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Abstract

Analysts are selective about which forecasts they update and thus convey information about current quarter earnings even when not revising the current quarter earnings (CQE) forecast. We find (i) textual statements, (ii) share price target revisions, and (iii) future quarter earnings forecast revisions all predict error in the CQE forecast. We document several reasons analysts sometimes omit information from the CQE forecast: to facilitate beatable forecasts by suppressing positive news from the CQE forecast, to herd toward the consensus, and to avoid small forecast revisions. We also show that omitting information from CQE forecasts leads to lower forecast dispersion and predictable returns at the earnings announcement.

Keywords: sell-side analysts, analyst incentives, earnings forecasts, forecast bias.

1. INTRODUCTION

Academic research studying sell-side analysts often focuses on a single output of their work, the current quarter earnings forecast. Analysts' work product, however, is complex and has multiple outputs. Prior research provides little insight into how the decision to revise one forecast relates to the decision to revise others and what implications the interrelation has for research that focuses on a single forecast output. Perhaps this is because, in a frictionless world, analysts might be expected to revise each forecast whenever it no longer represents expectations.

What if the world is more complex than is generally (implicitly) assumed in studies focused on a single analyst forecast output? Forecasts may then serve as (partial) substitutes for one another and analysts might revise only a subset of them even if the unrevised forecasts no longer represent expectations. Revising only a subset of forecasts could reduce processing costs for analysts and clients, or allow analysts to cater to managers' preferences for a walked-down forecast pattern. We test whether subsequent revisions to other forecasts predict errors in unrevised forecasts ("after-revision bias"), consistent with analysts selecting the forecasts in which to include their new information.

Some prior research recognizes that analysts may not always fully incorporate their information into their forecasts. For example, McNichols and O'Brien (1997) show that analysts do not issue timely recommendation downgrades, leading to an optimistic bias in observed recommendations. Our investigation of such "selection" effects differs from theirs in two ways. First, we identify selection by observing the analyst publish information about the same firm at the same time he chooses not to revise the forecast of interest, thus ensuring the analyst was aware of the information and chose not to revise. Second, our research design allows us to shed light on the motives for, and consequences of, the selection effects we document, by examining

questions such as whether analysts choose different forecasts to revise depending on the sign of the news.

We test for after-revision bias by predicting errors in the current quarter's forecast, using revisions to other outputs analysts subsequently disseminate. We refer to analysts' subsequent revisions of alternative outputs as "non-earnings forecast signals" and find they strongly predict analysts' own earnings surprises. When the analyst revises a share price target (SPT) negatively (positively), the probability the firm misses (meets or beats) the current quarter earnings (CQE) estimate increases 1.7% (4.2%). Revisions to future quarters' earnings (FQE) forecasts have a lower, but still significant, association with the probability of the firm missing or beating the analyst's own current quarter earnings forecast. We also find that analysts explicitly predict exceeding or missing their own earnings forecasts without changing their forecasts. For example, a Wedbush Securities analyst published a report predicting "Garmin to report significant upside to our expectations for revenue, margins, and EPS given the tremendous growth in the PND market and strong results from its closest rival, TomTom." We provide evidence on the earnings information in these qualitative statements for a subset of analyst reports by identifying sentences that provide textual predictions. We find a textual prediction of miss (beat) increases the probability of the firm missing (meeting or beating) the CQE forecast by 4.3% (4.9%). The text findings are inconsistent with after-revision bias being unintentional, as the analyst would have to not understand his own words.

The evidence presented above documents that SPT and FQE forecasts contain information about future earnings, which is not incorporated into the CQE forecast. We use these forecasts as counter-factuals to identify when analysts choose to suppress information from (or incorporate information into) the CQE forecast, allowing us to better understand the costs and

benefits of responding to news with a forecast revision. Specifically, in our setting, the analyst has three options after the initial forecast of the quarter: (i) revise the current quarter earnings forecast, (ii) issue a non-earnings forecast signal, or (iii) issue no forecasts. Thus, we are able to exploit scenarios (ii) and (iii) as counter-factuals to scenario (i). We find analysts revise SPT and FQE (CQE) forecasts more often for good (bad) than bad (good) news, consistent with not incorporating good news into short-horizon earnings forecasts leading to at least a portion of the walk-down pattern in CQE forecasts. The behavior we document, however, includes 'avoidance of walking-up' rather than only a walk-down.

Specifically, we show that analysts revise SPT and FQE (CQE) forecasts positively (negatively) more frequently, and conditional on observing an SPT or FQE (CQE) revision, the firm is more (less) likely to meet or beat the earnings forecast. We also use past returns as a measure of firm news and show that analysts tend to respond to positive news with an SPT or FQE revision and to negative news with a CQE revision, suggesting the sign of the news affects the type of forecast revised.

Second, we explore whether an analyst's decision to revise another forecast without revising the CQE forecast conveys information about the magnitude of the CQE forecast error. If an analyst revises another forecast without revising the CQE forecast, he may have little information about current quarter earnings not already included in the CQE forecast. Consistent with this possibility, we find that the absolute value of initial CQE forecast error is lower when the analyst revises the SPT or FQE forecast relative to when the analyst revises the CQE forecast. The decision not to revise the CQE forecast thus contains information about expected forecast accuracy (in addition to containing information about directional bias). We also use (i) the absolute value of past returns and (ii) the distance between the analyst's forecast and the

consensus forecast, as measures of the magnitude of public news and document analysts are more likely to revise the CQE (SPT or FQE) forecast when the amount of public news is large (small).

Third, we exploit variation in the initial position of the analyst's CQE forecast relative to that of the consensus to understand whether the analyst's incentives to omit information from CQE forecasts relate to herding. We argue SPT and FQE revisions provide a measure of how the analyst would have revised the earnings forecast if he had done so, providing a counter-factual to test for herding. Consistent with herding, we find a larger share of SPT and FQE revisions (CQE revisions) would have moved (did move) the forecast away from (toward) the consensus.

We also document multiple consequences from analysts selecting the output in which to include their information. First, markets do not fully impound the information analysts disseminate after the CQE, leading to predictable earnings announcement (EA) returns. When the analyst issues a textual prediction of miss (beat), average earnings announcement returns are 0.6% lower (0.5% higher) than when the analyst does not. We also find smaller, though significant, return predictability for SPT and FQE forecast revisions. Second, the issuance of non-earnings forecast signals is associated with less analyst disagreement in their CQE forecasts. Thus, analysts' use of non-earnings forecast signals to express disagreement results in analyst disagreement being understated when researchers use the dispersion in CQE forecasts to capture disagreement.

Our results provide several contributions. First, we examine multiple outputs of analysts' work product and show that analysts vary the extent to which they incorporate information into one output versus another, depending on the circumstances. The substitution across outputs has implications for researchers' use of any individual output as a proxy for analysts' (or the

market's) expectations and information. Moreover, we argue our results also likely represent the posterior expectations of the analyst himself, as many of our results cannot plausibly be characterized as a result of cognitive limitations. We thus advance understanding of the motives for, and consequences of, analysts knowingly introducing biases into their forecasts.

2. RESEARCH QUESTIONS, MOTIVATING LITERATURE AND TESTABLE IMPLICATIONS

We first state our overall research questions, then motivate them from related prior literature. We also detail specific testable implications of our overall research questions related to each stream of literature and summarize the results of our tests of these implications.

2.1 Research Questions

We state our research questions as follows: Do analysts' forecast outputs after the final current quarter earnings forecast provide information about the current quarter earnings surprise? If so, what are the motives that lead analysts to sometimes omit information from the current quarter earnings forecast that they include in other outputs, and what are the consequences of analysts selecting the outputs in which to include their information?

2.2 Analyst Incentives and Explanations for Forecast Bias

Overall, we test the notion that analysts select which forecast to map news into, depending on the properties of the news. Our work thus relates to that of McNichols and O'Brien (1997), who document that analysts tend to withhold recommendation revisions in response to bad news. We add to their study by studying selection conditional on the analyst issuing at least one forecast. Observing a forecast issued by the same analyst when he chooses not to revise another forecast allows us to make stronger claims about the forecast revision the analyst selected not to make.

Our theory that properties of the news affect the decision to revise a forecast follows a large literature seeking to explain predictable errors in forecasts. Explanations for analyst forecast bias fall under two broad categories: (i) intentional bias: analysts issue biased forecasts to satisfy key stakeholders such as managers or clients, and (ii) unintentional bias: analysts make errors transforming information into forecasts. Our study focuses on intentional bias, while acknowledging numerous studies propose unintentional explanations (DeBondt and Thaler 1990; Friesen and Weller 2006; Hilary and Menzly 2006) that we argue are unlikely to apply in our setting. Our view that unintentional explanations are implausible for at least a subset of our findings was informed by the anecdotal evidence of reading textual disclosures in which the analyst makes statements clearly inconsistent with his own most recent CQE forecast. To more rigorously assess our maintained view, we examine, and find support for, the testable implication that textual disclosures by the analyst inconsistent with his own most recent CQE forecast provide information about the analyst's own earnings surprise.

Under intentional explanations, analysts face a trade-off between their incentives to issue accurate forecasts and the benefit from biasing forecasts to please key stakeholders (Lim 2001). Forecast accuracy is not valued as highly as several other analyst forecast attributes, with Groysberg, Healy and Maber (2011) finding no evidence that analyst compensation relates to forecast accuracy after conditioning on institutional investor votes. Similarly, Bagnoli, Watts and Zhang (2008) discuss survey evidence on the analyst outputs investors value most highly and note that investors rank "written reports" and "industry insight" highest, well above the importance of earnings forecasts. Groysberg et al. (2011) also find analyst compensation increases with the analyst's rating on institutional investor surveys, suggesting analysts have incentives to provide information via the channels preferred by institutional investors.

Research demonstrates a number of channels through which analysts can potentially increase the value of their information by biasing forecasts. First, analysts value access to management (Soltes 2014; Brown, Call, Clement and Sharp 2015), suggesting they might be willing to bias forecasts to procure or maintain access (Lim 2001; Ke and Yu 2006). Analyst forecasts exhibit optimistic biases, but the level of the bias varies with the horizon of the forecast. The current quarter's earnings forecast tends to be unbiased or even slightly pessimistically biased. Forecasts at all other horizons are optimistically biased and the optimism increases with horizon (Kang, O'Brien and Sivaramakrishnan 1994; Richardson, Teoh and Wysocki 2004). Prior research has not investigated how bias in a forecast is related to the flow of information into that forecast. For instance, analysts could walk down forecasts by avoiding upward revisions and/or issuing negative revisions. Alternatively, analysts could insert bias into the initial issuance of a forecast, but respond to news in a Bayesian fashion while retaining the initial bias. We conduct tests to differentiate between these hypotheses and find support for the sign of the news affecting the type of forecast the analyst revises (i.e., the analyst tends to omit positive news from CQE forecasts while revising such forecasts in response to negative news, whereas he tends to revise SPT and FQE forecasts in response to positive news).

Second, if accuracy is evaluated relative to other analysts' forecasts, an analyst's incentive to omit information from forecasts will vary with how the analyst's unrevised forecast compares to those of other analysts. Hong, Kubik and Solomon (2000) find bold and inaccurate forecasts increase termination likelihood for analysts lacking a long track record, whereas being bold and accurate does not improve analysts' career outcomes. They argue this creates an incentive for strategic forecasting. Clement and Tse (2005) show revisions that move the forecast toward the consensus contain less new information, which they interpret as evidence of

strategic forecasting. On the other hand, Bernhardt, Campello and Kutsoati (2006) find that the consensus forecast has information about future earnings incremental to the analyst's forecast, and conclude that analysts under-weight the consensus. We examine the testable implication that the position of the consensus relative to an analyst's forecast affects his decision to issue a CQE forecast. We find results consistent with herding toward the consensus CQE forecast, as analysts are more likely to include (exclude) information if it moves the CQE forecast toward (away from) the consensus.

