History Matters:
Individual Analysts' Responses to Quarterly Guidance

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Abstract

We ask whether the history of interactions between a firm and its analysts affects management's quarterly earnings forecast decision and analysts' subsequent earnings estimate revisions. We show that the history of their interactions not only reflects their individual incentives but is also used to form expectations about current decisions. Specifically, guidance is more likely to be pessimistically biased if management has a history of offering pessimistic forecasts and if analysts have tended to respond passively (i.e., by mimicking guidance or revising in the direction indicated by management). Individual analysts are more likely to respond passively to management's current forecast if they have historically responded in such a manner or if management has tended to offer unbiased or accurate guidance. Analysts with superior earnings forecasting track records are less likely to respond passively to guidance that is pessimistically biased. Collectively, our results indicate that downward bias in quarterly guidance and information production by analysts depend on what management and analysts have learned about each other over time as reflected in their forecasting histories.

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Introduction

Both management's disclosures (mandatory and voluntary) and analysts' information production activities affect a firm's information environment. Of particular importance are quarterly earnings forecasts issued by management and the subsequent revisions analysts make to their earnings estimates (Hassell and Jennings 1986; Baginski and Hassell 1990). Gleason and Lee (2003) note that because analysts' estimate revisions are now delivered to investors in real time, they have become a critical source of information for users of corporate disclosures. Prior research, however, shows that management's quarterly earnings forecasts are, on average, downwardly biased and that analysts' subsequent estimate revisions only partially account for this bias (Soffer et al. 2000, Baik and Jiang 2006 and Tan et al. 2007).

In this paper, we contribute to this literature by examining the interactive relation between management's forecasts and individual analysts' subsequent earnings estimate revisions and how it is affected by the history of these interactions. In particular, we hypothesize that the history of their interactions captures management's and analysts' incentives and is used by each when forming expectations on which current guidance and the subsequent estimate revision decisions are based. That is, we expect management to use its own forecasting track record (in terms of prior forecast accuracy and the frequency with which the guidance was biased) and analysts' prior responses to guidance to both understand analysts' incentives and form expectations about how they will respond to current guidance. Similarly, we hypothesize that analysts use management's forecasting history (again, with a focus on accuracy and the frequency with which the guidance was biased) as well as their own responses to prior guidance to both understand management's incentives and form expectations about the potential bias in current guidance. Thus, we conjecture that whether current guidance is pessimistically biased depends on (1) management's history of offering biased guidance, and (2) the degree of "passivity" exhibited by the firm's analysts as a group when responding to prior guidance. Management's forecasting history captures its incentives to bias guidance. Its forecasting history and analysts' historical tendency to respond "passively" to guidance (i.e., a potential indicator of their not expending effort to acquire information beyond management's forecast) form a basis for management's expectations about how analysts will respond to current guidance. Such "passive" responses can take the form of simply mimicking the guidance or moving estimates in the direction indicated by management.

We also conjecture that whether analysts' responses to current guidance are "passive" depends on (1) their own incentives, and (2) their expectations as determined by management's forecasting history (the degree of inaccuracy or bias in management's prior forecasts) and the history of their own responses to firm-specific guidance and guidance more generally. Note that in our analysis of analysts' revision strategies, we focus on individual analysts' responses because incentives and ability vary across analysts (Mittendorf and Zhang 2005). In addition, management and analysts have slightly different information sets (i.e., histories) when making their current-period decisions: management must offer its forecast without knowing exactly how the firm's analysts will respond to it, whereas analysts observe management's forecast before revising their estimates. As a result, we structure our empirical tests to account for these differences.

Our analysis of 7,335 quarterly guidance announcements and 23,160 individual analyst estimate revisions made between 2001 and 2005 shows that both management's forecasting decisions and analysts' responses to those decisions do in fact depend on their historical interactions.[1] In particular, management is more likely to issue pessimistically biased guidance if (1) prior guidance from the firm was pessimistically biased, and (2) the firm's analysts, as a group, have historically tended to mimic or revise their estimates toward management's forecast. If analysts exhibit a historical tendency to revise to estimates that were slightly below management's forecast or that are "beatable," the probability of the current guidance being pessimistically biased is reduced.[2] Similarly, an individual analyst is more likely to mimic guidance or revise his/her estimate toward it if (1) he/she has exhibited a historical tendency to respond to guidance in that manner, and (2) management has a history of providing more accurate (unbiased) guidance. If management has a history of providing pessimistic guidance, an individual analyst is more (less) likely to revise to an estimate slightly above (slightly below) management's current forecast; he/she is also less likely to revise to a "beatable" number. In all cases, an individual analyst's historical pattern of responding to guidance is a strong predictor of his/her current revision behavior. Overall, these results indicate that both management and analysts are responding not only to their personal incentives but also to the historical patterns of their interactions.

[1] We begin our sample period in 2001 for two reasons. First, we avoid periods when management could offer private guidance. Second, we extend prior work on analysts' responses to guidance by studying a post-Regulation-Fair-Disclosure period.

[2] This is possibly because of a perceived lack of need to issue a biased forecast to attain a beatable consensus estimate from the firm's analysts.

As the previous paragraph indicates, our basic analysis provides a strong indication of the interactive nature of the relationship between a firm's management and its analysts. To check the robustness of these basic findings, we extend the analysis in several ways. First, we refine our examination of analysts' decisions to produce "beatable" estimates by asking whether an analyst's characteristics impact how he/she responds to the potential pessimistic bias in management guidance.[3] The results indicate that the degree to which an analyst adjusts for possible pessimistic bias in guidance depends mainly on his/her ability (i.e., relative forecasting accuracy as measured in Hong and Kubik 2003). That is, analysts with high ability are more (less) likely to revise to an estimate that is slightly above (slightly below) management's forecast and are less likely to revise to a "beatable" estimate when management has a track record of issuing pessimistic forecasts. We interpret these results as indicating that high-ability analysts are more likely to deviate from management's "message" and make appropriate adjustments for bias.

Second, we check whether our results are predominantly driven by management's and analysts' expectations by examining their sensitivity to our assuming "perfect foresight" on the part of management and analysts. Specifically, we restructure the models to include the *ex post* management forecast error as an explanatory variable in the individual analyst regressions, and the actual aggregate analyst response in the management forecast regressions. The results are qualitatively unchanged, which indicates that our measures of management and analysts' historical interactions do in fact capture major components of analysts' and management's incentives in addition to expectations.

Third, because our main analysis uses indicator variables to describe the type of bias in the management forecasts and analysts' revision strategies, we perform sensitivity analysis in which we model management's *ex post* forecast bias and analysts' revisions as continuous variables.[4] An advantage of this alternative approach, beyond providing a robustness test for our previous findings, is that it better captures the degree of bias in management's forecasts and the extent of the revisions made by analysts. The results corroborate our earlier findings. In particular, we find that management guidance tends to become less pessimistic when analysts have a stronger

[3] The analyst characteristics that we examine are those identified by prior research (e.g., Clement 1999, Mikhail et al. 1999, Clement and Tse 2003 and 2005, Hong and Kubik 2003) as being associated with forecast accuracy, which include the analyst's ability (historical forecasting accuracy), the size of the analyst's employer, the number of firms and industries he/she covers, his/her experience in the profession, and his/her experience in covering the firm.

[4] We measure the analyst revision as the difference between the analyst's revised estimate and management's forecast.

tendency to revise to beatable estimates or estimates that are slightly below the management forecast. We also find that management introduces more pessimistic bias into its forecast when analysts have a stronger general tendency to revise toward company-issued guidance. In addition, the more accurate management's forecasts have been in the past, the smaller is the deviation between the analyst's revised estimate and management's current forecast. Finally, we find some evidence that when management forecasts are precise (i.e., offered in point form as opposed to range form), analysts tend to rely less on historical interactions, possibly because of the reduced need to understand the meaning of such specific forecasts. The results of these sensitivity tests, when considered with the findings in our main analysis, provide evidence of substantial interactions among bias in guidance, analysts' revision behavior and the forecasting histories of both management and the firm's analysts. In particular, we find that the likelihood of biased guidance and subsequent information production by analysts depend on the quality of management's previous forecasts and the analysts' historical responses to previous management guidance—and therefore on the incentives they both face and the expectations they both form.

Our paper contributes to the analyst forecasting and management guidance literatures in several ways. First, as noted by Hirst et al. (2008), the way in which the characteristics of management earnings forecasts are determined is not yet well understood. Hirst et al. (2008) also note the importance of the "multi-period and iterative nature of the forecasting process" in understanding the effect of guidance on market participants. Our study sheds light on these issues by demonstrating how forecasting histories affect both the characteristics of guidance currently being issued and how analysts respond to the guidance. We also extend the prior studies that examine analyst revision behavior (for example, Gleason and Lee 2003 and Williams 1996) by studying *individual analysts*' forecasting histories and responses to guidance as opposed to consensus measures of analysts' behavior. The importance of this extension is reflected in our findings of strong patterns in individual analysts' responses to guidance and the mitigating influence of individual forecasting ability on the likelihood of a mimicking or "cooperating" estimate revision.

Second, recent papers by Stocken (2000) and Mittendorf and Zhang (2005) show analytically that prior management forecasts affect the impact of current forecasts on stock prices and resulting analyst consensus estimates. Our study provides empirical evidence supportive of the insights provided by these models by showing that both analysts' and management's current forecasting

decisions depend on the track records both have developed over time—and thus on their history of interactions.

Third, recent papers by Rogers and Stocken (2005) and Hutton and Stocken (2007) examine whether management's reputation for offering credible forecasts affects the market's response to current management forecasts. While these papers use different measures of credibility, both indicate that the stock market is more responsive to forecasts offered by more credible managers. By examining how analysts earnings revisions respond to management's reputation for issuing biased forecasts, our analysis complements this work by showing that (1) managers develop reputations among analysts as well, and (2) analysts are more responsive to management forecasts offered by more credible managers. In addition, we find that analysts (especially high-ability analysts) adjust for the potential bias in management guidance and sometimes issue forecasts that deviate from management's message. Thus, analysts appear to provide important incremental information in their roles as information intermediaries.

The rest of the paper is organized as follows. Section 2 contains a literature review and hypotheses development. Section 3 describes our sample and data, and Section 4 contains a description of our empirical tests and a discussion of the results. We offer concluding remarks in Section 5.

2. Literature Review and Hypothesis Development

Analysts are often viewed as information intermediaries whose job is, in part, to provide interpretations of management's mandatory and voluntary disclosures. As such, they modulate interactions between firms and their investors and thus affect the transparency of the information environment of the firms that they cover. Prior research, however, provides empirical evidence that certain voluntary disclosures by management are biased. For example, Baik and Jiang (2006) replicate an earlier finding by Soffer et al. (2000) that short-term earnings guidance issued by firms tends to be downwardly biased (i.e., pessimistic). Specifically, in their sample of point and range quarterly guidance announcements made between 1995 and 2002 and gathered from First Call's CIG database, 52% of the observations are downwardly biased as opposed to 29% that are upwardly biased. In addition, Baik and Jiang (2006) find that the likelihood of management guidance increases in the optimism of analysts' consensus forecasts before the announcement. This finding is consistent with the evidence in Cotter et al. (2006), who examine guidance from

First Call during a similar time period (1995-2001). Baik and Jiang and Cotter et al. also find that firms are more likely to meet or beat analysts' final earnings estimates after management has issued guidance. This evidence corroborates the indirect evidence in Matsumoto (2002) and Richardson et al. (2004) that firms "walk" analysts toward beatable earnings forecasts via guidance. It is also consistent with the evidence in Tan et al. (2007): analysts in their experiments do not *fully* adjust for downward bias in management's forecasts. However, they do adjust for bias over time if that bias has been consistent and is reasonably large and if they do not have incentives to do otherwise.

Empirical work on guidance—and the reaction to it—tends to rely on the theoretical literature on voluntary disclosure for insight into managerial incentives and the properties of the disclosures. This literature generally focuses on the voluntary disclosure of value-relevant information by the manager to investors, and most of it assumes that the disclosure is truthful.[5] Stocken (2000) extends this literature by examining the conditions under which voluntary disclosures are, in fact, truthful. His analysis highlights the importance of repeated interactions and the need for managers to avoid misleading investors in order to maintain their credibility. It also provides the foundation for the empirical analysis in Hutton and Stocken (2007), which focuses on the development of a corporate reputation for providing valuable guidance and the associated effects on the market's response to the current guidance. More specifically, Hutton and Stocken develop a metric for disclosure reputation that is increasing in prior management forecast accuracy and forecast frequency, and show that investors are more responsive to current forecasts offered by managements with better reputations.[6] This result complements Williams' (1996) finding that management can acquire a "short-term reputation" for forecast accuracy. In particular, Williams documents a significantly positive relation between the accuracy of the most recent prior management forecast and sell-side analyst revision activity following the current management

[5] See, for example, the foundational work by Verrecchia (1983, 1990), Dye (1985), and Jung and Kwon (1988). Verrecchia (2001) and Dye (2001) provide an excellent survey and discussion of the theoretical voluntary disclosure literature.

[6] Rogers and Stocken (2005) take a different approach to credibility of management forecasts based on another insight from Stocken (2000). More specifically, Stocken (2000) provides theoretical support for the widely held belief that earnings announcements following management forecasts must be sufficiently precise to enable investors to assess the credibility of those forecasts. Rogers and Stocken (2005) find that management forecast bias is greater when the market has greater difficulty identifying when the firm is manipulating earnings. They also show that the market responds less (more) to forecasts made by managers whose forecasts are more (less) likely to be biased due to their greater (lesser) ability to manipulate earnings. Thus, Rogers and Stocken offer insight into the relationship between credible management forecasts and the market's ability to evaluate the degree to which earnings can be (are) manipulated.

forecast. This set of papers (Williams 1996, Stocken 2000 and Hutton and Stocken 2007), when considered with the papers discussed in the previous paragraph, suggests that the firm's history of management forecasts impacts analysts' responses to current management guidance because it allows them to evaluate the credibility of the current forecast. These papers further suggest that there is an important interactive relation between management guidance and analyst responses. In particular, they imply that analysts use the history of management guidance and their responses to it to form expectations about the potential bias in management's current guidance. Similarly, management uses virtually the same history to form expectations about how analysts will respond to guidance it might currently offer.[7]

Mittendorf and Zhang (2005), in a recent theoretical paper, take a different approach to understanding management's forecasting behavior and analysts' responses to the guidance. They adopt a contracting perspective in which the owner contracts with a manager to supply effort. The manager can offer a forecast, and analysts can choose to expend effort in additional information acquisition after observing that forecast. Mittendorf and Zhang's objective is to show that there are circumstances in which the owner of the firm finds it useful to induce the manager to offer biased forecasts. The intuition for this result is that if the manager's forecast is unbiased, analysts have no additional incentives to acquire value-relevant information about the firm beyond those incentives provided for any sell-side analyst. If the manager's forecast is biased, the analysts have additional incentive to acquire information to better understand the magnitude and direction of the bias introduced into the manager's forecast. Since this additional information is included in the analysts' earnings estimates, the owner of the firm can use analyst forecasts in contracting with the manager. If sufficient information acquisition by analysts is induced, Mittendorf and Zhang show that the owner can use the information embodied in analysts' forecasts to induce better incentives for the manager at a lower cost. Thus, this "stewardship approach" focuses on the value to the owner of having the manager offer biased management forecasts, and thereby indirectly inducing information acquisition by analysts. As such, it contrasts with the more common, "financial markets approach" in voluntary disclosure models and Stocken's (2000) model (discussed earlier) in that the manager's forecasts are not expected to be "truthful." In addition, it emphasizes the importance of focusing on *individual* analyst responses to management forecasts because not all analysts will find that their personal cost-benefit analysis leads them to private information acquisition.

