of the hedge-portfolio returns from a trading strategy consisting of taking long positions in firms in the bottom abnormal accrual quintile and short positions in those in the top quintile. We focus on observations in the top and bottom terciles of the deviation to ensure that the deviation is large enough to have an impact. However, our inferences are qualitatively similar if we sort based on the sign of the deviation or focus on the top and bottom quintiles. One disadvantage with using deviation quintiles is that the interaction variable ($ABACQ * DEV$) would indicate observations at the intersection of the top (bottom) abnormal accrual quintile, and the bottom (top) deviation quintiles, and there are few observations that fall in these buckets. Sorting the deviation into terciles or into positive and negative observations alleviates this problem. We include the logarithm of market value (*LOGMV*) and book-to-market (*BM*) in the model, although *AR* is already adjusted for size and book-to-market. We estimate the model with and without these two variables. We also estimate a model where we interact *LOGMV* and *BM* with *ABACQ*.

The variable *DEV* takes the value one when analyst deviations from the preannounced earnings result in estimates that are closer to the true (unmanaged) earnings than the preannounced earnings are. If analysts deviate from preannounced earnings to convey their best estimates of unmanaged earnings and if the strategy is effective, then not only should *DEVAF* be negatively related to the abnormal accruals, but the abnormal accrual mispricing should also decrease with *DEV*; that is, the deviation effect should counteract the effect of the earnings management impounded in the preannounced earnings, mitigating then the abnormal accrual mispricing. Therefore, we expect the coefficient on $ABACQ(\alpha_1)$ to be negative, consistent with the (abnormal) accrual anomaly, and the coefficient on $ABACQ * DEV(\alpha_5)$ to be positive. The main effect, α_1, reflects the hedge-portfolio return for those cases where the deviation effect does not counteract the abnormal accrual effect, and α_5 reflects the incremental effect for those cases where it counteracts the effect.

The results are reported in Table 10. Under model (1), the coefficient on *ABACQ* is −0.100, which translates into a hedge-portfolio return of 10.0% for those cases where the analyst deviation effect does not counteract the effect of the earnings management component of the preannounced earnings.[12] The coefficient (*t*-value) on $ABACQ * DEV$, α_5, is 0.116 (2.14), which supports the conjecture that analysts' deviations from preannounced earnings reduce the abnormal accrual mispricing.[13] In fact, we find no evidence of an abnormal accrual effect (i.e., of a

[12] For the full sample, the six-month hedge-portfolio return is 7.4%.

Table 10 **The Effect of Analysts' Deviations from Preannounced Earnings on the Association Between Abnormal Accruals and Future Returns** ($N = 3{,}470$)

	Model (1)	Model (2)	Model (3)
Intercept	−0.078	−0.078	−0.078
	(−4.08)	(−4.18)	(−4.22)
ABACQ	−0.100	−0.092	−0.088
	(−2.90)	(−2.60)	(−2.57)
DEV	−0.044	−0.047	−0.047
	(−2.24)	(−2.37)	(−2.38)
LOGMV	—	0.006	0.006
		(0.74)	(0.74)
BM	—	0.147	0.146
		(5.49)	(5.04)
ABACQ ∗ *DEV*	0.116	0.117	0.119
	(2.14)	(2.27)	(2.30)
ABACQ ∗ *LOGMV*	—	—	0.025
			(1.24)
ABACQ ∗ *BM*	—	—	−0.007
			(−0.07)
Adjusted R^2	0.004	0.020	0.020