Third, analysts could communicate with clients in such a way that the analysis provided is proportional to the value of the insights delivered to clients (i.e., communication frictions). Numerous studies document public information at the time of an earnings forecast predicts forecast error. Past earnings surprises (Abarbanell and Bernard 1992), past returns (Abarbanell 1991), and past revisions (Shane and Brous 2001; Raedy, Shane and Yang 2006) have positive correlations with forecast errors. Yet analysts revise their forecasts infrequently, at a median of once per quarter, consistent with communication frictions impeding the flow of information into forecasts.

Communication frictions can arise in at least two ways: (i) The analyst incurs costs from adjusting his model or explaining the changes in the model to clients.[1] (ii) The analyst endogenizes the processing cost his analysis imposes on clients and limits revisions to those for which a client would obtain a benefit that exceeds the client's processing cost.[2] For the frictions

[1] Costs also arise because analysts receive questions about the materials they disseminate. By issuing a report the analyst alerts clients to his report, and these clients may follow up with questions or demands for additional analysis.
[2] When an analyst revises a forecast the reports and/or notes are circulated to clients. If the information content of the reports is low, the client may feel the cost incurred from processing the information was not worth the benefit from obtaining the information in the report. The client may then penalize the analyst on survey evaluations for wasting the client's time. Investors can condition their decision to process an analyst report on (i) the brokerage of the analyst, (ii) the company covered, and/or (iii) the timing of the report. Investors will often find it difficult to decide whether to process information based on the content of the information, because obtaining the content involves incurring costs processing the information (Sims 2003).

explanation to be plausible in our setting, frictions must (sometimes) prevent a revision to the CQE forecast while not preventing either the publication of a report or the revision of another forecast. We test for the role of frictions by assuming variation in the size of the news affects its value more than it affects frictions and find analysts are more likely to revise the SPT or FQE (CQE) forecast when the amount of news is small (large).

Overall, our work provides support for the idea that bias arises not only by affecting the magnitude of a revision, but also by affecting the types of forecasts an analyst chooses to update in response to new information. In analysts' role as financial intermediaries they serve multiple stakeholders who can have possibly conflicting demands for bias and precision (for instance, managers prefer beatable forecasts while investors demand accurate information). Our analysis suggests one channel through which analysts may manage these conflicting demands is by varying the forecasts into which they incorporate news.

3. SAMPLE SELECTION AND DESCRIPTIVE STATISTICS

3.1 Sample Selection: Revision Sample

The sample begins with all analyst-firm-quarters on the I/B/E/S unadjusted detail file over the period 1999Q1 to 2016Q3. The start date is the first year share price targets are available on I/B/E/S and the end date is the last quarter with data availability (when downloaded). We keep analyst-firm-quarters for which (i) the analyst issued a quarterly earnings forecast in the current and prior quarters, (ii) the firm's actual earnings figure and earnings announcement date are available for the current and prior quarters, (iii) the firm's share price, outstanding shares, and the cumulative factor to adjust price (to drop quarters with a stock split) are available on CRSP for the prior quarter's earnings announcement, and (iv) the cumulative factor to adjust price is available on CRSP for the current quarter.

We drop analyst-firm-quarters (i) without a current quarter earnings forecast after the prior quarter earnings announcement date and before the current quarter earnings announcement date, (ii) without a share price target issued either with the final current quarter earnings forecast or in the 365 days before the final current quarter earnings forecast date, (iii) without a future quarter earnings forecast, which we define as a forecast about any of the four subsequent quarters, either with the final current quarter earnings forecast or in the 182 days before the final current quarter earnings forecast date,[3] (iv) with a stock split or a stock dividend after the prior quarter earnings announcement date and before the current quarter earnings announcement date, and (v) without CRSP or Compustat data to calculate control variables. The final revision sample includes the remaining 847,471 analyst-firm-quarters corresponding to 8,860 unique analysts and 7,933 unique firms. These sample selection procedures are detailed in Appendix A. We cluster standard errors by firm and quarter unless otherwise noted.

3.2 Descriptive Statistics: Revision Sample

Panel A of Table 1 reports descriptive statistics for the 847,471 analyst-firm-quarters in the revision sample. The analyst revises a share price target after the final current quarter earnings forecast in 13.4% of the analyst-firm-quarters, including 8.4% upward revisions and 5% downward revisions (thus 62.7% of the share price target revisions are revised upwards). The analyst revises a future quarter earnings forecast after the final current quarter earnings forecast in 11% of the analyst-firm-quarters, including 4.8% upward revisions and 6.2% downward revisions (thus 43.6% of the next quarter earnings forecast revisions are revised upwards). The

[3] We construct variables using all revisions made within 365 days of the final current quarter earnings forecast. However, given the large number of earnings forecasts we use to calculate future earnings news, we require the analyst revise at least one forecast within 182 days of the final current quarter earnings forecast, to screen out inactive analysts. Results are nearly identical if we do not impose this sample selection criterion, or if we construct our variables using revisions made within 182 days.

analyst revises either a share price target or a future quarter earnings forecast in 19.3% of analyst-firm-quarters.

We also report descriptive statistics for a number of control variables. *RET_QTR*, the firm's return over the ninety days before the analyst's final current quarter earnings forecast, has a negative median, suggesting quarterly earnings forecasts tend to be issued when prior economic news is negative. *REV_CQE* is an indicator variable set equal to one if the analyst revises the current quarter earnings forecast after the first current quarter earnings forecast following the prior quarter's earnings announcement date, and to zero otherwise. *NEG_CQE* (*POS_CQE*) is an indicator variable set equal to one if *REV_CQE* equals one and the revision is negative (positive), and to zero otherwise. These variables help us evaluate the determinants of an analyst's decision to (i) revise the current quarter earnings forecast, (ii) revise the share price target or a future quarter earnings forecast, or (iii) revise no forecasts. The analyst revises the current quarter earnings forecast in 32.3% of the analyst-firm-quarters in our sample and 60.2% of these revisions are negative (12.9% upward revisions and 19.4% downward revisions). Finally, the firm meets or beats the analyst's earnings forecast (*BEAT*) in 70.4% of analyst-firm-quarters.

3.3 Sample Selection: Text Sample

The following sample selection procedures are detailed in Appendix A. The qualitative prediction variables (*MISS_TEXT*, *BEAT_TEXT*) require the text of analyst reports. We collect analyst reports from ThomsonOne Banker for 175 randomly selected analysts in the above detailed revision sample.[4] We search for the analyst name from the I/B/E/S recommendation file

[4] We collect the analyst reports over three iterations. In the first iteration, we collect all analyst reports for 15 analysts randomly selected from the revision sample for the year 2010. In the second (third) iteration, we randomly select 60 (100) analysts with at least twenty firm-quarters of observations for a minimum of three firms in the revision sample.

in ThomsonOne Banker and if we cannot identify the analyst by name in ThomsonOne Banker, we discard the analyst. We are unable to identify 33 of the 175 analysts in ThomsonOne Banker. The text sample is thus comprised of 56,866 analyst-firm-quarters for the remaining 142 analysts we can identify in ThomsonOne Banker.[5]

We collect 44,237 analyst reports corresponding to the 142 analysts and 958 unique firms. We match each analyst report to an analyst-firm-quarter based on its issue date (classifying a report as belonging to an analyst-firm-quarter if the report is issued after the prior quarter earnings announcement date and before the current quarter earnings announcement date). We drop analyst reports (i) issued before the analyst's final current quarter earnings forecast, and (ii) issued more than 30 days before the current quarter earnings announcement date. The final text sample includes the remaining 6,185 analyst reports corresponding to 128 unique analysts and 493 unique firms.

3.4 Descriptive Statistics: Text Sample

Panel B of Table 1 reports descriptive statistics for the text sample. In this sample of firms, the firm meets or beats the analyst's forecast in 70.6% of the observations, similar to that in the revision sample. The mean value of analysts' positive qualitative predictions (*BEAT_TEXT*) is 0.071 and the mean value of analysts' negative qualitative predictions (*MISS_TEXT*) is 0.054, suggesting analysts make positive qualitative predictions more frequently than negative qualitative predictions.[6] The revisions to the share price target, future quarter

[5] The 142 analysts comprise 61,762 analyst-firm-quarters from the revision sample, but we exclude firm-quarters in which earnings were announced in September 2015 or later, when the collection of the analyst reports from ThomsonOne Banker was completed.

[6] To validate our qualitative prediction variables, a research assistant read a subsample of 1,905 sentences in which the textual algorithm classified the analyst as having issued a qualitative prediction. The research assistant assessed whether the analyst clearly indicated an expectation that the firm would beat or miss expectations. We find a 0.46 (0.48) correlation between the research assistant's coding of the sentences and the textual algorithm for those sentences classified as beat (miss), suggesting we capture the intentions of the analyst, albeit with noise.

earnings, and current quarter earnings forecasts are comparable to those in the revision sample, but the analysts in the text sample are slightly more active.

4. RESEARCH DESIGN AND EMPIRICAL RESULTS

4.1 The Earnings Surprise and Non-Earnings Forecast Signals

In our initial set of tests, we regress measures of the current quarter's earnings surprise on research outputs an analyst publishes after the final CQE forecast. Evidence that non-CQE forecast revisions an analyst publishes predict errors in the CQE forecast implies the analyst has information relevant for predicting the earnings surprise, but disseminates it to clients using a different output than the CQE forecast. We conduct tests using two measures of the earnings surprise: (i) the analyst's own earnings surprise, because an investor evaluating an analyst's research product will judge the analyst on the information in the forecasts he publishes, and (ii) the consensus earnings surprise, to examine whether an analyst's non-earnings forecast signals contain information incremental to that in the consensus CQE forecast.

4.1.1 The Analyst's Own Earnings Surprise

To test whether research an analyst publishes after the final current quarter earnings forecast predicts the analyst's own forecast error we regress the analyst's own earnings surprise on information from research the analyst publishes after his final current quarter earnings forecast, but before the current quarter earnings announcement date. We estimate the following model.

$$EarningsSurprise = \beta_0 + \beta_1(NonEarningsForecastSignals) + \Sigma\beta_i(Controls) + \varepsilon \quad (1)$$

We use two measures of *EarningsSurprise*. First, we use an indicator variable equal to one (zero) if the firm meets or beats (misses) the analyst's own forecast (*BEAT*). Second, we use

the analyst's earnings surprise, equal to the firm's actual reported earnings per share less the analyst's final quarterly earnings per share forecast, scaled by price (*SURP*).

We use three measures of *NonEarningsForecastSignals*. First, we capture the analyst's revisions to the share price target. No prior study that we are aware of has suggested the share price target may have information content for future earnings beyond that in the current quarter's earnings forecast. We set *NEG_SPT* (*POS_SPT*) equal to one if the analyst issues a negative (positive) revision to the share price target after the final current quarter earnings forecast date and before the current quarter earnings announcement date, and to zero otherwise. Second, we capture the analyst's revisions to future quarter earnings forecasts. We sum all revisions (to forecasts of earnings for the subsequent four quarters) issued after the final current quarter earnings forecast date and before the current quarter earnings announcement date. We set *NEG_FQE* (*POS_FQE*) equal to one if the sum is negative (positive), and to zero otherwise.

Third, we capture the analyst's qualitative non-earnings forecast signals by analyzing the text of analyst reports issued after the final current quarter earnings forecast date and before the current quarter earnings announcement date. *MISS_TEXT* (*BEAT_TEXT*) is a count variable equal to the number of times the analyst uses a synonym for "miss" ("beat") and a synonym for "earnings expectations" within the same sentence.[7] The synonyms for miss include miss, fall short, below, lower, worse, downside, and underperform. The synonyms for beat include beat, exceed, outperform, better, higher, above, top, and upside. The synonyms for earnings expectations include earnings, EPS, estimates, and expectations.