[7] As we discuss shortly, the differences in the histories used are small—analyst revisions are made with the knowledge of management's current guidance.

The papers discussed above strongly suggest the need to focus on management's and analysts' incentives and expectations to more fully understand the interactive relation between management forecasts and individual analysts' responses to them. As a result, in this paper, we develop empirical proxies for both incentives and expectations based on the history of interactions between analysts and management. Both our hypothesis development and empirical modeling take advantage of two key differences in management's and analysts' situations. First, managers must offer forecasts without knowing (with certainty) how the firm's analysts will respond to their guidance, whereas analysts observe management's forecast before revising their estimates. That is, managers and analysts have slightly different histories (*i.e.*, information sets) when making their choices. Second, managers are likely most concerned with the impact of their forecast on the *consensus* analyst estimate (the aggregate response by the firm's analysts), whereas each analyst chooses his/her *individual* response to management's guidance.

This leads to the following two hypotheses, the first of which focuses on managers' propensity to issue pessimistic guidance and the second of which focuses on individual analysts' responses to management guidance.

$H_{1:}$ Management's current guidance is more likely to be pessimistically biased if its prior guidance was more frequently pessimistically biased and if the history of previous interactions between management and analysts (as a group) exhibits a greater degree of passive behavior by analysts.

The historical frequency of pessimistic guidance captures management's incentive to offer pessimistic guidance and its expectations, in part, about how analysts will respond to current guidance. Management's expectations are also captured by the history of analysts' responses to the firm's past guidance because it helps management form expectations about how analysts will respond to current guidance. We use the term "passive behavior by analysts" in this paper to indicate earnings estimate revisions that would be associated with analysts not expending effort to acquire additional information beyond management's forecast. Such revisions might take the form of analysts simply mimicking or only slightly deviating from management's forecast.

H_2: An individual analyst's response to current guidance from a particular firm is more likely to be passive if the history of interactions indicates that management has tended to offer unbiased

forecasts in the past or that this analyst has tended to respond passively to guidance offered by this or other firms he/she follows.

The frequency of prior passive responses by an analyst in H_2 captures that analyst's incentives to expend effort in determining his/her estimate revision following management guidance. Said differently, we expect an analyst's past revision behavior to reflect his/her general cost-benefit trade-off in the revision process. That is, if an analyst has been "passive" in past interactions, this indicates that the cost of acquiring additional information tends to be higher than the benefit for this particular analyst. If this is generally the case, the analyst is likely to be "passive" in responding to current guidance as well. Further, the historical frequency of accurate management forecasts captures the potential net cost to the analyst from expending effort to gather additional information (beyond management's guidance) and/or employing a "rule of thumb" adjustment when revising his/her estimate.

Since analysts may choose to accommodate management by offering beatable revisions rather than responding passively or expending effort to improve their revision, we also examine the links among management's current guidance, analysts' choice to offer beatable revisions and the history of their interactions. Specifically, we hypothesize:

H_3: Management's current guidance is less likely to be pessimistically biased if the history of previous interactions between management and the firm's analysts exhibits a greater frequency of analysts offering beatable revised estimates in response to guidance.

H_4: An individual analyst is more likely to respond to current guidance by offering a beatable estimate revision if the history of interactions indicates that management has not tended to offer pessimistically biased forecasts in the past and that this analyst has tended to revise to a beatable estimate following guidance from this or other firms he/she follows.

Finally, we note that the literature provides reasons to believe that individual analysts with a track record of more accurate earnings estimates are more likely expend effort to improve their revisions. Hong and Kubik (2003) and Fang and Yasuda (2008) suggest and find that such analysts have incentives to preserve their reputation for providing accurate estimates. Further, Tan et al. (2007) show that such analysts appear to evaluate the content of management guidance more effectively. Thus, we expect that analysts with more accurate forecasting track records are

less likely to respond to current guidance passively or by offering beatable earnings estimates. We summarize these ideas in our final hypothesis:

H_5: An individual analyst's response to current guidance from a particular firm is less likely to be passive or to result in a beatable estimate if, historically, the analyst has tended to offer more accurate earnings estimates.

3. Data and Sample

3.1. Sample

Our initial sample consists of all firm-quarters between 2001 and 2005 with at least one quarterly management earnings per share forecast identified in First Call's Company Issued Guidelines (CIG) database. We focus on the period after the implementation of Regulation Fair Disclosure to ensure that our results are not contaminated by unobservable private earnings guidance. When collecting the guidance data, we require that a quarterly management forecast is made between the beginning of the fiscal quarter being forecasted and the quarter end. We include only point and range management forecasts, since our analysis requires quantitatively measuring forecast errors. If there are multiple forecasts for the same quarter, we retain only the last forecast. For each retained guidance event, we collect the individual analyst forecasts issued during the 90-day window prior to the guidance and the 30-day window after the guidance from IBES unadjusted detail history database. If an analyst issued multiple forecasts prior to the guidance, we retain the last forecast since it presumably incorporates the analyst's best information prior to the management forecast. If there are multiple forecasts for a given analyst in the post-guidance window, we keep the earliest one to increase the possibility that the new forecast is linked to the guidance. In addition, we only keep the observations for those analysts who issued a forecast before the company guidance. That is, analysts who issued their first forecasts *after* the management forecast are excluded since we cannot measure their revision behavior. We further exclude anonymous forecasts because we need each analyst's identity to measure his or her forecasting track record and other characteristics.[8]

[8] Analyst forecasts, management forecasts and actual earnings per share data are all split-adjusted using CRSP's cumulative split-adjustment factors. We collect stock return and price data from CRSP and financial accounting variables from the CRSP/Compustat Merged Database.

Finally, we exclude observations if any of the following conditions is met: (1) the firm-quarter has no analyst following or no actual earnings data in the IBES database, (2) price/return data or split-adjustment factors are missing in CRSP, or (3) basic accounting variables are missing in CRSP/Compustat Merged database. This results in a final sample of 7,335 firm-quarters with quarterly guidance and 23,160 individual analyst revision observations spanning the 2001-2005 period.

3.2 Structure of Empirical Models

As noted in Section 2, our objective is to focus on the interactive relation between management forecasts and analysts' responses to them. Because the two keys to this relation are incentives and expectations, we need to identify proxies for management's incentives to provide downwardly biased forecasts and its expectation of how analysts will respond to the current forecast. We also need to identify proxies for analysts' incentives to acquire additional information and assess the bias (if any) in management's forecast and proxies for their expectations of how management adapted current guidance to account for analyst revisions following prior management guidance.

Our approach to modeling incentives is to use proxies identified in the prior literature (as discussed below in Section 3.3.2). We also include prior actual choices by management and analysts to reflect the outcome of the incentives they have been facing. That is, we introduce an additional proxy for managerial incentives to provide downwardly biased forecasts: the frequency with which management has previously issued biased forecasts. Similarly, we introduce an additional proxy for each analyst's incentives to supplement managerial guidance: the frequency with which the analyst's previous revisions indicate that he/she supplemented (or not) prior managerial guidance.

We take two approaches to modeling expectations. Our main approach is to recognize that expectations are conditioned on available information, which includes information about incentives and information about past actions. Thus, managerial expectations are modeled as depending on our proxies for analysts' incentives and the history of analyst responses to prior management guidance. Similarly, analyst expectations are modeled as depending on proxies for managerial incentives and the history of bias in past management forecasts. Because this approach limits our ability to separate the effects of incentives and expectations (which is not

surprising because they are closely linked), we supplement it by considering an extreme model of expectations—that managers and analysts have perfect foresight.[9]

3.3 Variable Definitions

The Appendix contains the definitions of the variables we use in our analysis. Some of these variables pertain to analyst characteristics and responses, and some pertain to characteristics of the management forecasts and the forecasting firms. Consistent with our hypotheses, the dependent variables in our analysis capture (1) the presence of management forecast bias, and (2) individual analysts' revision strategies. The independent variables capture (1) individual analyst characteristics, (2) individual analysts' revision histories, (3) management forecast properties, (4) management forecasting track records, and (5) relevant characteristics of the firms whose managers issue the forecasts.

3.3.1. Dependent Variables

Our first dependent variable is an indicator variable, *PessimisticMFDummy,* which takes on the value of 1 if the management forecast equals or is less than the actual earnings per share for the quarter.[10] This variable captures the direction of the bias in the guidance but not the magnitude of it. As a result, we supplement our analysis by examining an additional variable: *MFE*, measured as the difference between actual reported earnings per share and management's forecast scaled by beginning of the period stock price.

Our remaining dependent variables are designed to capture different aspects of "passive" responses by analysts. While none of these variables perfectly captures "passive" behavior, we expect all to be more frequently observed from individual analysts who do not make an effort to supplement management forecasts with their own analysis and information gathering. The first two of these measures, illustrated in Figure 1, are designed to capture whether the analyst essentially "mimics" (replaces his/her own forecast with) management's forecast. *MIMIC* is a dummy variable that equals 1 if the analyst's revised forecast equals the point forecast issued by

[9] The advantage of considering these extreme expectations models is that they assume that the agents' expectations are perfectly accurate. If our qualitative results hold in this setting, we will be able to show that at least part of the value of knowing the history of the interactions is that it provides information about the agents' incentives.

[10] We use the earnings per share number provided by management as the forecasted value if the guidance was in point estimate form; and we use the midpoint if the guidance was offered in range form.

management or the midpoint of the range forecast issued by management; and *MIMICalt* is a dummy variable that equals 1 if the analyst's revised forecast equals the point forecast issued by management or is within one cent of the midpoint of the range forecast issued by management. The third variable, also illustrated in Figure 1, is designed to measure whether the analyst moves his/her forecast away from or toward the target indicated by management: *TOWARD* equals 1 if the analyst's forecast is revised toward the management forecast. Another set of variables is designed to capture whether the analyst revision strategy results in a beatable estimate. *SlightlyBelow* equals 1 if the analyst's revised forecast is lower than the point forecast or the midpoint of the range forecast issued by management by at most one cent; *SlightlyAbove* equals 1 if the analyst's revised forecast is higher than the point forecast or the midpoint of the range forecast issued by management by at most one cent; and *Beatable* equals 1 if the analyst's revised forecast is lower than the point forecast or the midpoint of the range forecast issued by management. Finally, because the analyst measures just discussed are indicator variables, we also examine two continuous dependent variables designed to capture the magnitude of the difference between the analyst's revised estimate and management's forecast: DEV, which is the difference between the analyst's revised forecast and the management forecast scaled by beginning price, and AbsDEV, which is the absolute value of DEV.

Before moving to the next set of variables, we want to highlight several aspects of our measures of analysts' revision strategies. First, *TOWARD* is similar in spirit to the herding (boldness) measures in the analyst herding literature (see, for example, Gleason and Lee 2003 and Clement and Tse 2005); however, we define our measure with respect to management guidance as opposed to the forecasts of other analysts. Second, to check the robustness of our results, we also performed the analysis with other measurements of *MIMIC*, *SlightlyBelow* and *SlightlyAbove*, including increasing the range of deviations that allow the forecast revision to be considered as mimicking, slightly below or slightly above.[11] The results are not sensitive to these changes. Therefore, for brevity, we report only the results using the variables as defined above and in the Appendix.

[11] Three of the alternative versions of *MIMIC* that we examine are (1) a version that equals 1 if the analyst's revised forecast equals the point forecast issued by management or if it falls anywhere within the range of the range-type guidance issued by management; (2) a version that equals 1 if the analyst's revised forecast equals the point forecast issued by management or if it falls within 1% of the midpoint of the range-type guidance issued by management; and (3) a version that is equal to 1 if the analyst's revised forecast equals the point forecast issued by management or if the price-scaled absolute deviation between the analyst's revised forecast and the midpoint of the range-type guidance issued by management falls into the bottom quantile of the distribution of those price-scaled deviations.

3.3.2. Independent Variables

Our independent variables are designed to capture the incentives and expectations of management and analysts and thus measure individual analyst and firm characteristics that are expected to influence the decisions that we study in this paper. Following the order of presentation of these variables in the Appendix, we begin with individual analyst characteristics that are likely to be related to particular estimate revision strategies. Analyst forecasting ability is proxied by two measures: *PastABSAFE*, which is the analyst's forecast accuracy (absolute value of the forecast error) in the *prior* quarter, and *Ability*, which is the analyst's historical forecast accuracy relative to other analysts following the same firm (Hong and Kubik 2003).[12] Second, based on prior research (Clement 1999, Mikhail et al. 1999, Clement and Tse 2003 and 2005), we include *BrokerSize*, which is measured as the number of analysts employed by the analyst's brokerage, as a proxy for the resources available to the analyst. We also include two proxies for the workload of the analyst and the time he/she can devote to firm-specific analysis: *FirmCoverage*, which is the number of firms the analyst covers in the current year, and *IndustryCoverage*, which is the number of two-digit SICs the analyst follows in the current year. We measure an analyst's work experience in two ways. *GeneralExp* is the number of years that the analyst has been employed as an analyst, and *FirmSpecExp* is the number of years the analyst has covered the firm. Finally, it is reasonable to expect that the direction and magnitude of an analyst's revision in response to guidance will depend on how long his/her most recent estimate has been outstanding.[13] Accordingly, we include *EstimateAge*, which is the number of days between the analyst's prior forecast date and management guidance date as an independent variable in our regressions.

The second set of independent variables in the Appendix is designed to quantify individual analysts' revision histories. These variables measure individual analysts' responses to prior guidance, and, as a result, they can be used to proxy for the incentives faced by the analyst. Further, since expectations are based on available information, these responses are an integral component of the information that management uses to form expectations of analysts' responses to current guidance. The first variable, *FirmSpecPastXXX*, is the analyst's past response to guidance issued by a *specific firm*, measured as the percentage of times the analyst adopted a particular revision strategy "XXX", where "XXX" is one of *MIMIC*, *MIMICalt*, *TOWARD*, *SlightlyBelow*, *SlightlyAbove* or *Beatable*, when responding to the firm's management forecasts

[12] See the Appendix for details of the calculation of these metrics.
[13] Stale analyst forecasts are more likely to be superseded by management guidance.

over the past three years. *GeneralPastXXX* is similar to *FirmSpecPastXXX* except that this second metric is the analyst's past response to management guidance across *all firm-quarters* he/she covered in the past three years. To model perfect foresight expectations, we use aggregated *actual* responses by analysts to current guidance (*MIMIC*, *TOWARD*, etc.).

The third set of independent variables in the Appendix measures the characteristics of the management forecast itself that are likely to affect how analysts respond to it. *MFbelowAnalystEst* equals 1 if the management forecast is below the *analyst's own* prior forecast, and *MFbelowConsensusEst* equals 1 if the management forecast is below the *current consensus* forecast. These two measures indicate whether the management forecast conveys bad news relative to the analyst's previous estimate and the prevailing consensus estimate, respectively. *CurrentMFaccuDummy* is a measure of the *ex post* quality of the management guidance and equals 1 if the management forecast turns out to be more accurate than the analyst's forecast outstanding at the time of the guidance. We include this variable because Hassell et al. (1988) find that analysts are able to distinguish between management forecasts that are *ex post* more accurate and those that are *ex post* less accurate than their own earnings estimates. *ABS(MF-AnalystEst)* is the absolute value of the difference between the management forecast and the analyst's forecast outstanding at the time of the guidance. This variable captures the notion that analysts may be more likely to revise their estimates the larger the discrepancy between their own forecasts and the guidance forecast is. *MFhorizon* captures the timeliness of the guidance and is the number of days between the guidance date and the fiscal quarter end. Finally, *ConcurrentDummy* equals 1 if the management forecast is issued within one day of an earnings announcement (Atiase et al. 2005).