Notes. This table reports estimates for the following regression model:

$$AR_{it} = \alpha_0 + \alpha_1 ABACQ_{it} + \alpha_2 DEV_{it} + \alpha_3 LOGMV_{it} + \alpha_4 BM_{it} + \alpha_5 ABACQ * DEV_{it} + \alpha_6 ABACQ * LOGMV_{it} + \alpha_7 ABACQ * BM_{it} + \varepsilon_{it},$$

where *AR* is the buy-and-hold abnormal return over the six months after the earnings announcement month, based on the Fama–French–momentum four-factor model; *ABACQ* is abnormal accruals quintiles scaled to range from −0.5 (for the bottom quintile) and 0.5 (for the top quintile); *DEV* is an indicator variable that takes the value one if the abnormal accruals are positive and *DEVAF* (analyst earnings estimates minus preannounced earnings) is in the bottom tercile or the abnormal accruals are negative and *DEVAF* is in the top tercile, and zero otherwise; *LOGMV* is the logarithm of market value of equity at the beginning of quarter 0; and *BM* is the ratio of book value of equity to market value of equity at the beginning of quarter 0. The variables *AR*, *LOGMV*, and *BM* are winsorized at the top and bottom one percentiles. To facilitate the interpretation of α_1, we demean the control variables (*BM* and *LOGMV*) (i.e., we subtract their means so that they have mean zero). The *t*-statistics, reported in parentheses, are based on standard errors adjusted for clustering at both firm and quarter levels.

[13] To ensure that the effect that we document is related to the deviation as opposed to the preannouncement error, which is a component of the deviation, we replicate the analysis by replacing the deviation by the preannouncement error. More specifically, we replace *DEV* in model (10) by *TPAE*, an indicator variable that takes the value one if the abnormal accruals are positive and *PAE* (preannounced earnings minus reported earnings) is in the top tercile or the abnormal accruals are negative and *PAE* is in the bottom tercile, and zero otherwise. The coefficients (*t*-values) are −0.073 (−2.92) and 0.039 (0.76) for *ABACQ* and *ABACQ* ∗ *TPAE*, respectively. Therefore, it does not seem that the deviation effect is driven by the preannouncement error component.

negative coefficient) for cases where the analyst deviation effect counteracts the abnormal accrual effect. For those cases, the coefficient is actually slightly positive ($-0.100 + 0.116 = 0.016$), although insignificant. The results are similar under models (2) and (3), where we control for size and book-to-market.

The evidence is quite remarkable. We find that analysts are more likely to deviate from preannounced earnings as the persistence of the abnormal accruals decreases and, yet, no evidence of abnormal accrual mispricing for those cases where analysts deviate from preannounced earnings. These findings strongly indicate that the deviation mitigates the abnormal accrual mispricing. Combined with our prior evidence that analysts' deviations from the preannounced earnings generally result into forecasts that are closer to the true (unmanaged) earnings than the preannounced earnings, they suggest that, by deviating from preannounced earnings, analysts increase the informativeness of their forecasts.

6. Conclusion

We analyze whether analysts sacrifice forecast accuracy for informativeness by examining (1) the association between analysts' deviations from management guidance and earnings management (proxied by abnormal accruals and restatement-related misstatements), (2) the effect of the deviations on analyst forecast accuracy, and (3) the effect of the deviations on abnormal accrual mispricing. We find strong evidence that analysts' deviations from preannounced earnings (analyst earnings estimates minus preannounced earnings) are negatively associated with abnormal accruals. We also find that analysts are more likely to deviate from earnings preannouncements when the reported earnings include misstatements that ultimately lead to restatements. These findings strongly suggest that analysts likely deviate from the preannounced earnings to correct for perceived earnings management. We also show that, although the analysts' deviations from the preannounced earnings reduce their forecast accuracy, the deviations improve the informativeness of the analysts' earnings estimates. More specifically, they bring the analysts' estimates closer to the true (unmanaged) earnings number and reduce accruals mispricing.

Our findings have important implications about what analysts forecast, the usefulness of their forecasts, and their forecasting behavior in general. They indicate that analyst earnings estimates contain useful incremental valuation information over management guidance. More importantly, they suggest that accurate analyst earnings forecasts are not always desirable and that analysts serve the interests of their clients by sacrificing accuracy to improve the informativeness of their forecasts.

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