[7] Our inferences remain unchanged if *MISS_TEXT* (*BEAT_TEXT*) is a count variable that equals the number of times the analyst uses a synonym for "miss" ("beat") and a synonym for "earnings expectations" within five words of each other. Our inferences also remain unchanged if *MISS_TEXT* (*BEAT_TEXT*) is an indicator variable equal to one if the analyst uses a synonym for "miss" ("beat") and a synonym for "earnings expectations" within the same sentence or within five words of each other.

We also include a series of control variables. *SURP_PREV* is the prior quarter earnings surprise, equal to the firm's actual prior quarter earnings per share less the analyst's final prior quarter earnings per share forecast, scaled by price. *RET_QTR* is the firm's return for the period beginning ninety days before the final current quarter earnings forecast date and ending at the final current quarter earnings forecast date. *MVE* is the natural log of the market value of equity. *BTM* is the book value of equity scaled by the market value of equity. *ROA* is the firm's return on assets, calculated as earnings before interest and taxes scaled by total assets. *MVE*, *BTM*, and *ROA* are calculated as of the most recent fiscal year-end before the prior quarter earnings announcement. *FOLLOW* is the natural log of analyst following. *#DAYS_FIN* is the natural log of the number of days between the analyst's final current quarter earnings forecast and the current quarter earnings announcement date. *#FORE* is the natural log of the number of current quarter earnings forecasts the analyst issued in the previous quarter. All variable definitions are detailed in Appendix B.

Panel A of Table 2 reports the results for the revision sample from estimating equation (1), which regresses the analyst's own earnings surprise on the analyst's non-earnings forecast signals. The dependent variable is *BEAT* in columns (1)-(3) and *SURP* in columns (4)-(6).[8] In column (1), we estimate equation (1) without any control variables. We find positive coefficients on *POS_SPT* (β=0.042) and *POS_FQE* (β=0.028), both significant at the 1% level. We also find negative coefficients on *NEG_SPT* (β=-0.017) and *NEG_FQE* (β=-0.006), though the latter coefficient is insignificant. The results indicate SPT and FQE forecasts convey economically significant information about the probability of a firm meeting or beating the analyst's own earnings forecast. For example, an analyst-firm-quarter with a positive SPT

[8] All models are estimated via OLS, though our inferences remain unchanged if the models with a binary outcome are estimated via Logit.

(FQE) revision will meet or beat the analyst's earnings forecast 5.9% (3.4%) more frequently than an analyst-firm-quarter with a negative SPT (FQE) revision.

In column (2), we include control variables for factors previously shown to affect the probability of a firm meeting or beating earnings expectations such as firm characteristics, prior returns, and the prior quarter earnings surprise. All four of the coefficients on the non-earnings forecast signals are statistically significant at the 5% level, but we observe attenuation in the coefficient estimates. For instance, the coefficient estimate on *POS_SPT* decreases from β=0.042 to β=0.023 after including the control variables. It is unclear whether the coefficient estimates with or without control variables included in the model better capture the information analysts convey to clients with non-earnings forecast signals because investors may not incorporate predictable errors into their interpretation of analyst forecasts. In column (3), we include analyst and quarter fixed effects and obtain similar inferences to those in column (2).

In columns (4)-(6), we estimate analogous models to those in columns (1)-(3), but the dependent variable is *SURP*, the analyst's signed earnings surprise. In all three specifications, the coefficients on *POS_SPT*, *NEG_SPT*, and *POS_FQE* remain statistically significant at the 5% level, whereas the coefficient on *NEG_FQE* is insignificant in two specifications. Thus, the evidence remains consistent with the analyst's non-earnings forecast signals providing information content for the analyst's own earnings surprise.

Panel A of Table 3 reports the results for the textual sample from estimating equation (1), which regresses the analyst's own earnings surprise on the analyst's qualitative predictions. We estimate analogous models to those presented in Panel A of Table 2, except the non-earnings forecast signals are the qualitative predictions, *BEAT_TEXT* and *MISS_TEXT*. Thus, in column (1), we regress *BEAT* on *BEAT_TEXT* and *MISS_TEXT* without control variables. The

coefficient on *MISS_TEXT* is significantly negative (β=-0.043) and the coefficient on *BEAT_TEXT* is significantly positive (β=0.049). The results indicate qualitative predictions also convey economically significant information about the probability of a firm meeting or beating the analyst's earnings forecast. For example, an analyst-firm-quarter with a positive qualitative prediction will meet or beat the analyst's earnings forecast 9.2% more frequently than an analyst-firm-quarter with a negative qualitative prediction.

In column (2), we include the same series of control variables as in Panel A of Table 2. We find similar coefficient estimates on *MISS_TEXT* and *BEAT_TEXT* after including these control variables and both coefficient estimates remain statistically significant at the 1% level. In column (3), we include analyst and quarter fixed effects and find similar coefficient estimates and inferences. In columns (4)-(6), we estimate analogous models to those in columns (1)-(3), but the dependent variable is *SURP*, the analyst's signed earnings surprise. The coefficient on *MISS_TEXT* (*BEAT_TEXT*) remains negative (positive) and significant at the 1% level in all three specifications. Overall, our results provide strong evidence that analysts' forecast outputs have information relevant for the expected value of unrevised forecasts.

4.1.2 The Consensus Earnings Surprise

In our main analysis, we examine firm performance relative to the analyst's own forecast, because an investor evaluating an analyst's research product will judge the analyst on the information in the forecasts he publishes. In this section, we examine performance relative to the consensus forecast to examine whether non-earnings forecast signals provide incremental information relative to a frequently used proxy for the market's expectation of earnings. To evaluate the information in non-earnings forecast signals, we replace the analyst's own earnings

surprise in model (1) with the consensus earnings surprise calculated using earnings forecasts issued after the previous quarter's earnings announcement. We estimate the following model:

$$ConsensusEarningsSurprise = \beta_0 + \beta_1(NonEarningsForecastSignals) + \Sigma\beta_i(Controls) + \varepsilon \quad (2)$$

We calculate the consensus earnings forecast as of three dates: the date of the analyst's final CQE forecast, the date of the current quarter earnings announcement (which may include other analysts' CQE forecasts made after the non-earnings forecast signal), and the date of the analyst's non-earnings forecast signal (we restrict the sample to analysts with a non-earnings forecast signal for this analysis because analysts who do not issue a non-earnings forecast signal do not have a date at which to compute the consensus). Similar to our analysis using the analyst's own earnings surprise, we use two measures of *ConsensusEarningsSurprise*. First, an indicator variable set equal to one (zero) if the firm meets or beats (misses) the consensus earnings forecast (*BEAT_CON*). Second, the consensus earnings surprise, equal to the firm's actual earnings per share less the consensus earnings per share forecast, scaled by price (*SURP_CON*).

In Panel B of Table 2, we estimate analogous models to those in columns (3) and (6) of Panel A of Table 2, but the dependent variable is the consensus earnings surprise rather than the analyst's own earnings surprise. Thus, the models include all control variables as well as analyst and quarter fixed effects. In column (1), the consensus forecast is calculated as of the analyst's final CQE forecast. We find positive coefficients on *POS_SPT* (β=0.021) and *POS_FQE* (β=0.033), and negative coefficients on *NEG_SPT* (β=-0.025) and *NEG_FQE* (β=-0.028), all significant at the 1% level. Moreover, all four coefficients are economically larger than the corresponding coefficients in Panel A of Table 2. In column (2), the consensus forecast is calculated as of the current quarter earnings announcement. This consensus forecast differs from

that in column (1) because it includes all earnings forecasts made after the analyst's final CQE forecast, including those made after the non-earnings forecast signal. We find similar results – all four coefficients are statistically significant with the sign predicted by after-revision bias and three of the four coefficients have a larger magnitude than the corresponding coefficients in Panel A of Table 2. In column (3), the consensus forecast is calculated as of the analyst's non-earnings forecast signal (restricted to analyst-firm-quarters with a non-earnings forecast signal). We again find similar results – all four coefficients are statistically significant with the sign predicted by after-revision bias and have a larger magnitude than the corresponding coefficients in Panel A of Table 2.

In columns (4)-(6), the dependent variable is the signed earnings surprise and we obtain similar results, albeit slightly weaker. All of the coefficients have the sign predicted by after-revision bias, nine of the twelve coefficients are statistically significant at the 10% level or better, and seven of the twelve coefficients are larger than the corresponding coefficient in Panel A of Table 2.

In Panel B of Table 3, we estimate analogous models to those in columns (3) and (6) of Panel A of Table 3, but the dependent variable is the consensus earnings surprise rather than the analyst's own earnings surprise. Similar to above, the models include all control variables as well as analyst and quarter fixed effects. In column (1) (column (2), column (3)), the consensus forecast is calculated as of the analyst's final CQE forecast (the current quarter earnings announcement, the analyst's final text report). In column (3), the sample is thus restricted to analyst-firm-quarters in which we obtained at least one text report after the final CQE forecast and before the earnings announcement. In columns (4)-(6), the dependent variable is the signed earnings surprise. Across all six columns, we find that both *BEAT_TEXT* and *MISS_TEXT* have

coefficients statistically significant at the 1% level and eleven of the twelve coefficient magnitudes are larger than the corresponding coefficients in Panel A of Table 3. Collectively, the evidence indicates that analysts' non-earnings forecast signals also provide information content about the consensus earnings surprise.

4.2 When Do Analysts Issue Non-Earnings Forecast Signals?

Next, we exploit cross-sectional variation in the issuance of non-earnings forecast signals to provide evidence on the incentives that generate after-revision bias. Specifically, we test three hypotheses: (i) analysts issue non-earnings forecast signals more for positive news to avoid increasing earnings expectations ("management catering"), (ii) analysts issue non-earnings forecasts more for news that would have moved the analyst's forecast away from the consensus ("strategic herding"), and (iii) analysts issue non-earnings forecast signals more for smaller magnitude information ("frictions"). We test each of these hypotheses in two ways. First, we conduct frequency analysis of revisions to the CQE and non-earnings forecast signals to test whether analysts revise forecasts more frequently when the above hypotheses predict they should. Second, we conduct regression analysis where we examine how pre-determined factors affect the forecasts analysts choose to revise.

4.2.1 Frequency Analysis

(i) Do analysts issue non-earnings forecast signals more frequently for good news?

Incorporating good news into an SPT or FQE forecast, and bad news into a CQE forecast, increases the likelihood that management meets or beats the earnings forecast. Given analysts' incentives to both publish forecasts that managers will meet or beat (Ke and Yu 2006; Brown et al. 2015) and communicate information to clients (Groysberg et al. 2011; Brown et al. 2015),

mapping good and bad news into forecasts differently may help analysts satisfy multiple stakeholders.

We report forecast frequencies for positive and negative forecast revisions in Panel A of Table 4. Row (1) indicates that analysts issue a positive non-earnings forecast signal (i.e., SPT or FQE forecast revision) in 11.2% of analyst-firm-quarters, whereas they issue a negative non-earnings forecast signal in 9.3% of analyst-firm-quarters. The 1.9% difference is statistically significant, indicating that analysts are more likely to issue positive than negative non-earnings forecast signals. Row (2) documents that analysts issue a positive CQE forecast revision in 12.9% of analyst-firm-quarters, whereas they issue negative CQE forecast revisions in 19.4% of analyst-firm-quarters. The 6.6% difference is also statistically significant and indicates that analysts are more likely to revise CQE forecasts downward. Moreover, the difference-in-difference between the 6.6% greater frequency of negative CQE revisions and the 1.9% greater frequency of positive non-earnings forecast signals is statistically significant, suggesting that analysts issue more positive revisions to FQE and SPT forecasts than they do for CQE forecasts.[9,10]

The evidence is consistent with analysts responding to incentives to issue forecasts that managers will meet or beat. Conditional on positive news, analysts are less likely to revise the CQE forecast so earnings will be compared to a static benchmark. Conditional on negative

[9] In untabulated analyses, to ensure the differences in forecast frequencies correspond to information about future earnings, we compare the frequency of CQE revisions to non-earnings forecast revisions after conditioning on the sign of the earnings surprise. First, we separate analyst-firm-quarters into positive and negative news quarters based on the sign of the analyst's earnings surprise. Next, we examine the ratio of negative SPT and FQE revisions to negative CQE revisions within the negative news quarters, and vice versa in the positive news quarters. We find that the ratio of SPT and FQE revisions to CQE revisions is greater in the positive news quarters than in the negative news quarters, consistent with analysts being more likely to incorporate negative (positive) news into the CQE (SPT or FQE) forecasts.