As discussed earlier, we hypothesize that management's current forecasting decision is likely to be related to the characteristics of its prior guidance and analysts' responses to it. As a result, we include several metrics designed to capture different aspects of management's prior forecasting behavior and analysts' expectations about the inaccuracy of and bias in management's current guidance. These variables, defined in the fourth set of independent variables in the Appendix, begin with *PastMFAccuDummy*, which captures prior guidance accuracy relative to concurrent analyst expectations and equals 1 if the most recent management forecast within the past three years for a specific firm was more accurate than the prevailing consensus estimate (Williams 1996). *NumberPastMF* captures prior forecast frequency and is the number of point and range guidance announcements made by a specific firm within three years prior to the current guidance

(Hutton and Stocken 2007). *AvgPastABSMFE* focuses on the historical inaccuracy of past guidance relative to the announced EPS and is used, in part, to capture some of the information analysts use to form expectations about the accuracy of current guidance. Specifically, *AvgPastABSMFE* is the average of the price-scaled absolute differences between the management forecast and the actual EPS in the same quarter for a specific firm over the three years prior to the current guidance. (*AvgPastMFE* is similar to *AvgPastABSMFE* except that we average the signed differences instead of the absolute differences.) Finally,,*%PessimisticPastMF* is the percent of pessimistic guidance announcements made by the management of a specific firm within three years prior to the current guidance and is used, in part, to capture some of the information analysts use to form expectations about the bias in current guidance. To model perfect foresight expecations, we use measures of the *actual* (*ex post*) error and bias in management's current guidance: *ABSMFE*, which is the price-scaled absolute forecast error for the current management forecast only, and *PessimisticMFDummy*, which equals 1 if management's current forecast was less than or equal to actual earnings per share for the quarter.

Finally, we include the following firm characteristics, shown by prior research to influence responses to management's earnings forecasts, as additional control variables in the analyst forecast revision model and the management forecasting model when appropriate. These variables are defined on the last page of the Appendix. *Analystfollow* is the number of analysts following the firm during the current quarter; *Earnvol* is the firm's quarterly earnings volatility during the past 12 quarters, scaled by total assets; *Retvol* is the firm's stock return volatility over the past year; *LagSize* is the firm's market value at the beginning of the quarter; *LagBM* is the firm's book-to-market ratio at the beginning of the quarter; *Q4* is a dummy variable that equals 1 if the guidance occurs in the fourth quarter (Baginski and Hassell 1990); and *LitigationIndustryDummy* equals 1 if the firm belongs to a high-litigation industry (Skinner 1994 and Francis et al. 1994).

4. Empirical Results

4.1. Descriptive Statistics

Table 1 contains descriptive statistics for the variables we use in our analysis. We present summary statistics for management forecast properties and firm characteristics in Panel A and for individual analyst variables in Panel B. Variables followed by * are raw values; we use the natural log of these variables in our regressions.

We begin by focusing on the descriptive statistics for the properties of the management guidance in our sample in Panel A. Consistent with recent prior research, these statistics provide evidence of a pessimistic bias in management's guidance: nearly 77% of our guidance observations are equal to or less than actual earnings per share for the quarter.[14] In addition, the guidance tends to convey bad news. Approximately 61% are below the current estimate of an individual analyst; and 63% are below the current outstanding consensus estimate. Nearly three-quarters of the management forecasts are more accurate than the analyst's outstanding estimate at the time of the guidance, indicating an information advantage of management over the analysts. Further, the management forecasts are, on average, six cents different from the analyst's outstanding estimate, again suggesting that management guidance conveys information. Also consistent with prior research on quarterly earnings guidance, the majority of our guidance observations (70%) are concurrent with the prior quarter's earnings announcement.

The section titled "Management Forecast Track Record" in Panel A shows that 63% of the guidance the managers in our sample issued during the previous three years turned out to be more accurate than the prevailing consensus estimate (*PastMFAccuDummy*). However, managers in general have a strong recent history of being non-optimistic when providing guidance during our sample period: on average, approximately three-quarters of a firm's earnings forecasts during the previous three years were equal to or less than actual earnings per share (*%PessimisticPastMF*).[15]

We turn next to the first two sets of variables in Panel B: the "Analyst's Revision Strategy" variables and the "Analyst Characteristics" variables. As the table indicates, 27% of the analyst revisions in our sample strictly mimic management's forecast (*MIMIC*). When we loosen the definition of mimicking for the range management forecasts, 64% of the revisions can be classified as mimicking (*MIMICalt*). Further, 59% of the revisions in our sample move the analyst's estimate toward management's forecast (*TOWARD*), and 58% of the revisions are "beatable" forecasts that are below management's forecast (*Beatable*). The individual analyst revisions in our sample are generally quite accurate: the mean absolute individual analyst forecast error, scaled by price, is 0.002 (*PastAbsAFE*). The analysts who produce the revisions in our

[14] The percentage of pessimistic management forecasts is higher in our sample than in Baik and Jiang's (2006) sample, 77% vs. 52%, because our definition of pessimistic forecasts includes neutral forecasts. Results are qualitatively the same if we redefine pessimistic forecasts to exclude neutral forecasts.
[15] As noted earlier, we control for characteristics of the firms whose managers provide guidance in our multivariate analysis. Descriptive statistics for those characteristics are in the last section of Panel A in Table 1. For brevity, we do not discuss them in the text.

sample work for brokerages that employ 81 analysts, on average, and they cover 17 firms and four industries, on average (*BrokerSize, FirmCoverage* and *IndustryCoverage*). In addition, they have an average of approximately eight years of experience in the profession (*GeneralExp)*, and three years of experience covering a particular firm (*FirmSpecExp*). The average "age" of the outstanding analyst forecast at the time of management guidance is 52 days.

The third set of variables in Panel B of Table 1 pertain to the individual analysts' revision histories and provides initial evidence of consistency in their revision behavior over time. Specifically, comparison of the statistics for *MIMIC, MIMICalt*, etc. in the "Analyst's Revision Strategy" section of Panel B and their analogs in this third section ("Analyst's Revision History") indicates that percentages are quite similar for current and historical revision strategies. Also, comparison of firm-specific and general measures in this third section indicates that analysts are highly consistent in how they treat a specific firm and all of the firms that they follow: percentages of mimicking, revising toward management guidance, etc. are similar across the *FirmSpecPast* and *GeneralPast* metrics.

4.2 Multivariate Analysis

The descriptive statistics in Table 1 provide initial evidence of persistence in management forecasting and analyst revision patterns. In this section, we present and discuss the results of multivariate analysis that formally tests our hypotheses.

4.2.1 Analysis of Management Forecast Decision

Because management issues guidance before analysts respond to it, we begin by examining the management forecast decision. Our empirical models of this decision, presented in Tables 2 and 3, include not only management's own forecasting history, but also its expectation of how analysts will respond to the current forecast as well as other firm-specific characteristics expected to affect guidance decisions. As discussed in previous sections, we model management's expectations about analysts' responses in two ways: the first model employs a simple expectations model (i.e., management's expectation is based partly on the average of the firm's analysts' responses to prior guidance during the past three years, Table 2), and the second uses a perfect foresight expectations model (i.e., management perfectly anticipates the actual revision strategies employed by analysts in response to the current guidance, Table 3).

In the logistic regressions in Table 2, observations are at the firm-quarter level, with the analyst revision history variables measured as the average values of all the individual analysts following the firm in a particular quarter.[16] The dependent variable in all of the logistic regressions is *PessimisticMFDummy*, which equals 1 if the actual earnings per share meets or beats management forecast. The independent variables of particular interest are *FirmSpecPast* and *GeneralPast* as well as *%PessimisticPastMF*, variables that reflect how management's current guidance is related to its prior guidance and how analysts responded to it. *FirmSpecPast* and *GeneralPast* are measured with respect to the analysts' histories of mimicking or moving their estimates toward the guidance (*MIMIC* and *TOWARD*) in Panel A, and with respect to revising to slightly lower or beatable estimates (*SlightlyBelow* and *Beatable*) in Panel B.

As the table clearly shows, management's past forecasting track record is a consistently strong predictor of the bias in its current forecast: the coefficient on *%PessimisticPastMF* is significantly positive in all regressions. Thus, our first set of multivariate tests supports what we observe in the descriptive statistics and provides additional evidence that management's tendency toward bias is "sticky", consistent with H_1. In addition, these tests indicate that management's current guidance is more likely to be pessimistic if the firm's analysts have a track record of mimicking or following the lead provided by the same firm's guidance, as we also predict in H_1. More specifically, the coefficient on *FirmSpecPastMIMIC* is strongly significant and positive. Interestingly, the coefficient on *GeneralPastMIMIC* is not significant, suggesting that analysts' histories of mimicking the particular firm's guidance, not the guidance of all the firms they follow, have a significant impact on the current guidance decision of that firm. Similarly, the coefficients on the *TOWARD* variables suggest that management is more likely to issue pessimistic forecasts if they expect analysts to "cooperate" and revise their forecasts in the direction indicated by the guidance as evidenced by their past revision behavior, also consistent with H_1. Specifically, the coefficient on *GeneralPastTOWARD* is always strongly significant and positive. However, the coefficient on *FirmSpecPastTOWARD* is significant (at the 10% level) and positive only when *GeneralPastTOWARD* is not included in the regressions. This suggests that managers identify this type of "passive" behavior by analysts by focusing on general tendencies of analysts to move their estimates in the direction indicated by guidance.[17]

[16] T-statistics in the regressions are computed based on robust standard errors adjusted for within-firm clustering.

[17] A possible explanation for the difference in the firm-specific *MIMIC* and *TOWARD* results discussed above is that while management can readily identify analysts' willingness to mimic its current guidance by

As noted earlier, Panel B of Table 2 focuses on the relation between the management forecast decision and analysts' tendency to revise to slightly lower or beatable estimates. The estimation results in this panel indicate a significantly negative association between management forecast pessimism and analysts' historical overall tendency to issue beatable revisions. That is, management is less likely to downwardly bias its current forecast if the firm's analysts have a track record of generally issuing beatable forecasts (the coefficient on *GeneralPastBeatable* is significantly negative), consistent with H_3. Management is also less likely to downwardly bias its current forecast if the firm's analysts generally have more often revised to estimates that are slightly below the guidance issued by the firms they follow (i.e., slightly beatable), also consistent with H_3. Specifically, the coefficient on *GeneralPastSlightlyBelow* is consistently, significantly negative, and the coefficient on *FirmSpecPastSlightlyBelow* is significantly negative when the general measure is not included in the regression.

As discussed in the previous section, the "Aggregate Analyst Revision History" variables (*FirmSpecPastXXX* and *GeneralPastXXX*) in Table 2 proxy for both management's expectations regarding analysts' responses to its current guidance *and* analysts' incentives. In Table 3, we present the results of regressions in which we replace these variables with measures of the firm's analysts' *actual* aggregate responses to the current guidance, which is consistent with perfect anticipation of analysts' responses on the part of management. As is clear from the table, the results are qualitatively the same as those in Table 2. *MIMIC* and *TOWARD* (based on the analysts' actual responses to the current period's guidance) are significantly positively associated with *PessimisticMFDummy*, and *SlightlyBelow* and *Beatable* (also based on the analysts' actual responses to the current period's guidance) are significantly negatively associated with it. Perhaps more importantly, even allowing for management to have perfect foresight concerning analysts' responses, management's past pessimism is still strongly positively associated with its current pessimism, suggesting that management incentives are part of what *%PessimisticPastMF* captures. Thus, we conclude that these results, when considered with those for the "Aggregate Analyst Revision History" variables in Table 2, indicate that measures of management and

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focusing on their responses to its own past guidance, it can more easily identify *passive* "toward" revisers by focusing analysts' responses to guidance in general. Said differently, it is possible that revising toward guidance, as opposed to mimicking it, is a less clear signal of passivity on the part of the analyst since such a response could be due to standard updating. Thus, management might rely on *all* analysts' revisions in its efforts to identify the likelihood of a passive "toward" response to its current forecast.

analysts' historical interactions do in fact capture major components of analysts' and management's incentives and expectations.

Finally, the coefficients on the control variables included in the regressions presented in Table 2 indicate that the management of larger, more profitable (as proxied by ROA) firms with higher return and earnings volatility is more likely to issue pessimistic forecasts. Analyst following is negatively associated with the probability of a pessimistic management forecast, perhaps reflecting the greater likelihood of analyst information gathering and analysis in response to guidance as analyst following increases. Interestingly, membership in a high-litigation-risk industry does not affect the likelihood that a firm issues pessimistic management forecasts after we control for the historical interactions of management guidance and analysts' revisions.

4.2.2 Individual Analysts' Responses to Management's Forecast

We turn next to our analysis of individual analysts' responses to guidance currently issued by management. Note that the observations in this analysis are individual analyst revisions measured at the analyst-firm-quarter level. In the regressions in Table 4, the dependent variables are the individual analyst revision strategy variables from Table 1: *MIMIC, MIMICalt, TOWARD, SlightlyAbove, SlightlyBelow*, and *Beatable*. Regression results for the first (last) three dependent variables are presented in Panel A (B). Independent variables for all regressions are those variables from the other five variable categories in Table 1—Analyst Characteristics, Analyst's Revision History, MF (Management Forecast) Properties, MF (Management Forecast) Track Record, and Firm Characteristics. We estimate the regressions separately for point and range guidance (N=14,563 and 2,734, respectively) for each dependent variable because the difference in precision in these two types of forecasts might imply differential management confidence in the forecast, which could, in turn, lead to differential analyst responses (Baginski et al. 1993; Hirst et al. 1999).

Several strong patterns emerge from Table 4. First, as indicated by the significant coefficients on *Ability* (and, to a lesser extent, *PastAbsAFE*) and consistent with H_5, high-ability analysts are (1) less likely to mimic management's forecast, (2) more likely to issue a "bold" forecast, (3) more likely to issue a forecast that is slightly higher than the management forecast, (4) less likely to issue a forecast that is slightly lower than the management forecast, and (5) less likely to issue a beatable forecast. These results, when considered collectively, imply that high-ability analysts

(i.e., analysts whose prior estimates are relatively more accurate) add value to the market and investors by not only providing high-quality research, but also using independent judgment. As such, they may provide exactly the benefits described in Mittendorf and Zhang (2005).

Second, the coefficients on "Analyst's Revision History" variables are generally statistically significant and of the hypothesized sign. In particular, the results in Panel A suggest that after controlling for the characteristics of past management guidance, an individual analyst's current mimicking of management's forecast is strongly associated with his/her past tendency to mimic that firm's guidance and guidance more generally: the coefficients on *FirmSpecPastMIMIC, GeneralPastMIMIC* and their *MIMICalt* counterparts are significantly positive. Similarly, an individual analyst's current revision toward management's forecast is strongly associated with his/her past tendency to revise toward that firm's guidance and to do the same for the other firms he/she follows—the coefficients on *FirmSpecPastTOWARD* and *GeneralPastTOWARD* are generally significantly positive. (The exception is an insignificant coefficient on *FirmSpecPastTOWARD* in the point guidance regression.) The results in Panel B continue to provide evidence of an association between an analyst's current revision strategy and his/her historical firm-specific and general tendencies. The coefficients on *FirmSpecPast SlightlyAbove(Slightly Below)* and *GeneralPast SlightlyAbove (Slightly Below)* are strongly significantly positive in the range guidance regressions and significant in one of the point guidance regressions—indicating a tendency to continue a historical pattern of revising slightly above or below guidance, particularly if it is offered in range form.[18] In addition, we observe consistently significant positive coefficients on *FirmSpecPastBeatable* and *GeneralPastBeatable.* Overall, these results suggest that after controlling for the characteristics of management's past guidance, an individual analyst's recent past is generally a reliable predictor of his/her response to current guidance, consistent with H_2 and also with the notion that analysts face a relatively stable cost-benefit trade-off with respect to additional information production that differs across analyst-firm combinations.