[10] In Table 4, we cluster standard errors by analyst to ensure our inferences are robust to systematic behavior by individual analysts. All differences in test statistics (and difference-in-differences) are significant at the 5% level when instead clustering standard errors by quarter or firm.

news, managers will be compared to a benchmark that varies with performance. The systematic correlation between the sign of the news and the forecasts analysts choose to revise is consistent with analysts walking-down their forecasts by omitting positive news from the CQE forecast, yet incorporating positive news into other forecasts.

(ii) Do analysts issue non-earnings forecast signals more frequently for bold news?

Second, we examine whether analysts issue SPT and FQE forecast revisions more frequently when a corresponding revision to the CQE forecast would move the analyst's CQE forecast towards the consensus (herding) or away from the consensus (bold). Prior research presents evidence consistent with herding incentives (Hong et al. 2000; Clement and Tse 2005), while other studies demonstrate analysts over-weight their private information (Chen and Jiang 2006; Bernhardt et al. 2006).[11] We provide additional evidence on the question of whether analysts herd by examining when they choose to issue CQE revisions and when they choose to issue non-earnings forecast signals instead. The issuance of a non-earnings forecast signal is consistent with the analyst obtaining additional information about a company, and understanding the directional implications of that information, yet choosing not to revise the CQE forecast. Using revisions to non-earnings forecast signals as counterfactuals to CQE forecast revisions allows us to examine whether herding incentives affect the decision to issue a forecast, conditional on the directional implications of the information the analyst generates.

The results are reported in Panel B of Table 4. Row (1) indicates that analysts issue a negative non-earnings forecast signal (i.e., SPT or FQE forecast revision) in 9.9% (8.7%) of analyst-firm-quarters when the analyst's final CQE forecast is below (above) the consensus forecast. Row (2) indicates that analysts issue a positive non-earnings forecast signal in 9.9%

[11] In a private conversation, an analyst at one of the ten largest investment banks commented that issuing a forecast which departs substantially from the consensus draws attention. The analyst commented that without (with) a convincing reason for the deviation, the attention can damage (enhance) the analyst's reputation.

(12.2%) of analyst-firm-quarters when the analyst's final CQE forecast is below (above) the consensus forecast. Both differences are statistically significant meaning that analysts are more likely to issue non-earnings forecast signals if a corresponding revision to the CQE forecast would have moved the analyst's forecast away from the consensus. This finding is opposite to that predicted by the theory that analysts' non-earnings forecast signals are increasing in the value of their forecast error. The consensus forecast contains substantial information about future earnings, which is omitted from the analyst's own forecast. If non-earnings forecast revision frequency increased in the prevalence of news omitted from the analyst's earnings forecasts, we would predict results *opposite* to those we find (i.e., more herding than bold non-earnings forecast signals).

In rows (3)-(4), we present similar statistics for CQE forecasts. Row (3) documents that analysts issue a negative CQE forecast revision in 15.4% (23.9%) of analyst-firm-quarters when the analyst's *initial* CQE forecast is below (above) the consensus forecast. Row (4) indicates that analysts issue a positive CQE revision in 17.9% (9.8%) of analyst-firm-quarters when the analyst's *initial* CQE forecast is below (above) the consensus forecast. Both differences are statistically significant. Moreover, the difference-in-difference between the 8.5% (8.1%) greater frequency of negative (positive) CQE revisions toward the consensus and the 1.2% (2.3%) greater frequency of negative (positive) non-earnings forecast signals away from the consensus is statistically significant. Thus, analysts tend to revise the CQE forecast toward the consensus, whereas analysts are more likely to issue non-earnings forecast signals in lieu of CQE forecast revisions that would have moved the analyst away from the consensus. Combining our CQE results and our non-earnings forecast signal results, we find that when an analyst is above or below the CQE consensus he tends to avoid moving further away from the CQE consensus by

instead revising a non-earnings forecast signal, whereas he tends to revise the CQE forecast when doing so moves him toward the CQE consensus forecast.

If analysts suppress bold CQE forecasts, measuring disagreement using CQE forecast dispersion may understate the amount of disagreement (i.e., Diether, Malloy and Scherbina 2002; Johnson 2004), because analysts suppress their private information when it moves them away from the consensus. In untabulated analyses, we test whether the issuance of non-earnings forecast signals correlates with the measurement of forecast dispersion. We find that: (i) the standard deviation of analyst forecasts is significantly lower in firm-quarters with at least one analyst issuing a non-earnings forecast signal relative to firm-quarters without any non-earnings forecast signals, and (ii) the standard deviation of analyst forecasts is significantly negatively correlated with the percentage of analysts following the firm who issue a non-earnings forecast signal.

(iii) Do analysts issue non-earnings forecast signals more frequently for smaller news?

Third, we examine whether the amount of earnings news during the quarter affects the analyst's decision to issue a non-earnings forecast signal relative to a current quarter earnings forecast revision. If communication frictions impede the flow of information into the CQE forecast, we expect less (greater) earnings news subsequent to the initial CQE forecast increases the likelihood the analyst issues a non-earnings forecast signal (revises the CQE forecast) instead of revising the CQE forecast (issuing a non-earnings forecast signal). Frictions can arise because revising a forecast imposes costs on the analyst and/or revising a forecast imposes costs on the analyst's clients, which the analyst endogenizes and thus only revises the forecast when the information is sufficiently large. We interpret evidence of analysts revising the CQE forecast

(SPT or FQE forecast) when there is significant (little) earnings news during the quarter as consistent with frictions impeding the flow of information into the CQE forecast.

The results examining how forecast frequency varies with the magnitude of the news are reported in Panel C of Table 4. Row (1) documents that analysts revise an SPT or FQE forecast in 21% (17.7%) of analyst-firm-quarters when the absolute value of the analyst's initial earnings surprise is below (above) the sample median.[12] Contrary to this, row (2) indicates that analysts revise the CQE forecast in 25.9% (38.6%) of analyst-firm-quarters when the analyst's absolute earnings surprise is below (above) the median. Further, the difference-in-difference between the 12.7% greater frequency of CQE revisions when earnings news is high and the 3.2% greater frequency of non-earnings forecast signals when earnings news is low is statistically significant. Thus, consistent with frictions impeding (not impeding) CQE forecasts, when a small (large) amount of earnings news occurs after the analyst's initial CQE forecast the analyst is motivated to revise the SPT or FQE (CQE) forecast.

4.2.2 Regression Results

We also examine whether incentives affect the forecasts revised by conducting regression analysis, in which we provide evidence on pre-determined factors that affect the analyst's decision to revise the CQE, FQE, and/or SPT forecasts. These regressions allow us to examine the types of news events analysts map into different forecasts. We estimate the following model:

$$ReviseForecast = \beta_0 + \Sigma\beta_i(Determinants) + \Sigma\beta_j(Controls) + \varepsilon \quad (3)$$

We use six different indicator variables as dependent variables to examine when analysts choose to revise forecasts. To capture non-earnings forecast signal revisions, we use an indicator variable set equal to one (zero) if the analyst revises (does not revise) either the SPT forecast or

[12] We obtain similar inferences if we define the amount of earnings news as the absolute value of the difference between the analyst's initial CQE forecast and the consensus forecast as of the earnings announcement (rather than actual earnings).

the FQE forecast after the final CQE forecast (*REV_TOT*). We also use separate indicator variables for negative and positive revisions (*NEG_TOT* and *POS_TOT*, respectively). We use three indicator variables to capture analogous revisions to the CQE forecast (*REV_CQE, NEG_CQE, POS_CQE,* respectively). We use different specifications and independent variables to provide evidence on each of our three hypotheses. The results from estimating equation (3) are reported in Table 5.[13]

In addition to the control variables included in Table 2, we also include a series of variables to capture analyst characteristics. In particular, we include an indicator variable for whether the analyst was an Institutional Investor all-star (*ALLSTAR*), and measures of past accuracy (*ABS(SURP_PREV)*), the analyst's experience (*EXPERIENCE*), and the size of the analyst's employer (*BROKER_SIZE*).

(i) Do analysts issue non-earnings forecast signals in response to good news?

We test whether analysts revise non-earnings forecast signals (CQE forecasts) more for good (bad) news by including returns in the ninety days before the final CQE forecast of the quarter as an independent variable. We expect that analysts are more likely to issue a non-earnings forecast signal when the news is positive, leading to the prediction of a positive coefficient on *RET_QTR* in column (1), when *REV_TOT* is the dependent variable. We expect analysts are more likely to issue a CQE revision when the news is negative, leading to the prediction of a negative coefficient on *RET_QTR* in column (4), when *REV_CQE* is the dependent variable. Importantly, we measure returns before the analyst issues the forecast, so our empirical design captures how analysts respond to publicly available information.

[13] Standard errors are clustered by quarter only in these analyses, though our inferences are similar if standard errors are clustered by quarter and firm or by firm.

Consistent with analysts using non-earnings forecast signals to issue positive news, we find a statistically significant positive coefficient on *RET_QTR* in column (1). Analysts issue more CQE forecasts in response to negative news as evidenced by the significantly negative coefficient on *RET_QTR* in column (4). In seemingly unrelated regressions analysis, we find the difference between the two coefficients is statistically significant ($p<0.01$). The greater likelihood of responding to negative news relative to positive news with a CQE forecast is consistent with at least a portion of the walk-down in current quarter earnings forecasts arising because analysts choose not to revise the CQE forecast in response to positive news.[14] The evidence in Table 5 builds on our results in Table 4, by suggesting the differences in positive and negative frequencies arise because of the way analysts respond to news.

(ii) Do analysts issue non-earnings forecast signals in response to bold news?

We test whether analysts issue more bold non-earnings forecast signal revisions, those that would have moved the CQE forecast away from the consensus, by regressing signed indicators for non-earnings forecast signals (*NEG_TOT*, *POS_TOT*) on an indicator for whether the analyst forecast is above the consensus as of the final CQE forecast (*ABOVE_CON_FIN)*. If analysts suppress bold CQE revisions, we expect analysts will be more (less) likely to issue a positive (negative) non-earnings forecast signal when above the consensus. Consistent with analysts using non-earnings forecast signals to avoid bold CQE forecasts, the coefficient on *ABOVE_CON_FIN* is negative and statistically significant in column (2), when the dependent

[14] Given that each analyst has a greater impact on the consensus when analyst following is low, analysts could be more likely to issue a non-earnings forecast signal when analyst following is low. However, although the manager has high incentives to affect the analyst's strategy when following is low, the manager's threats to limit the analyst's access will be less credible. Conversely, when analyst following is high, the manager can more credibly threaten to limit access to certain analysts, but the incentive to do so is lower because each analyst's impact on the consensus is smaller. Further, recent research documenting the percentage of forecasts met has better predictive power for earnings announcement returns relative to meeting the consensus (Kirk, Reppenhagen and Tucker 2014) suggests investors evaluate firm performance relative to multiple benchmarks, beyond just the consensus forecast. In Table 5, we find that an analyst is more likely to issue a non-earnings forecast signal when analyst following is high.

variable is *NEG_TOT*, and is positive and statistically significant in column (3), when the dependent variable is *POS_TOT*.

For comparison, we also test whether analysts issue more herding CQE forecast revisions, those that move the CQE forecast toward the consensus, by regressing signed indicators for current quarter forecast revisions (*NEG_CQE*, *POS_CQE*) on an indicator for whether the analyst is above the consensus as of the initial CQE forecast (*ABOVE_CON_IN*). We expect analysts will be more (less) likely to issue a negative (positive) CQE revision when above the consensus. The coefficient on *ABOVE_CON_IN* is positive and statistically significant in column (5), when the dependent variable is *NEG_CQE*, and is negative and statistically significant in column (6), when the dependent variable is *POS_CQE*. Further, the coefficients on *ABOVE_CON_FIN* in columns (2) and (3) are statistically different from the coefficients on *ABOVE_CON_IN* in columns (5) and (6), respectively (both $p<0.01$). Overall, our findings are consistent with analysts issuing non-earnings forecast signals more for revisions that would have moved the CQE forecast away from the consensus, a finding which has implications for our understanding of the information aggregated into the consensus CQE forecast.

(iii) Do analysts issue non-earnings forecast signals in response to smaller news?

Next, we test whether analysts are more likely to issue CQE forecast revisions (non-earnings forecast signals) in response to more (less) significant news. We include as determinants two variables to capture the degree of news publicly available when the analyst decides which forecast to revise: (i) the absolute value of the difference between the analyst's prevailing CQE forecast and the prevailing consensus CQE forecast (*DIST_CON_FIN* in column (1) and *DIST_CON_IN* in column (4)), and (ii) the absolute value of returns in the ninety days

before the final CQE forecast (*ABS(RET_QTR)*). The frictions hypothesis predicts the coefficients on both news proxies will be significantly greater in column (4), when *REV_CQE* is the dependent variable, than in column (1), when *REV_TOT* is the dependent variable. Consistent with the frictions explanation, the coefficient on *DIST_CON_IN* is positive and statistically significant in column (4), when the dependent variable is *REV_CQE*, and the coefficient on *DIST_CON_FIN* is negative and significant in column (1), when the dependent variable is *REV_TOT*. The difference between the two coefficients is statistically significant ($p<0.01$). While the coefficient on *ABS(RET_QTR)* is positive and statistically significant in columns (1) and (4), the coefficient is significantly larger in column (4) ($p<0.01$), when *REV_CQE* is the dependent variable, also consistent with the frictions explanation. Collectively, the evidence is consistent with analysts being more likely to revise the CQE forecast (issue a non-earnings forecast signal) in response to more (less) significant news.

4.2.3 Do Analysts Choose Which Forecasts to Revise as a Function of the Earnings Surprise?

In Table 2, we find non-earnings forecast signals predict future earnings and the future earnings predictability tends to be stronger for positive revisions. Tables 4 and 5 illustrate that non-earnings forecast signals tend to be used to communicate positive news. Next, we test whether the tendency to issue non-earnings forecast signals in response to positive news is sufficiently strong that the issuance of a non-earnings forecast signal (regardless of sign) affects the expected value of the earnings surprise. Specifically, we estimate a modified version of equation (1), replacing the signed non-earnings forecast signal indicators with unsigned indicators.

$$EarningsSurprise = \beta_0 + \beta_1(REV\_TOT) + \beta_2(REV\_CQE) + \Sigma\beta_i(Controls) + \varepsilon \quad (4)$$

The hypothesis that analysts issue non-earnings forecast signals predominantly to convey good news predicts a positive coefficient on the non-earnings forecast signal indicator (*REV_TOT*). We also include an indicator variable for whether the analyst revised the CQE forecast during the quarter (*REV_CQE*). The hypothesis that analysts predominantly incorporate negative information into the CQE forecast predicts the firm will be less likely to beat the pre-revision forecast, conditional on the analyst choosing to revise it. We estimate equation (4) using the earnings surprise from both the final forecast of the quarter (*BEAT*) and the initial forecast of the quarter (*BEAT_IN*). If the analyst wishes to issue a beatable forecast, we predict the analyst will revise the initial forecast when it is unlikely to be beaten, but we do not make any predictions about the likelihood of the firm beating the final forecast of the quarter.

Table 6 reports the results from estimating equation (4). In column (1), the dependent variable is *BEAT*. The coefficient on *REV_TOT* is significantly positive (β=0.019) whereas the coefficient on *REV_CQE* is significantly negative (β=-0.007), and the difference in coefficients is statistically significant. Similar to the evidence in Table 5, these results are also consistent with analysts being more likely to communicate positive information through a non-earnings forecast signal and negative information through a current quarter forecast revision. In column (2), we include a series of control variables and in column (3) we also include analyst and quarter fixed effects, finding similar results.

In column (4), the dependent variable is *BEAT_IN*, which is an indicator variable set equal to one (zero) if the firm meets or beats (misses) the analyst's initial CQE forecast during the quarter. The coefficient on *REV_TOT* remains significantly positive with a similar coefficient magnitude (β=0.024). While the coefficient on *REV_CQE* remains significantly negative, the coefficient magnitude increases substantially (β=-0.170). The firm is 17% less

likely to meet or beat the analyst's initial CQE forecast when the analyst revises the forecast during the quarter. Again, the difference between the two coefficients is statistically significant. Columns (5) and (6) incorporate the same control variables and fixed effects used in columns (2) and (3) and we continue to find results similar to those from column (4).

Contrasting the evidence using revised and unrevised earnings surprises, we find strong evidence analysts revise their CQE forecasts down to enable management to meet or beat. In the sub-sample of analyst-firm-quarters in which the analyst does not revise the CQE forecast, the firm meets or beats in 70.7% of analyst-firm-quarters, which is comparable to the 69.8% for revised forecasts. However, the firm meets or beats the *initial* CQE forecast in only 53.5% of analyst-firm-quarters in which the analyst does revise the CQE forecast, suggesting revisions strongly enhance the probability of meeting or beating.[15]

4.3 Do Non-Earnings Forecast Signals Predict Earnings Announcement Returns?

Finally, we examine whether non-earnings forecast signals predict earnings announcement returns. We conduct these tests for two reasons. First, examining the effect of non-earnings forecast signals on price formation illustrates a potential consequence of after-revision bias. Second, one possible explanation for the existence of after-revision bias is that analysts seek to minimize the dissemination of their information to non-clients by decreasing the availability of their CQE forecast information. A finding of predictable returns at the earnings announcement would be consistent with analysts enabling clients to capture a larger share of the informational rents analysts generate. We estimate the following model:

[15] It is plausible negative CQE revisions have a larger effect on the firm meeting or beating because the accounting system recognizes a larger share of negative news into the current quarter's earnings (Basu 1997) and management has an option to abandon unprofitable projects (Hayn 1995; Berger, Ofek and Swary 1996). We distinguish between our explanation and this alternative by examining whether CQE revisions predict longer horizon forecast errors asymmetrically. If negative transient short-horizon earnings news is driving the preponderance of negative CQE revisions, we would expect negative CQE revisions have less ability to predict long-horizon earnings than positive CQE revisions. In untabulated analysis, we find similar long-horizon forecast error predictability for positive and negative CQE revisions, inconsistent with the abandonment/conservatism explanation.

$$RET\_EA = \beta_0 + \beta_1(NonEarningsForecastSignals) + \Sigma\beta_i(Controls) + \varepsilon \quad (5)$$

RET_EA is the firm's market-adjusted returns compounded over the three-day trading window beginning the trading day before, and ending the trading day after, the earnings announcement date. For earnings announcements occurring after 4:00 P.M. Eastern Time, we use the next trading day as the earnings announcement date. We include the same series of control variables as in equation (1).

Table 7 reports the results from estimating equation (5). In columns (1)-(3), we present estimates using the revision sample. In column (1), we present our base model without control variables. Our main result is that a positive revision to a non-earnings forecast signal has substantial information about earnings announcement returns – the coefficient on *POS_TOT* is significantly positive (β=0.237). However, negative non-earnings forecast signals do not have information content about earnings announcement returns as evidenced by the insignificantly negative coefficient on *NEG_TOT* (β=-0.066). In column (2), we include a series of control variables and in column (3) we also include analyst and quarter fixed effects. The coefficient on *POS_TOT* is statistically significant in all three specifications, suggesting a robust association with future returns.[16]

Columns (4)-(6) report the results from estimating equation (5) on the text sample. In column (3), we regress earnings announcement returns on *BEAT_TEXT* and *MISS_TEXT* without control variables. The coefficient on *MISS_TEXT* is significantly negative (β=-0.631) and the coefficient on *BEAT_TEXT* is significantly positive (β=0.470). In column (5), we include a

[16] Our Table 7 results are potentially consistent with the possibility that non-earnings forecast signals convey other value relevant information revealed in conjunction with the earnings announcement. In untabulated analysis, we test whether our results are driven by this explanation by estimating Table 7 on the subsample of earnings announcements without a concurrent management forecast. If forward looking information bundled with the earnings announcement causes the return predictability, we would predict a significantly weaker (or no) association between the non-earnings forecast signals and returns in this subsample. Instead, we find similar results to those reported in Table 7.

series of control variables and in column (6) we also include analyst and quarter fixed effects. The results are again very similar in both specifications, consistent with substantial information content for qualitative predictions.[17]

5. CONCLUSION

Analysts' work product is complex and consists of multiple outputs which service multiple stakeholders, such as investors and managers. We explore the possibility that these forecast outputs serve as (partial) substitutes for one another and analysts might revise only a subset of them even if the unrevised forecasts no longer represent expectations. We show subsequent revisions to other forecasts predict errors in unrevised forecasts ("after-revision bias"), consistent with analysts selectively incorporating information into forecasts. Specifically, we document that qualitative predictions in the text of analyst reports, share price target revisions, and revisions to future quarter earnings forecasts (collectively, non-earnings forecast signals) predict the current quarter's forecast error.

We also find non-earnings forecast signals are (i) more prevalent for positive news than negative news, consistent with analysts responding to incentives to issue forecasts managers will meet or beat, (ii) more prevalent when a corresponding revision to the CQE forecast would have moved the analyst away from the consensus, consistent with herding behavior, and (iii) issued more frequently when the amount of news is low, consistent with frictions limiting revisions to the current quarter earnings forecast. Overall, our evidence suggests that analysts strategically map information into forecasts, so that incentives affect the flow of information into forecasts.

[17] We conduct additional untabulated analyses to link the return predictability to the breadth of dissemination of non-earnings forecast signals. Specifically, we include both the SPT/FQE revisions and the textual predictions in the same model. Consistent with broader dissemination affecting return predictability we find the coefficient on *MISS_TEXT* (*BEAT_TEXT*) is significantly greater than the coefficient on *NEG_TOT* (*POS_TOT*) in all three (two of three) specifications.

Although our cross-sectional tests shed light on when analysts are more likely to issue non-earnings forecast signals, we do not identify an over-arching cause of after-revision bias. While it is possible after-revision bias develops as a response to a variety of costs and benefits related to the communication of specific pieces of information, such as those detailed in the paper, after-revision bias may also develop as a response to a more general incentive not to update the current quarter's earnings forecast. Such an incentive could explain evidence that analysts are slow to update forecasts in response to earnings, returns and even their own revisions (Lys and Sohn 1990; Abarbanell and Bernard 1992; Shane and Brous 2001). A reticence to update CQE forecasts could arise if analysts, or some users of analyst research, want to use the CQE forecast as a benchmark against which to judge the performance of the firm. For instance, if analysts incorporate all of their information into the CQE forecast, the performance of the firm relative to the CQE forecast says as much about the information the analyst collected as the performance of the firm, and thus the CQE forecast might have less value as a benchmark against which to assess whether the firm had a "good" or "bad" quarter. Alternatively, selective updating could arise to minimize the processing costs of both clients and the analyst himself. While a simple sentence such as "we expect the firm to beat earnings" conveys less information than a full model update, the additional information is supplied at a processing cost. We leave exploration of these issues to future research.