Table 4 also highlights the importance of the history of management's forecasting decisions on analysts' current responses to guidance. Specifically, if management has a history of being

[18] As noted earlier, differential precision in guidance is likely, at least in part, a reflection of differential confidence in the forecast on the part of management. As a result, the greater precision in point guidance (relative to guidance offered in range form) might reduce the analyst's need to rely on historical interactions to infer its meaning and is a potential explanation for the weaker (less consistent) results for the analyst history variables in the point guidance subsample regressions in Table 4.

inaccurate in its forecasting, individual analysts are less likely to mimic or move their estimates toward management's current guidance, consistent with H_2 and with their expecting management's current forecast to also be inaccurate. In particular, the coefficients on *AvgPastABSMFE* (which measures management's past forecasting inaccuracy) are generally significantly negative in *MIMIC, MIMICalt* and *TOWARD* regressions (Table 4, Panel A). The coefficient on *%PessimisticPastMF* (which measures management's past tendency to issue downwardly biased guidance) is significantly positive in the *SlightlyAbove* regression, and significantly negative in the *SlightlyBelow* and *Beatable* regressions for the range management forecast subsample (Table 4, Panel B). In the point management forecast subsample, however, the coefficient on this variable is not significant. Once again, a possible explanation for this is that analysts may adjust their revision strategies for the specificity associated with point forecasts and as a result, their current revisions may rely less on the history of their interactions with management. Overall, the results in Table 4, Panel B indicate that when there is an expectation of pessimism by management based on its history, analysts are less likely to issue a slightly lower (than the guidance) or beatable forecast in response to current guidance, but only when that guidance is not precise. The results also support H_4 in that individual analysts are more likely to offer beatable revisions in response to guidance if management has not exhibited a tendency toward pessimism in the past. Taken together, our analysis of individual analysts' revision behavior provides evidence consistent with analysts being information producers, on average, when management issues inaccurate or biased forecasts.

The evidence in Table 4, when considered with the evidence in Table 2, indicates how complex the interactive relationship between management and analysts is. In particular, the collective regression results clearly show that there is an "ebb and flow" to the relationship between management and analysts. Management understands that the long-term response to offering pessimistically biased guidance is to reduce analyst passivity, and analysts understand that the long-term response to reduced passivity is unbiased guidance. Said differently, management and the analysts who follow the firm engage in a complex interaction in which each continues to revise his/her behavior in response to the other's changes in behavior, a finding that starkly illustrates the value of studying the historical relationship between the parties.

Before leaving the discussion of Table 4, we note that a number of interesting results also emerge for the control variables. In particular, among the "Analyst Characteristic" variables, the coefficients for the age of the analyst's outstanding estimate at the time of the guidance

announcement are generally significantly positive in the *MIMIC*, *MIMICalt* and *TOWARD* regressions. (The exception is the *TOWARD* regression for the range-form guidance, in which it is not statistically significant.) Thus, analysts with relatively stale forecasts are more likely to follow management's lead—particularly if that lead is specific, consistent with their not being active information producers. Several strong patterns also emerge for the "MF [Management Forecast] Properties." First, the coefficient on *CurrentMFaccuDummy* is generally significantly positive, indicating that individual analysts are more likely to mimic or move their forecasts toward guidance the more accurate it is. This finding is consistent with Hassell et al.'s (1988) finding that analysts appear to be able to identify *ex post* accurate guidance at the time of its announcement. Interestingly, analysts are also more likely to revise to a beatable forecast or one that is slightly lower than the management forecast the more accurate the guidance is. One possible explanation for this is that setting a revised forecast below an accurate management forecast does less damage to forecast accuracy than undercutting an inaccurate management forecast. The results in Table 4 also indicate that the further away the guidance is from the analyst's own prevailing estimate (indicated by a larger *ABS(MF-AnalystEst)*), the less likely he/she is to mimic the management forecast, probably due to the higher uncertainty arising from the discrepancy. Finally, the earlier in the quarter that management provides a forecast (*MFhorizon*), the less likely is an analyst to mimic, move his/her revision toward it or revise to a beatable forecast, consistent with the greater unresolved uncertainty associated with earlier forecasts.

In Table 5, we present the results of regressions similar to those in Table 4 except that we assume perfect foresight (with respect to the management forecast's inaccuracy/bias) on the part of the individual analysts. More specifically, we replace the "MF Track Record" variables with the realized absolute difference between the management forecast the analyst is responding to and the subsequently announced earnings per share (*ABSMFE*) and present the coefficients in the "Current MF Inaccuracy" section of Panel A. In Panel B, we use a dummy variable that indicates whether the current management forecast turns out to be pessimistic (*PessimisticMFDummy*) in place of the "MF Track Record" variables. Overall, the results in Table 5 are qualitatively similar to those in Table 4. In addition, the coefficient on *ABSMFE* is significantly positive in all regressions but one (the *TOWARD* regression for range-form guidance), and the coefficient on *PessimisticMFDummy* is significantly positive in the *SlightlyAbove* regressions and significantly negative in the *SlightlyBelow* and *Beatable* regressions. Thus, as in our perfect foresight

management forecast regressions, we find that the history of interactions does incorporate information about analysts' incentives to be information producers.

4.2.3 Analysis of the Characteristics of Individual Analysts

In Table 6, we extend the analysis in Section 4.2.2. by examining how analysts' decisions to produce beatable estimates after the issuance of guidance depend on the interaction between their own characteristics and management's propensity to issue pessimistic forecasts. Our tests consist of three logistic regressions with the following dependent variables: *SlightlyAbove*, *SlightlyBelow* and *Beatable*. The independent variables of interest are the interaction terms between the Analyst Characteristics variables from Table 4 and *%PessimisticPastMF*. As is evident from examination of the regression results in Table 6, the strongest result obtains for the interaction term between *Ability* and *%PessimisticPastMF*. This interaction term generally has significantly negative coefficients in the *SlightlyBelow* and *Beatable* regressions and significantly positive coefficients for the point forecast subsample in the the *SlightlyAbove* regressions. This indicates that when management's track record suggests a tendency toward producing downwardly biased forecasts, high-ability analysts are more likely to issue a slightly higher forecast (particularly if the management guidance is offered in point form) and less likely to issue a slightly lower or beatable forecast, consistent with H_5. Stated differently, Table 6 provides evidence that the degree of adjustment for management bias—and thus information production by the analyst—is a function of analyst ability.[19] This result also suggests that the strong performance of some analysts may be attributable to their superior ability to critically evaluate information and make proper adjustments for bias in management forecasts.

4.2.4 Sensitivity Analysis: Modeling Management Forecast Bias and Individual Analysts' Revisions as Continuous Variables

Finally, our use of indicator variables to describe the type of management bias and analysts' revision strategies ignores the degree of bias in management forecasts and the extent of the estimate revisions made by analysts. As a result, in this section, we discuss the results of regressions in which we model management forecast bias and analysts' revisions as continuous variables. The new estimation results generally corroborate those in the previous tables. In

[19] In a similar note, Clement et al. (2007) argue and show that high-ability analysts are better able to learn from their task-specific experiences to improve their forecasting performance.

particular, Table 7 contains the results of regressions in which the dependent variable is *MFE*, the *ex post* management forecast error (actual earnings per share minus the management forecast) scaled by beginning price, as opposed to the indicator variable, *PessimisticMFDummy*, in Table 2. As in Table 2, we find evidence in Table 7 of a strong positive association between past management forecast errors (*AvgPastMFE*) and the current management forecast error, indicating consistency in management's forecasting behavior over time. We also observe generally significantly negative coefficients on *FirmSpecPastSlightlyBelow* (*Beatable*) and *GeneralPastSlightBelow* (*Beatable*), indicating that management's forecast error tends to become more optimistic/less pessimistic with the strength of the historical tendencies on the part of the firm's analysts to revise to beatable estimates or estimates that are slightly below the management forecast. The coefficients on *GeneralPastTOWARD* are significantly positive, and the coefficients on the firm-specific and general past *SlightlyBelow* and *Beatable* variables are significantly negative. Taken together, these results suggest that management introduces more pessimistic bias into its forecast when analysts have a stronger general tendency to revise toward company-issued guidance, and less pessimistic bias into its forecasts when analysts have historically offered revisions that are below management's forecast.

Table 8 contains the results of regressions in which we replace the indicator variables for the various analyst revision strategies in Table 4 with the dependent variables (1) *DEV*, the signed difference between the individual analyst's revised estimate and the management forecast; (2) *AbsDEV*, the absolute value of *DEV*; and (3) *LogAbsDEV*, the natural log of *AbsDEV*. [20] As in Table 4, we find evidence of significantly positive correlations between the analyst's historical and current revision activity for all measures, providing additional evidence that analysts also tend to behave consistently over time. That is, the coefficients on the *FirmSpecPast* and *GeneralPast* variables in the "Analyst's Revision History" section of Table 8 are generally significantly positive. Turning next to the "MF Track Record" variables in Table 8, we observe that when the dependent variable is *DEV* (the first two columns of results), the coefficient on *AvgPastMFE* is significantly positive, indicating that if management's forecasts have historically been more pessimistic, the analyst is more likely to revise his/her estimate to be above the management forecast. When the dependent variables are unsigned (*AbsDEV* and *LogAbsDEV*), additional results obtain. Specifically, the coefficient on *ABS(MF-AnalystEst)* is strongly significantly positive, indicating that as the management forecast deviates more from the

[20] We include the log transformation of *AbsDEV* to allay any concerns associated with *AbsDEV* being a strictly nonnegative dependent variable in our OLS regressions.

analyst's outstanding estimate, the absolute deviation between the analyst's revised estimate and the guidance also grows. We also observe that the more accurate management's forecasts have been in the past, the closer the analyst revises his/her estimate to management's current forecast, particularly when it is offered in range form: the coefficients on *AvgPastABSMFE* and *LogAvgPastMFE* are significantly positive for range forecast subsample. As in previous regressions, the coefficients on these variables are not significant for the point management forecast subsample, and, again, we believe that this might be the result of analysts relying less on historical interactions when they observe a precise (point-form) forecast from management.

5. Conclusion

The purpose of this paper is to provide insight into management's earnings forecasts and individual analysts' responses to them by examining the interactive relation between management's and analysts' decisions and whether it is affected by the history of interactions between the firm and its analysts. This history is important because it not only captures management's and analysts' incentives, it is also used by each when forming expectations about the other's current forecasting decisions. That is, we expect management to use its own guidance history (in terms of accuracy and bias) and the firm's analysts' history of responses to guidance to form expectations about how analysts will respond to current guidance. We expect the analysts to use essentially the same history to form expectations about the potential bias in management's current guidance. More specifically, we hypothesize that the presence of pessimistic bias in management's guidance depends on its own historical tendency to produce biased guidance (incentive and expectation effects) and on analysts' historical tendency to closely follow its guidance (expectation effects). We also hypothesize that such responses on the part of analysts depend on management's historical forecasting accuracy and bias and on analysts' own historical responses to guidance.

Our analysis of 7,335 quarterly guidance announcements and 23,160 individual analyst estimate revisions made between 2001 and 2005 generally supports our hypotheses. In particular, we find that the likelihood of pessimistically biased guidance increases if prior guidance from the firm was pessimistically biased, and if the firm's analysts have a history of mimicking the guidance or revising in the "correct" direction. If the firm's analysts have a history of revising to "beatable" estimates, the likelihood of pessimistically biased guidance decreases. We also find that an individual analyst is more likely to mimic management's forecast or revise his/her estimate

toward it if that analyst has a history of responding in those ways, and if management has a history of providing accurate guidance. However, if management has a history of providing pessimistic guidance, it is more (less) likely that an individual analyst will revise to an estimate slightly above (slightly below) management's current guidance. Finally, we find that analyst ability, as measured by prior relative forecasting accuracy, affects the response to guidance: high-ability analysts are more likely than lower-ability analysts to issue a "bold" forecast or one that deviates from the "message" in management's guidance.

When considered together, our findings indicate that the interactions among bias in guidance, analysts' revision behavior and the forecasting histories of both management and the firm's analysts have significant impacts on management's forecasting decisions and analysts' subsequent responses to those forecasts. In particular, the presence of a downward bias in quarterly guidance and subsequent information production by analysts depend on what both parties have learned about each other's forecasting behavior over time. That is, our results strongly suggest that history matters: analysts' effectiveness as information intermediaries is influenced by—and, in turn, influences—management's disclosure decisions.

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Appendix: Variable Definitions

Dependent variables:

(1) Management forecast bias:

PessimisticMFDummy	=	1 if MF<=Actual EPS (i.e., the actual EPS meets or beats management forecast), and 0 otherwise.
MFE	=	Actual EPS- MF, scaled by beginning stock price.
AbsMFE	=	|Actual EPS- MF|, scaled by beginning stock price.

(2) Analyst's revision strategies:

MIMIC	=	1 if the analyst changes his/her forecast to mimic management forecast, and 0 otherwise. Mimicking is defined as setting AF1 equal to MF if the guidance is a point forecast, or setting AF1 equal to the middle point of the guidance range if the guidance is a range forecast.
MIMICalt	=	1 if the analyst changes his/her forecast to mimic management forecast, and 0 otherwise. Mimicking is defined as setting AF1 equal to MF if the guidance is a point forecast, or setting AF1 to be within one cent of the middle point of the guidance range if the guidance is a range forecast.
TOWARD	=	1 if the analyst revised his/her forecast toward the management forecast, and 0 otherwise.
DEV	=	AF1-MF, scaled by beginning stock price
SlightlyBelow	=	1 if the analyst's revised forecast is lower than the management forecast by at most 1 cent, and 0 otherwise.
SlightlyAbove	=	1 if the analyst's revised forecast is higher than the management forecast by at most one cent, and 0 otherwise.
Beatable	=	1 if the analyst's revised forecast is lower than the management forecast, and 0 otherwise.
AbsDEV	=	|AF1-MF|, scaled by beginning stock price

Independent variables:

(1) Individual analyst characteristics:

PastABSAFE	=	Analyst's forecast accuracy in the previous quarter, measured as the price-scaled absolute forecast error.
Ability	=	Analyst's forecast track record (ability), measured as the natural log of relative forecast accuracy following Hong and Kubik (2003). We compute the absolute forecast error of each analyst i covering firm j in quarter t as the difference between the analyst's most recent quarterly EPS forecast before the earnings announcement and the subsequent realized earnings, scaled by beginning-of-quarter price. We then scale the absolute forecast errors so that the most accurate analyst scores are 100 and the least accurate are zero among analysts covering the same firm in the same quarter. The analyst's relative forecast accuracy in year t then is his/her average score across all firm-quarters she covers over years t-2 to t.
BrokerSize	=	Brokerage size, measured as the natural log of the number of analysts employed by the brokerage which the analyst works for.
FirmCoverage	=	Firm coverage, measured as the natural log of the number of firms followed by the analyst in the current year.
IndustryCoverage	=	Industry coverage, measured as the natural log of the number of two-digit SICs followed by the analyst in the current year.
GeneralExp	=	Analyst's general experience in the profession, measured as the natural log of the number of years working as an analyst.
FirmSpecExp	=	Analyst's firm experience, measured as the natural log of the number of years that the analyst has covered the firm.
EstimateAge	=	The number of days between the analyst's prior forecast date and the management guidance date.