Our findings are consistent with analysts reacting to the incentives they face, including the low value institutional clients attach to earnings forecast accuracy, by selectively decreasing the flow of information into the CQE forecast. Such behavior by analysts has critical implications for academic researchers using analysts' current quarter forecasts (either

individually or in a consensus) to measure investor expectations in a variety of widely studied contexts.

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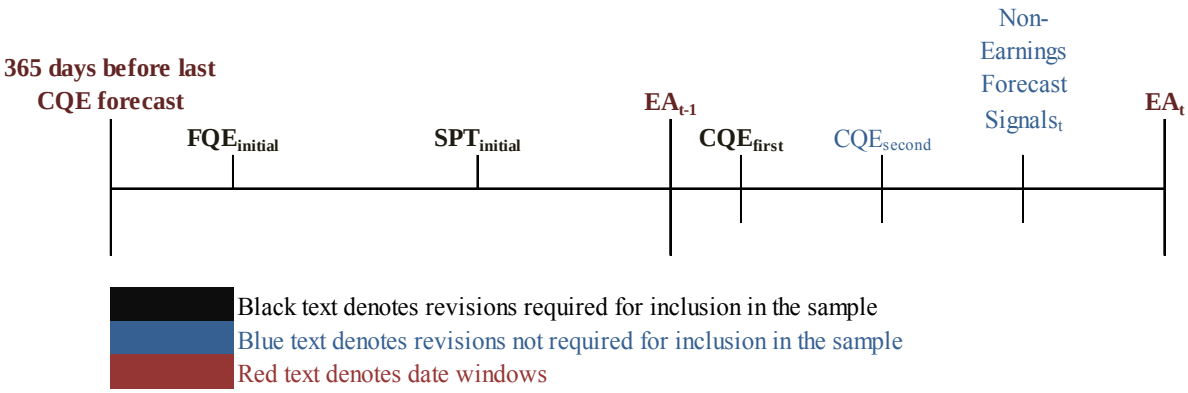
Figure 1: Timeline



Black text denotes revisions required for inclusion in the sample
Blue text denotes revisions not required for inclusion in the sample
Red text denotes date windows

Appendix A: Sample Selection

Revision Sample	
Criteria	**Observations**
All analyst-firm-quarters in the I/B/E/S unadjusted detail file, subject to the following constraints: (1) The analyst issued a forecast of the prior quarter's earnings. (2) Actual earnings and the earnings announcement date are available for current quarter earnings and prior quarter earnings. (3) The firm's share price, outstanding shares, and the cumulative factor to adjust price at the prior quarter earnings announcement are available on CRSP. (4) The firm's cumulative factor to adjust price at the current quarter earnings announcement is available on CRSP. (5) The firm's fiscal quarter end date occurs during the period 1999Q1 to 2016Q3. I/B/E/S began coverage of share price target forecasts in 1999 and I/B/E/S data was available through 2016Q3 at the time of download.	3,051,344
Less: Analyst-firm-quarters without a current quarter earnings forecast between the prior quarter earnings announcement date and the current quarter earnings announcement date.	(1,173,859)
Less: Analyst-firm-quarters without a share price target forecast either with the final current quarter earnings forecast or in the 365 days before the final current quarter earnings forecast date.	(745,073)
Less: Analyst-firm-quarters without a future quarter earnings forecast either with the final current quarter earnings forecast or in the 182 days before the final current quarter earnings forecast date.	(130,016)
Less: Analyst-firm-quarters with a stock split or a stock dividend between the prior quarter earnings announcement date and the current quarter earnings announcement date.	(14,913)
Less: Analyst-firm-quarters without CRSP or Compustat data for control variables.	(140,012)
	847,471
Text Sample	
Criteria	**Observations**
All Revision Sample analyst-firm-quarters.	847,471
Less: Analyst-firm-quarters relating to analysts other than the 175 randomly selected analysts. We collect analyst reports from ThomsonOne Banker for 175 randomly selected analysts in the revision sample (detailed above). We collect the analyst reports over three iterations. In the first iteration, we collect all analyst reports for 15 randomly selected analysts in the revision sample for the year 2010. In the second (third) iteration, we randomly select 60 (100) analysts with at least twenty firm-quarters of observations for a minimum of three firms in the revision sample.	(772,426)
Less: Analyst-firm-quarters for analysts we could not identify in ThomsonOne Banker. We are able to identify 142 of the 175 analysts in ThomsonOne Banker.	(13,283)
Less: Analyst-firm-quarters after September 2015, when collection of the text reports concluded.	(4,896)
	56,866

Appendix B: Variable Definitions

Non-Earnings Forecast Signals and Current Quarter Forecast Revision Variables		
Name	**Definition**	**Data Source**
NEG_SPT (*POS_SPT*)	Indicator variable that equals one if the analyst issues a negative (positive) revision to the share price target forecast after the analyst's final forecast of the current quarter's earnings and before the firm's quarterly earnings announcement, zero otherwise.	I/B/E/S
REV_SPT	Indicator variable that equals one if *NEG_SPT*=1 or *POS_SPT*=1, zero otherwise.	I/B/E/S
NEG_FQE (*POS_FQE*)	Indicator variable that equals one if the sum all forecast revisions (to forecasts of earnings for the subsequent four quarters issued after the analyst's final forecast of the current quarter's earnings and before the firm's quarterly earnings announcement) is negative (positive), zero otherwise.	I/B/E/S
REV_FQE	Indicator variable that equals one if *NEG_FQE*=1 or *POS_FQE*=1, zero otherwise.	I/B/E/S
NEG_TOT (*POS_TOT*)	Indicator variable that equals one if *NEG_SPT*=1 or *NEG_FQE*=1 (*POS_SPT*=1 or *POS_FQE*=1), zero otherwise.	I/B/E/S
REV_TOT	Indicator variable that equals one if *NEG_TOT*=1 or *POS_TOT*=1, zero otherwise.	I/B/E/S
NEG_CQE (*POS_CQE*)	Indicator variable that equals one if the analyst's final current quarter earnings forecast negatively (positively) revises a previous current quarter earnings forecast made after the previous quarter's earnings announcement, zero otherwise.	I/B/E/S
REV_CQE	Indicator variable that equals one if *NEG_CQE*=1 or *POS_CQE*=1, zero otherwise.	I/B/E/S
MISS_TEXT (*BEAT_TEXT*)	Count variable that equals the number of times the analyst uses a synonym for miss (beat) and a synonym for earnings expectations within the same sentence. The synonyms for miss include miss, fall short, below, lower, worse, downside, and underperform. The synonyms for beat include beat, exceed, outperform, better, higher, above, top, and upside. The synonyms for earnings expectations include earnings, EPS, estimates, and expectations. Included reports must meet the sample selection criteria detailed in Appendix A.	ThomsonOne Banker

Earnings and Return Variables		
Name	**Definition**	**Data Source**
BEAT	Indicator variable that equals one (zero) if the firm meets or beats (misses) the analyst's final forecast of the current quarter's earnings.	I/B/E/S
BEAT_CON	Indicator variable that equals one (zero) if the firm meets or beats (misses) the consensus earnings forecast.	I/B/E/S
BEAT_IN	Indicator variable that equals one (zero) if the firm meets or beats (misses) the analyst's first forecast of the current quarter's earnings after the previous quarter's earnings announcement.	I/B/E/S
SURP	Current quarter earnings surprise, equal to the firm's quarterly earnings per share less the analyst's final forecast of the current quarter's earnings per share, scaled by price.	I/B/E/S, CRSP
SURP_CON	Current quarter earnings surprise, equal to the firm's quarterly earnings per share less the consensus earnings forecast of the current quarter's earnings per share, scaled by price.	I/B/E/S, CRSP
SURP_PREV	Previous quarter earnings surprise, equal to the firm's quarterly earnings per share less the analyst's final forecast of the previous quarter's earnings per share, scaled by price.	I/B/E/S, CRSP
ABS(SURP_PREV)	Absolute value of *SURP_PREV*.	I/B/E/S, CRSP
RET_EA	The firm's returns compounded over the three day trading window beginning the trading day before the earnings announcement date and ending the trading day after the earnings announcement date less the market return over the same period and multiplied by 100. For earnings announcements occurring after 4 pm, we use the next trading day as the earnings announcement date.	CRSP
RET_QTR	The firm's returns compounded over the period beginning ninety days before the final current quarter earnings forecast and ending at the final current quarter earnings forecast date less the market return over the same period.	CRSP
ABS(RET_QTR)	Absolute value of *RET_QTR*	CRSP

Other Variables		
Name	**Definition**	**Data Source**
MVE	Natural log of the market value of equity.	Compustat
BTM	Book value of equity scaled by the market value of equity.	Compustat
ROA	Earnings before interest and taxes scaled by total assets.	Compustat
FOLLOW	Natural log of analyst coverage.	I/B/E/S
#FORE	Natural log of the number of times the analyst forecasted the previous quarter's earnings.	I/B/E/S
#DAYS_FIN (*#DAYS_IN*)	Natural log of the number of days between the analyst's final (first) forecast of the current quarter's earnings and the current quarter's earnings announcement.	I/B/E/S
ABOVE_CON_FIN (*ABOVE_CON_IN*)	Indicator variable that equals one if the analyst's final (initial) forecast of the current quarter's earnings is above the consensus earnings forecast as of the final (initial) forecast date, zero otherwise.	I/B/E/S
DIST_CON_FIN (*DIST_CON_IN*)	Absolute value of the difference between the analyst's final (initial) forecast of the current quarter's earnings and the consensus earnings forecast as of the final (initial) forecast date.	I/B/E/S
ALLSTAR	Indicator variable that equals one if the analyst finished first, second, third, or honorable mention in the institutional investor all-star rankings during the calendar year of the current quarter earnings announcement, zero otherwise.	Institutional Investor
EXPERIENCE	Natural log of the number of years since the analyst's first forecast in I/B/E/S.	I/B/E/S
BROKER_SIZE	Natural log of the number of analysts at the analyst's brokerage.	I/B/E/S

Table 1: Descriptive Statistics

Panel A: Revision Sample Descriptive Statistics

Variable	N	Mean	StdDev	P25	Median	P75
NEG_SPT	847,471	0.050	0.217	0.000	0.000	0.000
POS_SPT	847,471	0.084	0.277	0.000	0.000	0.000
REV_SPT	847,471	0.134	0.340	0.000	0.000	0.000
NEG_FQE	847,471	0.062	0.242	0.000	0.000	0.000
POS_FQE	847,471	0.048	0.213	0.000	0.000	0.000
REV_FQE	847,471	0.110	0.313	0.000	0.000	0.000
NEG_TOT	847,471	0.093	0.291	0.000	0.000	0.000
POS_TOT	847,471	0.112	0.315	0.000	0.000	0.000
REV_TOT	847,471	0.193	0.395	0.000	0.000	0.000
NEG_CQE	847,471	0.194	0.396	0.000	0.000	0.000
POS_CQE	847,471	0.129	0.335	0.000	0.000	0.000
REV_CQE	847,471	0.323	0.468	0.000	0.000	1.000
BEAT	847,471	0.704	0.457	0.000	1.000	1.000
SURP	847,471	0.045	0.816	-0.046	0.052	0.212
SURP_PREV	847,471	0.015	0.866	-0.057	0.050	0.205
RET_QTR	847,471	0.001	0.217	-0.118	-0.007	0.107
MVE	847,471	7.946	1.729	6.694	7.885	9.154
BTM	847,471	0.493	0.382	0.237	0.406	0.659
ROA	847,471	0.018	0.036	0.006	0.019	0.034
FOLLOW	847,471	17.608	10.540	9.000	16.000	24.000
#FORE	847,471	5.060	3.659	2.000	4.000	7.000
#DAYS_FIN	847,471	62.439	33.546	28.000	77.000	90.000

This table reports descriptive statistics for the revision sample. N is the number of observations, StdDev is the standard deviation, P25 (P75) is the 25th (75th) percentile of the variable's distribution. Sample selection procedures are reported in Appendix A. Variable definitions are reported in Appendix B.

Panel B: Text Sample Descriptive Statistics

Variable	N	Mean	StdDev	P25	Median	P75
MISS_TEXT	56,866	0.054	0.386	0.000	0.000	0.000
BEAT_TEXT	56,866	0.071	0.465	0.000	0.000	0.000
NEG_SPT	56,866	0.054	0.225	0.000	0.000	0.000
POS_SPT	56,866	0.091	0.288	0.000	0.000	0.000
NEG_FQE	56,866	0.067	0.249	0.000	0.000	0.000
POS_FQE	56,866	0.051	0.221	0.000	0.000	0.000
NEG_CQE	56,866	0.217	0.412	0.000	0.000	0.000
POS_CQE	56,866	0.154	0.361	0.000	0.000	0.000
BEAT	56,866	0.706	0.455	0.000	1.000	1.000
SURP	56,866	0.051	0.702	-0.041	0.054	0.211
SURP_PREV	56,866	0.022	0.744	-0.049	0.052	0.201
RET_QTR	56,866	0.006	0.197	-0.106	-0.002	0.106
MVE	56,866	8.196	1.670	6.991	8.163	9.367
BTM	56,866	0.503	0.361	0.257	0.423	0.669
ROA	56,866	0.022	0.030	0.008	0.021	0.035
FOLLOW	56,866	18.860	10.688	10.000	17.000	25.000
#FORE	56,866	5.657	4.164	3.000	5.000	8.000
#DAYS_FIN	56,866	58.788	34.388	22.000	70.000	90.000

This table reports descriptive statistics for the text sample. N is the number of observations, StdDev is the standard deviation, P25 (P75) is the 25th (75th) percentile of the variable's distribution. Sample selection procedures are reported in Appendix A. Variable definitions are reported in Appendix B.

Table 2: The Earnings Surprise and the Analyst's Non-Earnings Forecast Signals
Panel A: The Analyst's Own Earnings Surprise

	BEAT	*BEAT*	*BEAT*	*SURP*	*SURP*	*SURP*
NEG_SPT	-0.017***	-0.011**	-0.006*	-0.040***	-0.022***	-0.016**
	(0.001)	(0.013)	(0.070)	(0.000)	(0.001)	(0.015)
POS_SPT	0.042***	0.023***	0.019***	0.036***	0.015***	0.009**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.012)
NEG_FQE	-0.006	-0.012***	-0.009***	-0.006	-0.012***	-0.006
	(0.150)	(0.001)	(0.003)	(0.220)	(0.009)	(0.166)
POS_FQE	0.028***	0.019***	0.024***	0.038***	0.025***	0.025***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
SURP_PREV		0.052***	0.044***		0.194***	0.176***
		(0.000)	(0.000)		(0.000)	(0.000)
RET_QTR		0.106***	0.104***		0.143***	0.130***
		(0.000)	(0.000)		(0.000)	(0.000)
MVE		0.005**	0.019***		0.006**	0.009**
		(0.024)	(0.000)		(0.049)	(0.011)
BTM		-0.061***	-0.030***		-0.046**	-0.051**
		(0.000)	(0.000)		(0.025)	(0.014)
ROA		0.590***	0.285***		-0.264**	-0.351***
		(0.000)	(0.000)		(0.021)	(0.003)
FOLLOW		0.053***	0.029***		0.027***	0.019**
		(0.000)	(0.000)		(0.000)	(0.012)
#FORE		-0.015***	-0.009***		0.000	-0.003
		(0.000)	(0.000)		(0.903)	(0.275)
#DAYS_FIN		0.004**	-0.008***		-0.006***	-0.010***
		(0.042)	(0.000)		(0.005)	(0.000)
CONS	0.700***	0.545***	0.613***	0.043***	-0.031	0.054*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.216)	(0.068)
Fixed Effects	None	None	Analyst & Quarter	None	None	Analyst & Quarter
Observations	847,471	847,471	847,471	847,471	847,471	847,471
Adjusted R-squared	0.001	0.034	0.071	0.000	0.049	0.065

This table reports OLS regression results. The dependent variable is a dummy set equal to one if the firm's reported earnings equal or exceed the analyst's own earnings forecast (*BEAT*) or the signed earnings surprise relative to the analyst's own earnings forecast (*SURP*). The explanatory variables include the analyst's share price target revisions (*NEG_SPT*, *POS_SPT*) and future quarter earnings forecast revisions (*NEG_FQE*, *POS_FQE*). Robust standard errors are clustered by firm and quarter. P-values are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels for two-tailed tests, respectively. Sample selection procedures are reported in Appendix A. Variable definitions are reported in Appendix B.

Panel B: The Consensus Earnings Surprise

	BEAT_CON	*BEAT_CON*	*BEAT_CON*	*SURP_CON*	*SURP_CON*	*SURP_CON*
NEG_SPT	-0.025***	-0.010***	-0.026***	-0.017**	-0.013**	-0.016**
	(0.000)	(0.009)	(0.000)	(0.029)	(0.042)	(0.048)
POS_SPT	0.021***	0.011***	0.022***	0.004	0.001	0.025***
	(0.000)	(0.000)	(0.000)	(0.468)	(0.817)	(0.000)
NEG_FQE	-0.028***	-0.011***	-0.014***	-0.014**	-0.008*	-0.002
	(0.000)	(0.000)	(0.002)	(0.012)	(0.057)	(0.749)
POS_FQE	0.033***	0.025***	0.032***	0.028***	0.019***	0.035***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
SURP_PREV	0.037***	0.039***	0.044***	0.158***	0.147***	0.170***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
RET_QTR	0.300***	0.171***	0.143***	0.383***	0.163***	0.135***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
MVE	0.024***	0.026***	0.021***	0.022***	0.009**	0.012***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.016)	(0.005)
BTM	-0.030***	-0.025***	-0.030***	-0.110***	-0.047**	-0.055**
	(0.001)	(0.001)	(0.001)	(0.000)	(0.030)	(0.025)
ROA	0.168**	0.245***	0.322***	-0.280**	-0.296**	-0.179
	(0.039)	(0.001)	(0.000)	(0.047)	(0.020)	(0.278)
FOLLOW	0.016***	0.014***	0.017***	0.018*	0.017**	0.012
	(0.001)	(0.004)	(0.005)	(0.054)	(0.027)	(0.136)
#FORE	-0.003	-0.001	0.001	-0.009**	-0.002	-0.003
	(0.191)	(0.494)	(0.742)	(0.024)	(0.489)	(0.545)
#DAYS_FIN	0.026***	0.018***	0.013***	0.017***	0.006***	-0.002
	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.570)
CONS	0.293***	0.364***	0.263***	-0.239***	-0.027	-0.299***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.276)	(0.000)
Consensus Date	Final CQE	EA	NEFS	Final CQE	EA	NEFS
Fixed Effects	Analyst & Quarter	Analyst & Quarter	Analyst & Quarter	Analyst & Quarter	Analyst & Quarter	Analyst & Quarter
Observations	745,474	847,471	163,935	745,474	847,471	163,935
Adjusted R-squared	0.086	0.071	0.081	0.081	0.062	0.080

This table reports OLS regression results. The dependent variable is a dummy set equal to one if the firm's reported earnings equal or exceed the consensus earnings forecast (*BEAT_CON*) or the signed earnings surprise relative to the consensus earnings forecast (*SURP_CON*). The explanatory variables include the analyst's share price target revisions (*NEG_SPT*, *POS_SPT*) and future quarter earnings forecast revisions (*NEG_FQE*, *POS_FQE*). Robust standard errors are clustered by firm and quarter. P-values are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels for two-tailed tests, respectively. Sample selection procedures are reported in Appendix A. Variable definitions are reported in Appendix B.

Table 3: The Earnings Surprise and the Analyst's Qualitative Predictions
Panel A: The Analyst's Own Earnings Surprise

	BEAT	*BEAT*	*BEAT*	*SURP*	*SURP*	*SURP*
MISS_TEXT	-0.043***	-0.043***	-0.044***	-0.032***	-0.034***	-0.030***
	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.001)
BEAT_TEXT	0.049***	0.042***	0.040***	0.039***	0.032***	0.031***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
SURP_PREV		0.054***	0.049***		0.174***	0.165***
		(0.000)	(0.000)		(0.000)	(0.000)
RET_QTR		0.125***	0.124***		0.189***	0.168***
		(0.000)	(0.000)		(0.000)	(0.000)
MVE		0.009***	0.018***		0.005	0.003
		(0.006)	(0.000)		(0.122)	(0.413)
BTM		-0.062***	-0.028***		-0.024	-0.034
		(0.000)	(0.002)		(0.371)	(0.269)
ROA		0.399***	0.277*		-0.012	0.144
		(0.004)	(0.056)		(0.961)	(0.588)
FOLLOW		0.049***	0.029***		0.035***	0.024*
		(0.000)	(0.000)		(0.000)	(0.080)
#FORE		-0.016***	-0.007		0.003	0.002
		(0.003)	(0.119)		(0.693)	(0.742)
#DAYS_FIN		0.005	-0.002		-0.005	-0.003
		(0.101)	(0.498)		(0.230)	(0.458)
CONS	0.705***	0.522***	0.776***	0.050***	-0.073*	-0.192***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.068)	(0.000)
Fixed Effects	None	None	Analyst & Quarter	None	None	Analyst & Quarter
Observations	56,866	56,866	56,866	56,866	56,866	56,866
Adjusted R-squared	0.002	0.031	0.058	0.001	0.043	0.054

This table reports OLS regression results. The dependent variable is a dummy set equal to one if the firm's reported earnings equal or exceed the analyst's own earnings forecast (*BEAT*) or the signed earnings surprise relative to the analyst's own earnings forecast (*SURP*). The explanatory variables include the analyst's qualitative predictions (*MISS_TEXT*, *BEAT_TEXT*). Robust standard errors are clustered by firm and quarter. P-values are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels for two-tailed tests, respectively. Sample selection procedures are reported in Appendix A. Variable definitions are reported in Appendix B.

Panel B: The Consensus Earnings Surprise

	BEAT_CON	*BEAT_CON*	*BEAT_CON*	*SURP_CON*	*SURP_CON*	*SURP_CON*
MISS_TEXT	-0.057***	-0.054***	-0.054***	-0.041***	-0.031***	-0.031***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
BEAT_TEXT	0.046***	0.042***	0.049***	0.034***	0.027***	0.034***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
SURP_PREV	0.043***	0.042***	0.034***	0.152***	0.137***	0.117***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
RET_QTR	0.353***	0.187***	0.195***	0.443***	0.212***	0.167***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
MVE	0.023***	0.023***	0.011	0.017***	0.005	-0.015
	(0.000)	(0.000)	(0.156)	(0.001)	(0.203)	(0.162)
BTM	-0.034**	-0.032***	-0.052*	-0.110***	-0.045	0.065
	(0.012)	(0.007)	(0.054)	(0.008)	(0.160)	(0.300)
ROA	0.013	0.201	0.182	0.244	0.040	-0.706
	(0.935)	(0.187)	(0.531)	(0.381)	(0.869)	(0.217)
FOLLOW	0.025***	0.021**	0.039*	0.031*	0.025*	0.089*
	(0.006)	(0.017)	(0.064)	(0.065)	(0.068)	(0.060)
#FORE	0.004	0.004	0.009	-0.009	0.002	0.002
	(0.497)	(0.395)	(0.508)	(0.357)	(0.833)	(0.915)
#DAYS_FIN	0.024***	0.017***	0.044***	0.021***	0.011***	0.036**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.010)
CONS	0.495***	0.627***	0.328***	-0.311***	-0.095**	-0.247
	(0.000)	(0.000)	(0.000)	(0.000)	(0.043)	(0.125)
Consensus Date	Final CQE	EA	NEFS	Final CQE	EA	NEFS
Fixed Effects	Analyst & Quarter	Analyst & Quarter	Analyst & Quarter	Analyst & Quarter	Analyst & Quarter	Analyst & Quarter
Observations	51,541	56,866	5,920	51,541	56,866	5,920
Adjusted R-squared	0.079	0.062	0.101	0.083	0.056	0.094

This table reports OLS regression results. The dependent variable is a dummy set equal to one if the firm's reported earnings equal or exceed the consensus earnings forecast (*BEAT_CON*) or the signed earnings surprise relative to the consensus earnings forecast (*SURP_CON*). The explanatory variables include the analyst's qualitative predictions (*MISS_TEXT*, *BEAT_TEXT*). Robust standard errors are clustered by firm and quarter. P-values are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels for two-tailed tests, respectively. Sample selection procedures are reported in Appendix A. Variable definitions are reported in Appendix B.