(2) Individual analyst revision history:

FirmSpecPastXXX	=	Analyst's past response to a specific firm's management guidance, measured as the percentage of times analyst i adopted a revision strategy *XXX* when responding to a management forecast issued by firm j in the past 3 years. *XXX* can be one of the following variables: *MIMIC*, *MIMICalt*, *TOWARD*, *SlightlyBelow*, *SlightlyAbove*, and *Beatable*.
GeneralPastXXX	=	Analyst's past response to management guidance across all firm-quarters she covers, measured as the percentage of times analyst i adopted a revision strategy *XXX* when responding to a management forecast issued by all the firm-quarters she covers in the past 3 years. *XXX* can be one of the following variables: *MIMIC*, *MIMICalt*, *TOWARD*, *SlightlyBelow*, *SlightlyAbove*, and *Beatable*.

(3) Management forecast properties:

MFbelowAnalystEst	=	Whether the management forecast conveys bad news relative to the analyst's own prior forecast.
MFbelowConsensusEst	=	Whether the management forecast conveys bad news relative to the preexisting consensus analyst forecast.
CurrentMFaccuDummy	=	*Ex post* quality of management forecast, measured as a dummy indicating whether the management forecast turns out to be more accurate than the analyst's prior forecast.
ABS(MF-AnalystEst)	=	The distance between the management forecast and the analyst's prior forecast, measured as the absolute value of the difference between the two forecasts.
MFhorizon	=	Forecast horizon of the management forecast (the number of days between the management forecast date and the fiscal quarter end).
ConcurrentDummy	=	1 if the management forecast is issued within 1 day of an earnings announcement, and 0 otherwise.[21]

(4) Management forecast track record:

PastMFAccuDummy	=	*Ex ante* quality of management forecast, measured as a dummy which equals 1 if the most recent management forecast (within 3 years prior to the current management guidance) is more accurate than the prevailing consensus (Williams, 1996).
NumberPastMF	=	The number of point and range guidance announcements made by a specific firm within 3 years prior to the current guidance.
AvgPastMFE	=	Mean price-scaled forecast error of guidance announcements made by a specific firm within 3 years prior to the current guidance.
AvgPastABSMFE	=	Mean price-scaled absolute forecast error of guidance announcements made by a specific firm within 3 years prior to the current guidance.
%PessimisticPastMF	=	Percent of pessimistic guidance announcements made by a specific firm within 3 years prior to the current guidance.

[21] The earnings announcement is for the prior quarter's earnings.

(5) Firm characteristics:

Analystfollow	=	The number of analysts following the firm in the fiscal quarter.
Earnvol	=	Earning volatility, measured as standard deviation of quarterly earnings before extraordinary items for the 12 quarters before the current fiscal quarter, divided by median assets over the 12 quarters.
Retvol	=	Return volatility, measured as the standard deviation of daily returns over the one year prior to the current quarter.
LagSize	=	Firm size, measured as log market value at the beginning of the quarter.
LagBM	=	Book-to-market ratio at the beginning of the quarter.
Q4	=	1 if the quarter is the fourth quarter of the fiscal year, and 0 otherwise.
LitigationIndustryDummy	=	1 if the firm belongs to the biotechnology (SIC codes 2833–2836), R&D services (8731–8734), programming (7371–7379), computers (3570–3577), electronics (3600–3674), or retailing (5200–5961) industry, and 0 otherwise.

Figure 1: Unsigned Measures of Analysts' Revisions

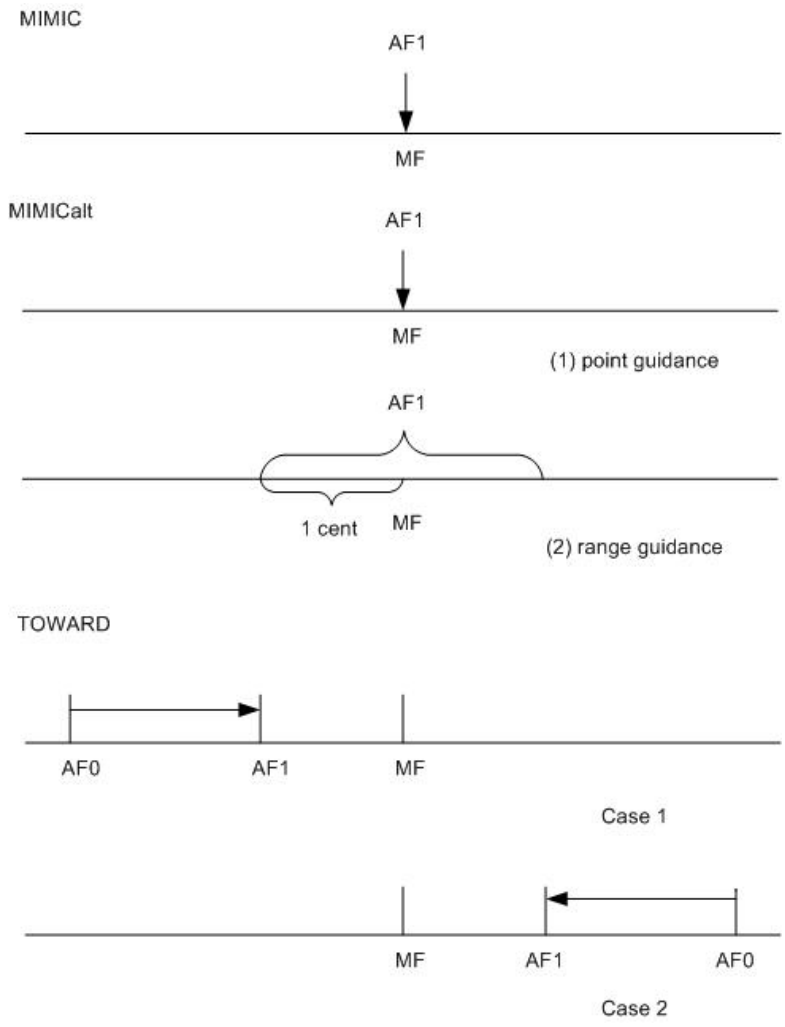

Table 1: Descriptive Statistics

Panel A: Management Forecast Variables and Firm Characteristics (defined in Appendix)

Variable	N (firm-quarters)	Mean	Std	5%	25%	Median	75%	95%
Management Forecast Properties								
PessimisticMFDummy	7335	0.768	0.422	0	1	1	1	1
MFE	7335	0.000	0.017	-0.005	0.000	0.001	0.002	0.006
ABSMFE	7335	0.003	0.016	0.000	0.000	0.001	0.002	0.010
MFbelowAnalystEst	7335	0.608	0.488	0	0	1	1	1
MFbelowConsensusEst	7335	0.630	0.483	0	0	1	1	1
CurrentMFaccuDummy	7335	0.730	0.444	0	0	1	1	1
ABS(MF-AnalystEst)	7335	0.060	0.077	0.005	0.015	0.030	0.070	0.215
MFhorizon	7335	51.761	23.278	7	29	62	69	76
ConcurrentDummy	7335	0.702	0.457	0	0	1	1	1
Management Forecast Track Record								
PastMFAccuDummy	7335	0.631	0.483	0	0	1	1	1
NumberPastMF	7335	5.539	3.233	1	3	5	8	11
AvgPastMFE	7335	0.001	0.003	-0.003	0.000	0.001	0.001	0.005
AvgPastABSMFE	7335	0.002	0.003	0.000	0.001	0.001	0.003	0.008
%PessimisticPastMF	7335	0.758	0.273	0	0.6	0.833	1	1
Firm Characteristics								
Analystfollow	7335	7.055	5.261	1	3	6	9	18
Earnvol	7335	0.026	0.048	0.003	0.007	0.012	0.026	0.090
Retvol	7335	0.031	0.015	0.013	0.021	0.028	0.039	0.063
LagSize	7335	7.308	1.519	4.899	6.247	7.178	8.310	9.949
LagBM	7335	0.464	0.296	0.112	0.258	0.402	0.595	1.025
Q4	7335	0.259	0.438	0	0	0	1	1
LitigationIndustryDummy	7335	0.423	0.494	0	0	0	1	1

Table 1, Panel B: Individual Analyst Variables (defined in Appendix)

Variable	N (Analysts)	Mean	Std	5%	25%	Median	75%	95%
Analyst's Revision Strategy								
MIMIC	23160	0.272	0.445	0	0	0	1	1
MIMICalt	23160	0.639	0.480	0	0	1	1	1
TOWARD	23160	0.591	0.492	0	0	1	1	1
AbsDEV	23160	0.001	0.001	0.000	0.000	0.000	0.001	0.003
SlightlyAbove	23160	0.214	0.410	0	0	0	0	1
SlightlyBelow	23160	0.179	0.384	0	0	0	0	1
Beatable	23160	0.583	0.493	0	0	1	1	1
DEV	23160	0.000	0.001	-0.002	0.000	0.000	0.000	0.002
Analyst Characteristics								
PastAbsAFE	23160	0.002	0.003	0	0	0.001	0.002	0.006
*Ability**	23160	50.582	5.210	41.819	47.527	50.711	53.788	58.758
*BrokerSize**	23160	81.025	72.228	9	26	53	126	196
*FirmCoverage**	23160	17.117	6.238	9	13	16	20	28
*IndustryCoverage**	23160	3.991	2.282	1	2	4	5	8
*GeneralExp**	23160	7.627	4.321	3	4	6	10	16
*FirmSpecExp**	23160	3.471	3.188	0	1	3	5	10
*EstimateAge**	23160	52.206	28.262	7	28	52	82	90
Analyst's Revision History								
FirmSpecPast MIMIC	17297	0.268	0.355	0	0	0	0.5	1
GeneralPast MIMIC	22912	0.278	0.173	0	0.167	0.267	0.375	0.571
FirmSpecPast MIMICalt	17297	0.635	0.385	0	0.333	0.667	1	1
GeneralPast MIMICalt	22912	0.633	0.205	0.286	0.5	0.647	0.769	1
FirmSpecPast TOWARD	17297	0.560	0.385	0	0.25	0.5	1	1
GeneralPast TOWARD	22912	0.565	0.186	0.273	0.455	0.560	0.667	0.889
FirmSpecPast AbsDEV	17549	0.001	0.001	0.000	0.000	0.000	0.001	0.003
GeneralPast AbsDEV	22955	0.001	0.002	0.000	0.000	0.001	0.001	0.004
FirmSpecPast SlightlyAbove	17297	0.211	0.316	0	0	0	0.333	1
GeneralPast SlightlyAbove	22912	0.198	0.151	0	0.095	0.188	0.278	0.462
FirmSpecPast SlightlyBelow	17297	0.193	0.307	0	0	0	0.333	1
GeneralPast SlightlyBelow	22912	0.199	0.150	0	0.1	0.179	0.276	0.467
FirmSpecPast Beatable	17297	0.605	0.389	0	0.333	0.667	1	1
GeneralPast Beatable	22912	0.631	0.207	0.286	0.5	0.64	0.776	1
FirmSpecPast DEV	17549	0.000	0.001	-0.002	0.000	0.000	0.000	0.001
GeneralPast DEV	22955	0.000	0.001	-0.003	-0.001	0.000	0.000	0.001

* Values of these variables are raw values before the natural log transformation.

Table 2: Management Forecast Decisions (Simple Expectations Models)

Panel A: Management Forecast Bias and Analysts' Past Tendency to Mimic Guidance

	Dependent Variable: *PessimisticMFDummy*					
	Independent Variables of Interest: Analyst's Past Tendency to Mimic			Independent Variables of Interest: Analyst's Past Tendency to Revise Forecast Toward Guidance		
	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(t statistic)*
Constant	-0.374**	-0.371**	-0.407***	-0.532***	-0.407***	-0.502***
	(-2.51)	(-2.51)	(-3.03)	(-3.31)	(-2.73)	(-3.49)
Firm Characteristics						
Litigation Industry Dummy	0.013	0.013	0.023	0.021	0.021	0.026
	(0.33)	(0.35)	(0.66)	(0.56)	(0.54)	(0.75)
Earnvol	1.195***	1.197***	1.151***	1.106***	1.149***	1.108***
	(2.85)	(2.86)	(3.08)	(2.63)	(2.73)	(2.96)
Retvol	3.125**	3.138**	3.719***	3.265**	3.320**	3.758***
	(2.17)	(2.18)	(2.87)	(2.28)	(2.32)	(2.92)
ROA	5.292***	5.292***	5.546***	5.378***	5.337***	5.594***
	(10.39)	(10.38)	(11.64)	(10.55)	(10.47)	(11.73)
LagSize	0.078***	0.078***	0.081***	0.079***	0.079***	0.081***
	(4.46)	(4.46)	(5.11)	(4.51)	(4.56)	(5.10)
LagBM	-0.067	-0.067	-0.054	-0.065	-0.067	-0.051
	(-1.10)	(-1.10)	(-0.99)	(-1.06)	(-1.10)	(-0.95)
Analystfollow	-0.008**	-0.008**	-0.008**	-0.007**	-0.007**	-0.007**
	(-2.14)	(-2.14)	(-2.24)	(-2.06)	(-2.10)	(-2.19)
MF Bias Track Record						
%PessimisticPastMF	0.615***	0.615***	0.609***	0.617***	0.621***	0.603***
	(10.47)	(10.47)	(11.62)	(10.51)	(10.56)	(11.52)
Aggregate Analyst Revision History						
FirmSpecPastMIMIC	0.157**	0.161***				
	(2.55)	(2.88)				
GeneralPastMIMIC	0.021		0.084			
	(0.14)		(0.78)			
FirmSpecPastTOWARD				0.040	0.095*	
				(0.70)	(1.81)	
GeneralPastTOWARD				0.293**		0.212**
				(2.19)		(2.21)
Number of Obs	8,632	8,632	9,999	8,632	8,632	9,999
Pseudo R-squared	0.047	0.047	0.046	0.047	0.046	0.047

T-statistics are based on robust standard errors adjusted for within-firm clustering. * (**) [***] indicates statistical significance at the 0.10 (0.05) [0.01] level under two-tailed tests. Variables are defined in the Appendix.

Table 2, Panel B: Management Forecast Bias and Analysts' Past Tendency to Issue Beatable Forecasts

	Dependent Variable: *PessimisticMFDummy*					
	Independent Variables of Interest: Analyst's Past Tendency to Issue Slightly Beatable (*SlightlyBelow*) Forecasts			**Independent Variables of Interest: Analyst's Past Tendency to Issue Beatable Forecasts**		
	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(t statistic)*
Constant	-0.289*	-0.328**	-0.340**	-0.216	-0.315**	-0.281**
	(-1.94)	(-2.22)	(-2.51)	(-1.39)	(-2.09)	(-2.01)
Firm Characteristics						
LitigationIndustry Dummy	0.029	0.024	0.032	0.025	0.022	0.029
	(0.76)	(0.64)	(0.91)	(0.65)	(0.59)	(0.82)
Earnvol	1.122***	1.157***	1.110***	1.093***	1.148***	1.079***
	(2.69)	(2.76)	(2.99)	(2.62)	(2.72)	(2.90)
Retvol	3.775***	3.467**	4.123***	4.189***	3.523**	4.472***
	(2.59)	(2.41)	(3.17)	(2.83)	(2.44)	(3.39)
ROA	5.334***	5.314***	5.571***	5.361***	5.325***	5.588***
	(10.43)	(10.41)	(11.66)	(10.48)	(10.44)	(11.69)
LagSize	0.079***	0.079***	0.081***	0.084***	0.081***	0.086***
	(4.53)	(4.53)	(5.09)	(4.79)	(4.61)	(5.32)
LagBM	-0.069	-0.068	-0.055	-0.053	-0.062	-0.043
	(-1.13)	(-1.11)	(-1.01)	(-0.85)	(-1.01)	(-0.79)
Analystfollow	-0.008**	-0.008**	-0.008**	-0.008**	-0.008**	-0.008**
	(-2.24)	(-2.18)	(-2.30)	(-2.32)	(-2.18)	(-2.40)
MF Bias Track Record						
%PessimisticPastMF	0.620***	0.623***	0.605***	0.611***	0.620***	0.595***
	(10.52)	(10.57)	(11.51)	(10.27)	(10.42)	(11.29)
Aggregate Analyst Revision History						
FirmSpecPast SlightlyBelow	-0.079	-0.131**				
	(-1.11)	(-2.02)				
GeneralPast SlightlyBelow	-0.283*		-0.268**			
	(-1.76)		(-2.30)			
FirmSpecPast Beatable				-0.020	-0.084	
				(-0.34)	(-1.64)	
GeneralPast Beatable				-0.289**		-0.235***
				(-2.30)		(-2.60)
Number of Obs	8,632	8,632	9,999	8,632	8,632	9,999
Pseudo R-squared	0.047	0.046	0.047	0.047	0.046	0.047

T-statistics are based on robust standard errors adjusted for within-firm clustering. * (**) [***] indicates statistical significance at the 0.10 (0.05) [0.01] level under two-tailed tests. Variables are defined in the Appendix.

Table 3: Management Forecast Decisions (Perfect Foresight Models)

	Dependent Variable : *PessimisticMFDummy*			
	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(t statistic)*
Constant	-0.293*	-0.434***	-0.164	0.102
	(-1.83)	(-2.66)	(-1.03)	(0.63)
Firm Characteristics				
Litigation Industry Dummy	0.010	0.024	0.043	0.058
	(0.24)	(0.58)	(1.06)	(1.42)
Earnvol	1.303***	1.246***	1.280***	1.245***
	(3.11)	(2.92)	(3.05)	(2.87)
Retvol	1.144	1.417	2.192	3.042**
	(0.75)	(0.93)	(1.44)	(1.96)
ROA	5.468***	5.660***	5.543***	5.727***
	(10.22)	(10.60)	(10.44)	(10.64)
LagSize	0.062***	0.061***	0.062***	0.065***
	(3.33)	(3.27)	(3.38)	(3.45)
LagBM	-0.063	-0.060	-0.067	-0.043
	(-0.94)	(-0.90)	(-1.01)	(-0.64)
Analystfollow	-0.005	-0.003	-0.005	-0.004
	(-1.27)	(-0.85)	(-1.25)	(-1.11)
MF Bias Track Record				
%PessimisticPastMF	0.625***	0.626***	0.633***	0.623***
	(10.30)	(10.33)	(10.43)	(10.21)
Analysts' Actual Aggregate Revision Behavior				
MIMIC	0.438***			
	(8.87)			
TOWARD		0.406***		
		(8.90)		
SlightlyBelow			-0.358***	
			(-6.06)	
Beatable				-0.577***
				(-11.85)
Number of Obs	7,552	7,552	7,552	7,552
Pseudo R-squared	0.057	0.057	0.051	0.067

T-statistics are based on robust standard errors adjusted for within-firm clustering. * (**) [***] indicates statistical significance at the 0.10 (0.05) [0.01] level under two-tailed tests. Variables are defined in the Appendix.

Table 4: Individual Analysts' Responses to Management Guidance (Simple Expectations Models)

Panel A: Unsigned deviation between analyst forecast and management guidance

	Dependent Variable					
	MIMIC		***MIMICalt***		***TOWARD***	
	Range MF	Point MF	Range MF	Point MF	Range MF	Point MF
	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(t statistic)*
Constant	-0.960*	2.967***	0.177	2.216**	-0.205	3.003**
	(-1.74)	(2.74)	(0.35)	(2.04)	(-0.45)	(2.42)
Analyst Characteristics						
PastAbsAFE	-9.629	-55.361***	-10.267*	-53.342***	-5.411	-44.010***
	(-1.46)	(-3.85)	(-1.65)	(-3.58)	(-0.90)	(-2.96)
Ability	-0.107	-0.797***	-0.264**	-0.774***	-0.100	-0.834***
	(-0.86)	(-3.09)	(-2.24)	(-3.02)	(-0.91)	(-2.69)
BrokerSize	-0.007	-0.038	-0.030**	-0.032	-0.023**	0.025
	(-0.53)	(-1.41)	(-2.53)	(-1.18)	(-2.08)	(0.80)
FirmCoverage	0.066	0.145	0.090**	0.162*	0.049	0.004
	(1.41)	(1.44)	(2.28)	(1.65)	(1.27)	(0.03)
IndustryCoverage	-0.070**	-0.004	-0.117***	0.031	-0.070**	0.073
	(-2.12)	(-0.07)	(-3.97)	(0.60)	(-2.46)	(1.25)
GeneralExp	0.030	-0.129*	-0.010	-0.151**	-0.013	-0.053
	(0.92)	(-1.91)	(-0.35)	(-2.15)	(-0.45)	(-0.62)
FirmSpecExp	-0.001	0.043	0.011	0.030	0.005	0.038
	(-0.03)	(0.93)	(0.49)	(0.64)	(0.19)	(0.68)
EstimateAge	0.001***	0.003***	0.002***	0.003**	-0.000	0.004***
	(2.68)	(3.13)	(3.36)	(2.55)	(-0.17)	(2.92)
Analyst's Revision History						
FirmSpecPastMIMIC	0.297***	0.302***				
	(6.29)	(4.16)				
GeneralPastMIMIC	0.586***	0.893***				
	(5.88)	(4.51)				
FirmSpecPastMIMICalt			0.426***	0.453***		
			(10.42)	(5.32)		
GeneralPastMIMICalt			0.939***	1.064***		
			(11.72)	(5.63)		
FirmSpecPastTOWARD					0.197***	0.123
					(5.26)	(1.30)
GeneralPastTOWARD					0.366***	0.665***
					(4.73)	(3.10)

Table 4, Panel A continued:

	Dependent Variable					
	MIMIC		***MIMICalt***		***TOWARD***	
MF Properties						
MFbelowAnalystEst	-0.008	-0.171*	0.019	-0.180**	0.140***	0.178*
	(-0.17)	(-1.93)	(0.41)	(-2.03)	(3.21)	(1.67)
MFbelowConsensusEst	0.062	0.213**	0.023	0.206**	0.105**	0.337***
	(1.32)	(2.18)	(0.48)	(2.15)	(2.54)	(3.39)
CurrentMFaccuDummy	0.194***	0.483***	0.396***	0.443***	0.011	0.422***
	(4.62)	(5.81)	(10.51)	(5.24)	(0.31)	(3.91)
ABS(MF-AnalystEst)	-1.269***	-2.109***	-2.476***	-1.588***	1.881***	0.558
	(-5.03)	(-5.49)	(-11.60)	(-4.17)	(9.09)	(1.09)
MFhorizon	-0.001	-0.013***	-0.004**	-0.012***	-0.001	-0.007**
	(-0.32)	(-4.80)	(-2.50)	(-4.53)	(-0.51)	(-2.26)
ConcurrentDummy	-0.028	0.372***	0.057	0.344**	0.267***	0.403**
	(-0.33)	(2.71)	(0.73)	(2.55)	(3.37)	(2.46)
MF Track Record						
PastMFAccuDummy	0.093***	-0.007	0.039	-0.040	0.006	-0.100
	(2.67)	(-0.08)	(1.23)	(-0.48)	(0.20)	(-1.04)
NumberPastMF	0.010	0.003	0.002	-0.002	0.007	0.024*
	(1.22)	(0.24)	(0.32)	(-0.15)	(1.20)	(1.69)
AvgPastABSMFE	-12.520	-31.007**	-17.471**	-21.369*	-4.331	-36.745***
	(-1.45)	(-2.37)	(-2.53)	(-1.72)	(-0.67)	(-2.81)
Firm Characteristics						
Analystfollow	-0.007	-0.008	-0.006	-0.005	-0.012**	-0.011*
	(-1.57)	(-1.54)	(-1.41)	(-1.09)	(-2.50)	(-1.72)
Earnvol	0.190	1.675***	-0.154	1.762***	0.672*	1.646**
	(0.39)	(2.81)	(-0.32)	(3.12)	(1.69)	(2.55)
Retvol	0.382	7.027***	7.454***	5.787**	0.965	5.591**
	(0.19)	(2.69)	(4.72)	(2.33)	(0.66)	(1.97)
LagSize	-0.007	0.006	0.019	0.016	0.017	-0.007
	(-0.28)	(0.17)	(0.97)	(0.48)	(0.93)	(-0.19)
LagBM	0.038	-0.032	-0.037	0.062	-0.110*	-0.200
	(0.47)	(-0.21)	(-0.47)	(0.44)	(-1.71)	(-1.25)
Q4	0.032	0.032	-0.002	0.024	0.031	0.024
	(0.88)	(0.37)	(-0.07)	(0.29)	(1.00)	(0.28)
Number of Obs	14,563	2,734	14,563	2,734	14,563	2,734
Pseudo R-squared	0.026	0.115	0.090	0.135	0.031	0.086

T-statistics are based on robust standard errors adjusted for within-firm clustering. * (**) [***] indicates statistical significance at the 0.10 (0.05) [0.01] level under two-tailed tests. Variables are defined in the Appendix.

Table 4, Panel B: Signed deviation between revised analyst forecast and management guidance

	Dependent Variable					
	SlightlyAbove		***SlightlyBelow***		***Beatable***	
	Range MF	Point MF	Range MF	Point MF	Range MF	Point MF
	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(statistic)*
Constant	-2.275***	-3.037*	1.722***	1.000	2.129***	2.259*
	(-4.40)	(-1.86)	(3.10)	(0.60)	(4.11)	(1.67)
Analyst Characteristics						
PastAbsAFE	-8.010	12.088	-4.405	-0.372	-14.176**	-52.608***
	(-1.39)	(0.72)	(-0.80)	(-0.02)	(-2.56)	(-3.05)
Ability	0.299**	0.465	-0.686***	-0.912**	-0.648***	-0.648**
	(2.48)	(1.15)	(-5.43)	(-2.28)	(-5.58)	(-1.99)
BrokerSize	-0.022*	0.077*	-0.013	0.016	0.000	-0.063**
	(-1.93)	(1.95)	(-0.97)	(0.40)	(0.01)	(-2.28)
FirmCoverage	0.034	-0.159	0.030	0.131	0.048	0.236**
	(0.84)	(-1.45)	(0.74)	(1.26)	(1.26)	(2.27)
IndustryCoverage	0.003	0.029	-0.086***	-0.069	-0.078***	-0.065
	(0.10)	(0.45)	(-3.24)	(-0.94)	(-2.84)	(-1.04)
GeneralExp	-0.021	0.117	-0.014	0.146	0.003	-0.106
	(-0.76)	(1.30)	(-0.45)	(1.37)	(0.10)	(-1.49)
FirmSpecExp	-0.004	-0.177***	0.012	-0.086	-0.008	0.037
	(-0.17)	(-2.72)	(0.51)	(-1.23)	(-0.38)	(0.70)
EstimateAge	0.001	0.001	0.000	-0.003	0.000	0.001
	(1.47)	(0.91)	(0.14)	(-1.63)	(0.50)	(0.98)
Analyst's Revision History						
FirmSpecPast SlightlyAbove	0.283***	0.052				
	(6.66)	(0.50)				
GeneralPast SlightlyAbove	0.557***	0.427*				
	(5.48)	(1.72)				
FirmSpecPast SlightlyBelow			0.188***	-0.240		
			(4.35)	(-1.49)		
GeneralPast SlightlyBelow			0.470***	-0.034		
			(4.29)	(-0.09)		
FirmSpecPast Beatable					0.409***	0.333***
					(11.00)	(4.42)
GeneralPast Beatable					0.617***	0.989***
					(7.58)	(5.58)

Table 4, Panel B continued:

	Dependent Variable					
	SlightlyAbove		***SlightlyBelow***		***Beatable***	
	Range MF	Point MF	Range MF	Point MF	Range MF	Point MF
MF Properties						
MFbelowAnalystEst	-0.131***	0.106	0.207***	0.005	-0.031	-0.439***
	(-3.15)	(0.94)	(4.55)	(0.03)	(-0.68)	(-4.44)
MFbelowConsensusEst	0.079*	0.011	-0.116***	0.080	0.000	0.227**
	(1.92)	(0.11)	(-2.67)	(0.59)	(0.00)	(2.08)
CurrentMFaccuDummy	0.149***	-0.043	0.233***	0.247**	0.191***	0.341***
	(4.03)	(-0.49)	(6.36)	(2.14)	(5.21)	(3.42)
ABS(MF-AnalystEst)	-1.589***	-0.726	-1.507***	-0.879	-0.393*	-1.396***
	(-6.97)	(-1.64)	(-7.37)	(-1.25)	(-1.76)	(-3.19)
MFhorizon	0.001	0.006*	-0.005***	0.007*	-0.003*	-0.011***
	(0.83)	(1.96)	(-3.34)	(1.88)	(-1.95)	(-3.52)
ConcurrentDummy	-0.042	-0.026	0.126	-0.183	-0.014	0.400***
	(-0.63)	(-0.16)	(1.62)	(-0.96)	(-0.17)	(2.71)
MF Track Record						
PastMFAccuDummy	-0.073**	0.014	0.063**	0.104	0.142***	-0.021
	(-2.52)	(0.17)	(2.14)	(0.95)	(4.52)	(-0.23)
NumberPastMF	0.002	0.021	-0.009	-0.041**	-0.008	-0.012
	(0.35)	(1.55)	(-1.53)	(-2.42)	(-1.16)	(-0.90)
%PessimisticPastMF	0.229***	-0.141	-0.128**	-0.243	-0.316***	-0.094
	(3.51)	(-0.85)	(-2.09)	(-1.23)	(-4.45)	(-0.52)
Firm Characteristics						
Analystfollow	0.001	0.009*	-0.000	-0.001	-0.001	-0.011*
	(0.42)	(1.71)	(-0.03)	(-0.09)	(-0.25)	(-1.86)
Earnvol	-0.097	-0.327	-0.320	-0.646	0.106	1.039
	(-0.25)	(-0.34)	(-0.89)	(-0.72)	(0.30)	(1.25)
Retvol	3.097**	-4.644	5.417***	0.611	1.243	6.954**
	(2.15)	(-1.46)	(4.06)	(0.16)	(0.80)	(2.14)
LagSize	0.006	-0.032	0.004	0.041	-0.005	0.031
	(0.35)	(-0.89)	(0.19)	(1.01)	(-0.30)	(0.77)
LagBM	-0.169**	-0.132	0.101	0.418**	0.267***	0.043
	(-2.52)	(-0.68)	(1.36)	(2.23)	(3.61)	(0.27)
Q4	-0.061**	-0.202**	0.036	-0.021	0.094***	0.127
	(-2.09)	(-2.53)	(1.20)	(-0.21)	(2.90)	(1.30)
Number of Obs	14,563	2,734	14,563	2,734	14,563	2,734
Pseudo R-squared	0.030	0.037	0.032	0.042	0.056	0.112

T-statistics are based on robust standard errors adjusted for within-firm clustering. * (**) [***] indicates statistical significance at the 0.10 (0.05) [0.01] level under two-tailed tests. Variables are defined in the Appendix.

Table 5: Individual Analysts' Responses to Management Guidance (Perfect Foresight Models)

Panel A: Unsigned deviation between analyst forecast and management guidance

	Dependent Variable					
	MIMIC		***MIMICalt***		***TOWARD***	
	Range MF	Point MF	Range MF	Point MF	Range MF	Point MF
	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(t statistic)*
Constant	-0.847	3.046***	0.204	2.156**	-0.140	3.378***
	(-1.57)	(2.83)	(0.41)	(1.98)	(-0.31)	(2.73)
Analyst Characteristics						
PastAbsAFE	-10.106	-53.057***	-16.370***	-46.515***	-6.182	-38.856**
	(-1.61)	(-3.91)	(-2.95)	(-3.33)	(-1.10)	(-2.51)
Ability	-0.102	-0.814***	-0.278**	-0.773***	-0.101	-0.860***
	(-0.83)	(-3.16)	(-2.35)	(-3.02)	(-0.91)	(-2.77)
BrokerSize	-0.009	-0.044	-0.030**	-0.037	-0.025**	0.013
	(-0.66)	(-1.64)	(-2.50)	(-1.39)	(-2.23)	(0.43)
FirmCoverage	0.066	0.150	0.089**	0.169*	0.051	0.011
	(1.42)	(1.48)	(2.25)	(1.71)	(1.31)	(0.09)
IndustryCoverage	-0.070**	-0.014	-0.115***	0.023	-0.071**	0.055
	(-2.09)	(-0.25)	(-3.88)	(0.44)	(-2.53)	(0.94)
GeneralExp	0.029	-0.124*	-0.010	-0.144**	-0.014	-0.046
	(0.88)	(-1.81)	(-0.34)	(-2.02)	(-0.50)	(-0.52)
FirmSpecExp	0.002	0.045	0.011	0.031	0.007	0.043
	(0.08)	(0.98)	(0.50)	(0.67)	(0.27)	(0.76)
EstimateAge	0.001***	0.004***	0.002***	0.003**	-0.000	0.004***
	(2.69)	(3.18)	(3.44)	(2.50)	(-0.10)	(2.99)
Analyst's Revision History						
FirmSpecPast MIMIC	0.299***	0.329***				
	(6.39)	(4.53)				
GeneralPast:MIMIC	0.590***	0.895***				
	(5.89)	(4.44)				
FirmSpecPast MIMICalt			0.439***	0.479***		
			(10.51)	(5.62)		
GeneralPast MIMICalt			0.944***	1.077***		
			(11.78)	(5.57)		
FirmSpecPast TOWARD					0.196***	0.146
					(5.22)	(1.54)
GeneralPast TOWARD					0.365***	0.633***
					(4.73)	(2.92)

Table 5, Panel A continued:

	Dependent Variable					
	MIMIC		***MIMICalt***		***TOWARD***	
MF Properties						
MFbelowAnalystEst	-0.014	-0.181**	0.021	-0.195**	0.138***	0.149
	(-0.29)	(-2.04)	(0.45)	(-2.20)	(3.16)	(1.42)
MFbelowConsensusEst	0.060	0.214**	0.024	0.207**	0.104**	0.336***
	(1.26)	(2.22)	(0.50)	(2.17)	(2.51)	(3.43)
CurrentMFaccuDummy	0.182***	0.455***	0.402***	0.405***	0.009	0.358***
	(4.30)	(5.42)	(10.51)	(4.76)	(0.24)	(3.35)
ABS(MF-AnalystEst)	-1.203***	-2.108***	-2.466***	-1.514***	1.868***	0.549
	(-4.65)	(-5.37)	(-11.48)	(-3.99)	(9.03)	(1.10)
MFhorizon	-0.000	-0.012***	-0.003**	-0.012***	-0.001	-0.007**
	(-0.15)	(-4.65)	(-2.40)	(-4.43)	(-0.42)	(-2.00)
ConcurrentDummy	-0.033	0.352**	0.052	0.325**	0.262***	0.371**
	(-0.39)	(2.55)	(0.66)	(2.42)	(3.30)	(2.28)
Current MF Accuracy						
ABSMFE	-12.642***	-17.467***	-1.954*	-18.489***	-1.504	-21.685***
	(-2.70)	(-2.89)	(-1.82)	(-2.95)	(-1.39)	(-3.17)
Firm Characteristics						
Analystfollow	-0.005	-0.007	-0.005	-0.006	-0.011**	-0.009
	(-1.13)	(-1.54)	(-1.19)	(-1.32)	(-2.32)	(-1.45)
Earnvol	0.202	1.512**	-0.263	1.725***	0.683*	1.454**
	(0.42)	(2.53)	(-0.55)	(3.12)	(1.71)	(2.33)
Retvol	-0.228	7.060***	7.118***	6.207***	0.194	3.914
	(-0.13)	(2.83)	(5.17)	(2.66)	(0.15)	(1.44)
LagSize	-0.010	0.002	0.021	0.014	0.016	-0.024
	(-0.42)	(0.07)	(1.08)	(0.40)	(0.91)	(-0.60)
LagBM	0.088	-0.004	-0.018	0.105	-0.095	-0.205
	(1.07)	(-0.02)	(-0.23)	(0.73)	(-1.47)	(-1.24)
Q4	0.035	0.039	-0.001	0.033	0.031	0.028
	(0.98)	(0.45)	(-0.03)	(0.40)	(0.99)	(0.33)
Number of Obs	14,563	2,734	14,563	2,734	14,563	2,734
Pseudo R-squared	0.026	0.116	0.090	0.138	0.031	0.088

T-statistics are based on robust standard errors adjusted for within-firm clustering. * (**) [***] indicates statistical significance at the 0.10 (0.05) [0.01] level under two-tailed tests. Variables are defined in the Appendix.

Table 5, Panel B: Signed deviation between revised analyst forecast and management guidance

	Dependent Variable					
	SlightlyAbove		***SlightlyBelow***		***Beatable***	
	Range MF	Point MF	Range MF	Point MF	Range MF	Point MF
	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(statistic)*
Constant	-2.419***	-3.262**	1.699***	0.666	2.352***	2.505*
	(-4.70)	(-2.00)	(3.14)	(0.40)	(4.77)	(1.90)
Analyst Characteristics						
PastAbsAFE	-8.888	13.781	-4.286	-2.112	-12.599**	-53.383***
	(-1.55)	(0.79)	(-0.76)	(-0.13)	(-2.24)	(-3.14)
Ability	0.299**	0.486	-0.685***	-0.920**	-0.646***	-0.684**
	(2.47)	(1.21)	(-5.44)	(-2.29)	(-5.63)	(-2.10)
BrokerSize	-0.026**	0.072*	-0.009	0.025	0.007	-0.056**
	(-2.18)	(1.83)	(-0.67)	(0.61)	(0.59)	(-2.08)
FirmCoverage	0.040	-0.155	0.023	0.135	0.037	0.233**
	(1.01)	(-1.41)	(0.58)	(1.27)	(0.98)	(2.24)
IndustryCoverage	-0.002	0.027	-0.080***	-0.077	-0.068**	-0.069
	(-0.06)	(0.43)	(-3.05)	(-1.04)	(-2.56)	(-1.11)
GeneralExp	-0.020	0.115	-0.012	0.149	0.003	-0.108
	(-0.72)	(1.27)	(-0.39)	(1.38)	(0.10)	(-1.51)
FirmSpecExp	-0.006	-0.172***	0.012	-0.085	-0.005	0.033
	(-0.29)	(-2.61)	(0.51)	(-1.17)	(-0.23)	(0.63)
EstimateAge	0.001	0.001	-0.000	-0.003*	0.000	0.001
	(1.49)	(0.81)	(-0.01)	(-1.74)	(0.54)	(1.18)
Analyst's Revision History						
FirmSpecPast SlightlyAbove	0.287***	0.047				
	(6.76)	(0.46)				
GeneralPast SlightlyAbove	0.579***	0.452*				
	(5.66)	(1.84)				
FirmSpecPast SlightlyBelow			0.198***	-0.236		
			(4.63)	(-1.43)		
GeneralPast SlightlyBelow			0.478***	0.018		
			(4.39)	(0.05)		
FirmSpecPast Beatable					0.420***	0.333***
					(11.55)	(4.42)
GeneralPast Beatable					0.661***	0.993***
					(8.01)	(5.56)

Table 5, Panel B continued:

	Dependent Variable					
	SlightlyAbove		***SlightlyBelow***		***Beatable***	
	Range MF	Point MF	Range MF	Point MF	Range MF	Point MF
MF Properties						
MFbelowAnalystEst	-0.091**	0.125	0.189***	0.022	-0.094**	-0.442***
	(-2.14)	(1.07)	(4.15)	(0.16)	(-2.11)	(-4.44)
MFbelowConsensusEst	0.081**	0.010	-0.114***	0.086	-0.005	0.232**
	(1.96)	(0.10)	(-2.65)	(0.64)	(-0.12)	(2.15)
CurrentMFaccuDummy	0.190***	-0.030	0.214***	0.268**	0.119***	0.344***
	(4.91)	(-0.33)	(5.91)	(2.38)	(3.30)	(3.54)
ABS(MF-AnalystEst)	-1.611***	-0.656	-1.446***	-0.787	-0.365*	-1.594***
	(-6.88)	(-1.48)	(-7.06)	(-1.14)	(-1.70)	(-3.87)
MFhorizon	0.001	0.007**	-0.005***	0.006	-0.004***	-0.012***
	(1.16)	(2.10)	(-3.62)	(1.45)	(-2.64)	(-3.89)
ConcurrentDummy	-0.052	-0.036	0.137*	-0.146	0.011	0.414***
	(-0.78)	(-0.23)	(1.77)	(-0.77)	(0.14)	(2.83)
Current MF Bias						
PessimisticMFDummy	0.285***	0.276**	-0.134***	-0.260**	-0.489***	-0.405***
	(7.84)	(2.33)	(-3.75)	(-2.02)	(-11.76)	(-3.64)
Firm Characteristics						
Analystfollow	0.001	0.009*	-0.001	-0.004	-0.002	-0.011**
	(0.46)	(1.91)	(-0.27)	(-0.37)	(-0.40)	(-1.98)
Earnvol	-0.023	-0.275	-0.405	-0.634	0.022	1.027
	(-0.06)	(-0.28)	(-1.09)	(-0.62)	(0.06)	(1.25)
Retvol	2.466*	-6.396**	6.738***	3.982	2.485*	8.395***
	(1.95)	(-2.05)	(5.34)	(1.09)	(1.71)	(2.72)
LagSize	0.007	-0.042	0.003	0.057	-0.006	0.040
	(0.43)	(-1.19)	(0.17)	(1.44)	(-0.34)	(1.01)
LagBM	-0.170***	-0.117	0.097	0.472***	0.260***	0.048
	(-2.61)	(-0.64)	(1.33)	(2.62)	(3.55)	(0.31)
Q4	-0.063**	-0.194**	0.039	-0.005	0.098***	0.124
	(-2.16)	(-2.43)	(1.30)	(-0.05)	(2.97)	(1.26)
Number of Obs	14,563	2,734	14,563	2,734	14,563	2,734
Pseudo R-squared	0.034	0.039	0.032	0.036	0.068	0.118

T-statistics are based on robust standard errors adjusted for within-firm clustering. * (**) [***] indicates statistical significance at the 0.10 (0.05) [0.01] level under two-tailed tests. Variables are defined in the Appendix.

Table 6: What Kind of Analysts Adjust For Management Guidance Bias?

	Dependent Variable					
	SlightlyAbove		***SlightlyBelow***		***Beatable***	
	Range MF	Point MF	Range MF	Point MF	Range MF	Point MF
	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(t statistic)*
Ability	0.068	-2.411*	0.504	0.209	0.386	1.507
	(0.15)	(-1.75)	(1.27)	(0.13)	(1.02)	(1.22)
BrokerSize	-0.034	0.135	-0.075**	-0.084	-0.047	-0.148*
	(-0.88)	(1.21)	(-2.14)	(-0.59)	(-1.27)	(-1.67)
FirmCoverage	0.040	-0.546*	0.067	0.123	-0.049	0.636**
	(0.30)	(-1.66)	(0.60)	(0.42)	(-0.38)	(1.97)
IndustryCoverage	0.018	0.091	-0.133*	0.161	-0.107	-0.049
	(0.22)	(0.43)	(-1.75)	(0.68)	(-1.25)	(-0.24)
GeneralExp	-0.064	0.573*	-0.096	0.066	-0.027	-0.312
	(-0.65)	(1.96)	(-1.21)	(0.21)	(-0.31)	(-1.23)
FirmSpecExp	-0.067	-0.146	0.104	0.002	0.087	0.025
	(-0.92)	(-0.71)	(1.52)	(0.01)	(1.22)	(0.12)
%PessimisticPastMF	-1.176	-13.686**	5.684***	5.006	4.405**	10.742*
	(-0.53)	(-2.18)	(2.80)	(0.69)	(2.32)	(1.91)
%PessimisticPastMF × Ability	0.297	3.496**	-1.559***	-1.406	-1.339***	-2.638*
	(0.54)	(2.25)	(-3.04)	(-0.79)	(-2.84)	(-1.90)
%PessimisticPastMF × BrokerSize	0.015	-0.065	0.084*	0.127	0.061	0.103
	(0.31)	(-0.49)	(1.85)	(0.75)	(1.31)	(1.03)
%PessimisticPastMF × Coverage	-0.008	0.471	-0.053	0.024	0.126	-0.493
	(-0.05)	(1.22)	(-0.37)	(0.07)	(0.79)	(-1.19)
%PessimisticPastMF × IndustryCoverage	-0.021	-0.068	0.063	-0.305	0.039	-0.022
	(-0.20)	(-0.29)	(0.66)	(-1.07)	(0.37)	(-0.10)
%PessimisticPastMF × GeneralExp	0.056	-0.555	0.109	0.103	0.037	0.244
	(0.46)	(-1.57)	(1.07)	(0.28)	(0.35)	(0.81)
%PessimisticPastMF × FirmSpecExp	0.081	-0.050	-0.120	-0.110	-0.123	0.026
	(0.87)	(-0.21)	(-1.42)	(-0.43)	(-1.38)	(0.12)
Wald Test of Incremental Effects of Interaction Terms	1.98	13.29	14.30	2.31	11.81	6.11
	(0.921)	(0.039)	(0.027)	(0.889)	(0.066)	(0.411)
Number of Obs	14,563	2,734	14,563	2,734	14,563	2,734
Pseudo R-squared	0.030	0.043	0.033	0.045	0.057	0.115

T-statistics are based on robust standard errors adjusted for within-firm clustering. * (**) [***] indicates statistical significance at the 0.10 (0.05) [0.01] level under two-tailed tests. Results on all the other variables are unreported for conciseness. For Wald Tests, *Chi-square* statistics are reported first and *p*-values are reported below in parentheses. Variables are defined in the Appendix.

Table 7: Management Forecast Decisions
(Modeling Management Forecast Bias as a Continuous Variable)

Panel A: Management Forecast Bias and Analysts' Past Tendency to Mimic Guidance

	Dependent Variable: *MFE*					
	Independent Variables of Interest: Analyst's Past Tendency to Mimic			**Independent Variables of Interest: Analyst's Past Tendency to Revise Forecast Toward Guidance**		
	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(t statistic)*
Constant	-1.046*	-1.098*	-1.050*	-1.538**	-1.215**	-1.535**
	(-1.76)	(-1.83)	(-1.76)	(-2.48)	(-1.98)	(-2.48)
Firm Characteristics						
Litigation Industry Dummy	0.016	0.007	0.016	0.006	0.007	0.006
	(0.11)	(0.05)	(0.12)	(0.05)	(0.05)	(0.04)
Earnvol	8.605***	8.584***	8.597***	8.412***	8.532***	8.416***
	(3.50)	(3.49)	(3.50)	(3.42)	(3.47)	(3.42)
Retvol	22.398***	22.186***	22.415***	22.015***	22.188***	21.995***
	(3.97)	(3.96)	(3.98)	(3.94)	(3.97)	(3.94)
ROA	22.210***	22.212***	22.221***	22.362***	22.269***	22.353***
	(6.41)	(6.41)	(6.41)	(6.46)	(6.42)	(6.46)
LagSize	0.024	0.023	0.024	0.018	0.021	0.018
	(0.38)	(0.37)	(0.39)	(0.29)	(0.34)	(0.29)
LagBM	1.364***	1.365***	1.364***	1.373***	1.367***	1.373***
	(3.31)	(3.31)	(3.31)	(3.34)	(3.32)	(3.34)
Analystfollow	-0.014	-0.014	-0.014	-0.013	-0.014	-0.013
	(-1.47)	(-1.47)	(-1.47)	(-1.38)	(-1.43)	(-1.38)
MF Bias Track Record						
AvgPastMFE	0.185***	0.185***	0.185***	0.184***	0.185***	0.184***
	(3.96)	(3.96)	(3.96)	(3.93)	(3.94)	(3.93)
Aggregate Analyst's Revision History						
FirmSpecPastMIMIC	0.049	-0.005				
	(0.24)	(-0.03)				
GeneralPastMIMIC	-0.319		-0.269			
	(-0.62)		(-0.57)			
FirmSpecPastTOWARD				0.078	0.214	
				(0.40)	(1.22)	
GeneralPastTOWARD				0.754*		0.829**
				(1.71)		(2.07)
Number of Obs	8,505	8,505	8,505	8,505	8,505	8,505
Pseudo R-squared	0.050	0.050	0.050	0.051	0.050	0.051

Table 7, Panel B: Management Forecast Bias and Analysts' Past Tendency to Issue Beatable Forecasts

	Dependent Variable: *MFE*					
	Independent Variables of Interest: Analyst's Past Tendency to Issue Slightly Beatable (SlightlyBelow) Forecasts			**Independent Variables of Interest: Analyst's Past Tendency to Issue Beatable Forecasts**		
	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(t statistic)*
Constant	-0.805	-0.954	-0.826	-0.489	-0.893	-0.494
	(-1.35)	(-1.60)	(-1.38)	(-0.80)	(-1.48)	(-0.81)
Firm Characteristics						
LitigationIndustry Dummy	0.043	0.026	0.039	0.029	0.018	0.027
	(0.31)	(0.19)	(0.28)	(0.21)	(0.13)	(0.20)
Earnvol	8.401***	8.524***	8.383***	8.227***	8.481***	8.221***
	(3.44)	(3.51)	(3.42)	(3.34)	(3.45)	(3.34)
Retvol	24.010***	22.918***	24.049***	26.253***	23.454***	26.269***
	(4.22)	(4.09)	(4.22)	(4.51)	(4.17)	(4.51)
ROA	22.282***	22.224***	22.299***	22.398***	22.287***	22.391***
	(6.44)	(6.42)	(6.45)	(6.46)	(6.43)	(6.46)
LagSize	0.017	0.018	0.019	0.039	0.026	0.040
	(0.28)	(0.29)	(0.31)	(0.63)	(0.42)	(0.65)
LagBM	1.361***	1.366***	1.357***	1.435***	1.401***	1.429***
	(3.31)	(3.32)	(3.30)	(3.47)	(3.40)	(3.45)
Analystfollow	-0.016	-0.015	-0.016	-0.017*	-0.015	-0.017*
	(-1.61)	(-1.55)	(-1.59)	(-1.79)	(-1.58)	(-1.79)
MF Bias Track Record						
AvgPastMFE	0.180***	0.183***	0.181***	0.177***	0.179***	0.178***
	(3.86)	(3.91)	(3.87)	(3.76)	(3.80)	(3.81)
Aggregate Analyst's Revision History						
FirmSpecPast SlightlyBelow	-0.462*	-0.650***				
	(-1.86)	(-2.84)				
GeneralPast SlightlyBelow	-1.052*		-1.507***			
	(-1.82)		(-2.84)			
FirmSpecPast Beatable				-0.182	-0.451***	
				(-0.91)	(-2.59)	
GeneralPast Beatable				-1.204**		-1.384***
				(-2.57)		(-3.39)
Number of Obs	8,505	8,505	8,505	8,505	8,505	8,505
Adj. R-squared	0.052	0.051	0.051	0.052	0.051	0.052

T-statistics are based on robust standard errors adjusted for within-firm clustering. * (**) [***] indicates statistical significance at the 0.10 (0.05) [0.01] level under two-tailed tests. Variables are defined in the Appendix.

Table 8: Individual Analysts' Responses to Management Guidance
(Modeling Individual Analyst Revisions as Continuous Variables)

Panel A: Simple Expectation Models

	Dependent Variable					
	DEV		***AbsDEV***		***LogAbsDEV***	
	Range MF	Point MF	Range MF	Point MF	Range MF	Point MF
	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(t statistic)*
Constant	-1.750***	-1.681	0.756	-1.203	0.298*	-0.410
	(-3.37)	(-1.15)	(1.46)	(-0.79)	(1.77)	(-1.03)
Analyst Characteristics						
PastAbsAFE	0.015	0.051**	0.058***	0.113***	0.019***	0.034***
	(1.49)	(2.04)	(5.36)	(4.53)	(7.06)	(5.18)
Ability	0.490***	0.500	-0.091	0.576*	0.002	0.200**
	(4.07)	(1.51)	(-0.81)	(1.70)	(0.05)	(2.18)
BrokerSize	-0.002	0.032	0.019*	-0.009	0.007**	-0.003
	(-0.19)	(1.10)	(1.78)	(-0.34)	(1.98)	(-0.35)
FirmCoverage	-0.062	-0.245***	-0.020	-0.046	-0.026**	-0.023
	(-1.52)	(-2.82)	(-0.52)	(-0.53)	(-1.97)	(-0.77)
IndustryCoverage	-0.005	0.059	-0.017	-0.100*	0.006	-0.034*
	(-0.15)	(1.06)	(-0.57)	(-1.66)	(0.55)	(-1.86)
GeneralExp	-0.003	-0.063	-0.019	0.010	-0.004	0.017
	(-0.10)	(-1.02)	(-0.76)	(0.16)	(-0.42)	(0.83)
FirmSpecExp	0.020	0.064	0.023	0.021	0.004	0.008
	(0.93)	(1.18)	(1.13)	(0.35)	(0.51)	(0.46)
EstimateAge	-0.000	0.001	-0.001*	-0.003***	-0.001***	-0.001***
	(-0.10)	(1.06)	(-1.68)	(-2.96)	(-3.52)	(-3.59)
Analyst's Revision History						
FirmSpecPast DEV	0.115***	0.041				
	(5.23)	(0.79)				
GeneralPast DEV	0.022*	0.006				
	(1.74)	(0.30)				
FirmSpecPast AbsDEV			0.103***	0.099***		
			(4.88)	(2.63)		
GeneralPast AbsDEV			0.016*	-0.015		
			(1.76)	(-0.56)		
FirmSpecPast LogAbsDEV					0.145***	0.129***
					(7.91)	(4.19)
GeneralPast LogAbsDEV					0.045***	0.009
					(4.18)	(0.29)

Table 8, Panel A continued:

	Dependent Variable					
	DEV		***AbsDEV***		***LogAbsDEV***	
MF Properties						
MFbelowAnalystEst	0.224***	0.535***	-0.141***	-0.089	-0.016	0.018
	(3.95)	(3.95)	(-2.64)	(-0.66)	(-0.98)	(0.45)
MFbelowConsensusEst	0.101*	-0.075	-0.028	-0.196*	-0.004	-0.078**
	(1.81)	(-0.61)	(-0.55)	(-1.86)	(-0.24)	(-2.11)
CurrentMFaccuDummy	0.015	0.118	-0.431***	-0.725***	-0.136***	-0.243***
	(0.24)	(0.76)	(-7.26)	(-4.48)	(-8.22)	(-5.44)
ABS(MF-AnalystEst)	-0.005	-0.110	3.265***	4.790***	0.937***	1.320***
	(-0.01)	(-0.10)	(6.67)	(4.07)	(7.77)	(4.81)
MFhorizon	0.001	0.004	0.005**	0.005	0.001***	0.003**
	(0.64)	(1.19)	(2.46)	(1.33)	(2.75)	(2.34)
ConcurrentDummy	0.000	-0.266	-0.202**	-0.311	-0.054**	-0.116**
	(0.00)	(-1.40)	(-2.17)	(-1.52)	(-2.03)	(-2.00)
MF Track Record						
PastMFAccuDummy	-0.088***	-0.049	-0.006	0.041	-0.006	0.018
	(-2.58)	(-0.54)	(-0.19)	(0.50)	(-0.55)	(0.67)
NumberPastMF	0.009	0.014	0.010	-0.026**	0.002	-0.006
	(1.48)	(1.28)	(1.56)	(-2.15)	(0.82)	(-1.64)
AvgPastMFE	0.045***	0.018				
	(3.39)	(0.75)				
AvgPastABSMFE			0.058***	0.021		
			(4.58)	(0.92)		
LogAvgPastABSMFE					0.072***	0.043
					(4.94)	(1.44)
Firm Characteristics						
Analystfollow	-0.005	0.010*	0.004	-0.002	0.003**	0.001
	(-1.19)	(1.91)	(1.32)	(-0.32)	(2.20)	(0.33)
Earnvol	0.736	-0.187	2.232***	-0.952	0.707***	-0.397**
	(1.11)	(-0.40)	(3.48)	(-1.61)	(3.90)	(-2.56)
Retvol	-2.001	1.104	7.335***	1.464	2.343***	-0.056
	(-1.09)	(0.48)	(4.04)	(0.55)	(4.19)	(-0.07)
LagSize	-0.004	-0.036	-0.066***	-0.009	-0.028***	-0.008
	(-0.23)	(-0.92)	(-3.77)	(-0.21)	(-4.51)	(-0.63)
LagBM	-0.277***	-0.073	0.784***	0.164	0.256***	0.054
	(-2.70)	(-0.38)	(8.11)	(0.82)	(8.80)	(0.91)
Q4	-0.080**	-0.073	0.038	0.201*	0.017	0.055*
	(-2.19)	(-0.86)	(1.08)	(1.90)	(1.56)	(1.69)
Number of Obs	14,562	2,729	14,562	2,729	14,562	2,729
Pseudo R-squared	0.042	0.047	0.243	0.224	0.258	0.238

T-statistics are based on robust standard errors adjusted for within-firm clustering. * (**) [***] indicates statistical significance at the 0.10 (0.05) [0.01] level under two-tailed tests. Variables are defined in the Appendix.

Table 8, Panel B: Perfect Foresight Models

	Dependent Variable					
	DEV		***AbsDEV***		***LogAbsDEV***	
	Range MF	Point MF	Range MF	Point MF	Range MF	Point MF
	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(t statistic)*	Coefficient Estimates *(t statistic)*
Constant	-1.598***	-1.715	0.881*	-1.699	0.188	-0.599*
	(-3.14)	(-1.24)	(1.69)	(-1.19)	(1.17)	(-1.69)
Analyst Characteristics						
PastAbsAFE	0.019*	0.040*	0.069***	0.089***	0.014***	0.021***
	(1.91)	(1.67)	(6.82)	(3.39)	(4.88)	(3.48)
Ability	0.475***	0.531	-0.062	0.604*	0.002	0.169*
	(3.99)	(1.64)	(-0.54)	(1.83)	(0.04)	(1.96)
BrokerSize	-0.008	0.023	0.018*	0.007	0.007**	0.001
	(-0.63)	(0.80)	(1.68)	(0.26)	(2.05)	(0.18)
FirmCoverage	-0.053	-0.185**	-0.019	-0.031	-0.019	-0.018
	(-1.30)	(-2.34)	(-0.49)	(-0.37)	(-1.60)	(-0.65)
IndustryCoverage	-0.016	0.048	-0.016	-0.083	0.003	-0.031*
	(-0.50)	(0.91)	(-0.54)	(-1.42)	(0.35)	(-1.78)
GeneralExp	-0.007	-0.080	-0.019	-0.008	-0.006	0.015
	(-0.27)	(-1.29)	(-0.82)	(-0.12)	(-0.69)	(0.77)
FirmSpecExp	0.019	0.058	0.023	0.016	0.005	0.008
	(0.89)	(1.12)	(1.15)	(0.28)	(0.76)	(0.49)
EstimateAge	0.000	0.001	-0.001*	-0.003***	-0.000***	-0.001***
	(0.25)	(1.29)	(-1.92)	(-2.87)	(-2.99)	(-2.96)
Analyst's Revision History						
FirmSpecPast DEV	0.136***	0.041				
	(6.32)	(0.87)				
GeneralPast DEV	0.025**	0.010				
	(2.01)	(0.50)				
FirmSpecPast AbsDEV			0.142***	0.103**		
			(6.75)	(2.22)		
GeneralPast AbsDEV			0.020**	-0.009		
			(2.25)	(-0.34)		
FirmSpecPast LogAbsDEV					0.147***	0.125***
					(8.70)	(3.46)
GeneralPast LogAbsDEV					0.047***	0.003
					(4.55)	(0.10)

Table 8, Panel B continued:

	Dependent Variable					
	DEV		***AbsDEV***		***LogAbsDEV***	
MF Properties						
MFbelowAnalystEst	0.212***	0.531***	-0.144***	-0.048	0.015	0.064*
	(3.73)	(4.09)	(-2.73)	(-0.37)	(1.01)	(1.72)
MFbelowConsensusEst	0.103*	-0.061	-0.037	-0.190*	-0.001	-0.066**
	(1.86)	(-0.52)	(-0.72)	(-1.92)	(-0.04)	(-2.01)
CurrentMFaccuDummy	0.007	0.142	-0.438***	-0.638***	-0.065***	-0.131***
	(0.11)	(0.98)	(-7.36)	(-4.23)	(-4.53)	(-3.42)
ABS(MF-AnalystEst)	0.004	0.036	3.147***	4.703***	0.676***	1.038***
	(0.01)	(0.03)	(6.51)	(4.08)	(6.00)	(3.95)
MFhorizon	0.002	0.004	0.004**	0.004	0.001	0.002*
	(0.79)	(1.26)	(2.16)	(1.04)	(1.47)	(1.94)
ConcurrentDummy	-0.009	-0.249	-0.186*	-0.249	-0.040	-0.112*
	(-0.09)	(-1.35)	(-1.91)	(-1.22)	(-1.59)	(-1.96)
Current MF Bias/Inaccuracy						
MFE	0.006*	0.028**				
	(1.68)	(2.35)				
ABSMFE			0.012***	0.033*		
			(2.92)	(1.78)		
LogABSMFE					0.164***	0.175***
					(13.62)	(6.79)
Firm Characteristics						
Analystfollow	-0.005	0.010**	0.003	-0.003	0.001	-0.000
	(-1.04)	(2.13)	(1.04)	(-0.57)	(1.27)	(-0.11)
Earnvol	0.934	-0.648	2.458***	-1.297**	0.563***	-0.478**
	(1.36)	(-1.29)	(3.53)	(-2.04)	(3.18)	(-2.32)
Retvol	-3.540**	-0.499	6.471***	2.568	1.840***	0.173
	(-1.98)	(-0.23)	(3.80)	(1.04)	(3.75)	(0.23)
LagSize	-0.006	-0.045	-0.070***	0.007	-0.020***	0.007
	(-0.33)	(-1.23)	(-4.15)	(0.17)	(-3.59)	(0.65)
LagBM	-0.284***	-0.181	0.689***	0.068	0.176***	-0.004
	(-2.76)	(-0.98)	(7.29)	(0.33)	(6.38)	(-0.06)
Q4	-0.090**	-0.063	0.041	0.192*	0.015	0.049*
	(-2.43)	(-0.79)	(1.18)	(1.92)	(1.41)	(1.68)
Number of Obs	14,562	2,729	14,562	2,729	14,562	2,729
Pseudo R-squared	0.041	0.083	0.251	0.248	0.295	0.282