Table 4: Cross-Sectional Variation in Non-Earnings Forecast Signals

Panel A: Positive vs. Negative Non-Earnings Forecast Signals

Variable	Mean Positive	Mean Negative	Diff		Diff-in-Diff	
REV_TOT	11.19%	9.34%	1.85%	***	8.42%	***
REV_CQE	12.85%	19.42%	-6.57%	***		

This table reports the frequencies of positive and negative non-earnings forecast signal and CQE revisions. TOT refers to either an SPT or FQE revision. The difference-in-difference is the *REV_TOT* difference minus the *REV_CQE* difference. ***, **, and * denote statistically different from zero at the 1%, 5%, and 10% levels for two-tailed tests while clustering standard errors by analyst, respectively. Sample selection procedures are reported in Appendix A. Variable definitions are reported in Appendix B.

Panel B: Above vs. Below Consensus

Variable	Mean Below Consensus	Mean Above Consensus	Diff		Diff-in-Diff	
NEG_TOT	9.87%	8.66%	1.21%	***	9.67%	***
POS_TOT	9.86%	12.15%	-2.29%	***	-10.37%	***
NEG_CQE	15.43%	23.89%	-8.46%	***		
POS_CQE	17.86%	9.78%	8.08%	***		

This table reports the frequencies of positive and negative non-earnings forecast signal and CQE revisions for observations above and below the consensus earnings forecast. TOT refers to either an SPT or FQE revision. In rows 1-2 the consensus is as of the analyst's final earnings forecast during the quarter and in rows 3-4 the consensus is as of the analyst's initial earnings forecast during the quarter. The difference-in-difference is the *NEG_TOT* (*POS_TOT*) difference minus the *NEG_CQE* (*POS_CQE*) difference. ***, **, and * denote statistically different from zero at the 1%, 5%, and 10% levels for two-tailed tests while clustering standard errors by analyst, respectively. Sample selection procedures are reported in Appendix A. Variable definitions are reported in Appendix B.

Panel C: High vs. Low Earnings News

Variable	Mean Low Earnings News	Mean High Earnings News	Diff		Diff-in-Diff	
REV_TOT	20.95%	17.74%	3.21%	***	15.90%	***
REV_CQE	25.93%	38.62%	-12.69%	***		

This table reports the frequencies of non-earnings forecast signal and CQE revisions for observations above and below the median of the absolute value of the analyst's initial earnings surprise (as of the analyst's initial earnings forecast during the quarter). TOT refers to either an SPT or FQE revision. The difference-in-difference is the *REV_TOT* difference minus the *REV_CQE* difference. ***, **, and * denote statistically different from zero at the 1%, 5%, and 10% levels for two-tailed tests while clustering standard errors by analyst, respectively. Sample selection procedures are reported in Appendix A. Variable definitions are reported in Appendix B.

Table 5: Determinants of Non-Earnings Forecast Signals

	REV_TOT	*NEG_TOT*	*POS_TOT*	*REV_CQE*	*NEG_CQE*	*POS_CQE*
RET_QTR	0.030***	-0.110***	0.144***	-0.073***	-0.304***	0.231***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ABOVE_CON_FIN	0.003**	-0.009***	0.012***			
	(0.026)	(0.000)	(0.000)			
ABOVE_CON_IN				0.020***	0.096***	-0.076***
				(0.000)	(0.000)	(0.000)
DIST_CON_FIN	-0.009***	-0.004***	-0.005***			
	(0.000)	(0.005)	(0.001)			
DIST_CON_IN				0.031***	0.020***	0.011***
				(0.000)	(0.000)	(0.001)
ABS(RET_QTR)	0.068***	0.069***	-0.002	0.119***	0.141***	-0.023**
	(0.000)	(0.000)	(0.833)	(0.000)	(0.000)	(0.023)
ALLSTAR	0.014***	0.006**	0.008***	0.009***	0.004*	0.005**
	(0.000)	(0.014)	(0.001)	(0.000)	(0.096)	(0.035)
ABS(SURP_PREV)	-0.005***	-0.002***	-0.003***	-0.003*	-0.011***	0.008***
	(0.000)	(0.004)	(0.000)	(0.062)	(0.000)	(0.000)
EXPERIENCE	-0.021***	-0.012***	-0.011***	-0.020***	-0.007***	-0.014***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.002)	(0.000)
BROKER_SIZE	0.018***	0.010***	0.010***	0.011***	0.008***	0.003***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
SURP_PREV	0.001*	0.001	0.001	0.005***	-0.003**	0.009***
	(0.067)	(0.131)	(0.301)	(0.000)	(0.019)	(0.000)
MVE	0.009***	0.005***	0.005***	0.007***	0.007***	0.001
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.505)
BTM	-0.000	0.002	-0.003	0.043***	0.046***	-0.003
	(0.938)	(0.266)	(0.306)	(0.000)	(0.000)	(0.530)
ROA	-0.001	-0.024	-0.024	0.244***	0.181***	0.063
	(0.968)	(0.426)	(0.370)	(0.000)	(0.003)	(0.217)
FOLLOW	0.016***	0.010***	0.007***	0.042***	0.011***	0.031***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.003)	(0.000)
#FORE	0.044***	0.023***	0.028***	0.071***	0.034***	0.037***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
#DAYS_FIN	0.076***	0.031***	0.053***	-0.321***	-0.185***	-0.136***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
CONS	-0.327***	-0.153***	-0.222***	1.209***	0.653***	0.555***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	642,463	642,463	642,463	642,463	642,463	642,463
Adjusted R-squared	0.037	0.020	0.037	0.422	0.232	0.176

This table reports OLS regression results. The dependent variables include a dummy variable set equal to one if the analyst revises a non-earnings forecast signal (*REV_TOT*), a dummy variable set equal to one if the analyst revises the CQE forecast (*REV_CQE*), and dummy variables set equal to one for negative and positive revisions to each (*NEG_TOT*, *POS_TOT*, *NEG_CQE* and *POS_CQE*). Robust standard errors are clustered by quarter. P-values are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels for two-tailed tests, respectively. Sample selection procedures are reported in Appendix A. Variable definitions are reported in Appendix B.

Table 6: Information Content of Non-Earnings Forecast Signals and CQE Revisions

	BEAT	*BEAT*	*BEAT*	*BEAT_IN*	*BEAT_IN*	*BEAT_IN*
REV_TOT	0.019***	0.008***	0.009***	0.024***	0.009***	0.006***
	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)
REV_CQE	-0.007*	-0.026***	-0.006**	-0.170***	-0.185***	-0.168***
	(0.055)	(0.000)	(0.040)	(0.000)	(0.000)	(0.000)
SURP_PREV		0.052***	0.044***		0.050***	0.042***
		(0.000)	(0.000)		(0.000)	(0.000)
RET_QTR		0.110***	0.107***		0.257***	0.248***
		(0.000)	(0.000)		(0.000)	(0.000)
MVE		0.005**	0.019***		0.008***	0.020***
		(0.022)	(0.000)		(0.000)	(0.000)
BTM		-0.060***	-0.030***		-0.057***	-0.030***
		(0.000)	(0.000)		(0.000)	(0.000)
ROA		0.593***	0.287***		0.395***	0.215***
		(0.000)	(0.000)		(0.000)	(0.000)
FOLLOW		0.054***	0.029***		0.052***	0.025***
		(0.000)	(0.000)		(0.000)	(0.000)
#FORE		-0.014***	-0.009***		0.000	-0.003*
		(0.000)	(0.000)		(0.988)	(0.096)
#DAYS_FIN		-0.006***	-0.009***		-0.003	-0.002
		(0.001)	(0.000)		(0.286)	(0.360)
#DAYS_IN		0.008*	-0.004		0.005	-0.009***
		(0.086)	(0.154)		(0.303)	(0.009)
CONS	0.703***	0.553***	0.632***	0.701***	0.513***	0.493***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Fixed Effects	None	None	Analyst & Quarter	None	None	Analyst & Quarter
Observations	847,471	847,471	847,471	847,471	847,471	847,471
Adjusted R-squared	0.000	0.034	0.071	0.029	0.071	0.103

This table reports OLS regression results. The dependent variable is a dummy set equal to one if the firm's reported earnings equal or exceed the analyst's final earnings forecast (*BEAT*) or a dummy set equal to one if the firm's reported earnings equal or exceed the analyst's initial earnings forecast (*BEAT_IN*). The explanatory variables include revisions to the analyst's share price target or future quarter earnings forecast (*REV_TOT*) and revisions to the analyst's current quarter earnings forecast (*REV_CQE*). Robust standard errors are clustered by firm and quarter. P-values are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels for two-tailed tests, respectively. Sample selection procedures are reported in Appendix A. Variable definitions are reported in Appendix B.

Table 7: Earnings Announcement Returns and the Analyst's Non-Earnings Forecast Signals

	RET_EA	*RET_EA*	*RET_EA*	*RET_EA*	*RET_EA*	*RET_EA*
NEG_TOT	-0.066	-0.050	-0.070			
	(0.303)	(0.404)	(0.196)			
POS_TOT	0.237***	0.201***	0.176***			
	(0.000)	(0.000)	(0.000)			
MISS_TEXT				-0.631***	-0.623***	-0.624***
				(0.000)	(0.000)	(0.000)
BEAT_TEXT				0.470***	0.458***	0.440***
				(0.000)	(0.000)	(0.000)
SURP_PREV		-0.118***	-0.116***		-0.168***	-0.131**
		(0.001)	(0.001)		(0.004)	(0.032)
RET_QTR		0.390*	0.252		0.437	0.378
		(0.065)	(0.228)		(0.114)	(0.213)
MVE		0.003	0.031		-0.006	0.032
		(0.937)	(0.373)		(0.909)	(0.552)
BTM		0.095	0.047		-0.171	-0.222
		(0.405)	(0.654)		(0.240)	(0.191)
ROA		5.638***	3.196***		2.403	0.836
		(0.000)	(0.010)		(0.159)	(0.672)
FOLLOW		0.036	0.007		0.035	-0.123
		(0.669)	(0.925)		(0.753)	(0.286)
#FORE		0.000	-0.048		0.002	-0.035
		(0.995)	(0.104)		(0.975)	(0.567)
#DAYS_FIN		0.007	-0.018		0.024	0.028
		(0.745)	(0.296)		(0.533)	(0.394)
CONS	0.131**	-0.159	1.457***	0.208***	0.100	20.025***
	(0.039)	(0.549)	(0.000)	(0.004)	(0.794)	(0.000)
Fixed Effects	None	None	Analyst & Quarter	None	None	Analyst & Quarter
Observations	847,390	847,390	847,390	56,861	56,861	56,861
Adjusted R-squared	0.000	0.001	0.008	0.001	0.002	0.008

This table reports OLS regression results. The dependent variable is the earnings announcement return (*RET_EA*). The explanatory variables include the analyst's share price target or future quarter earnings forecast revisions (*NEG_TOT*, *POS_TOT*), or the analyst's qualitative predictions (*MISS_TEXT*, *BEAT_TEXT*). Robust standard errors are clustered by firm and quarter. P-values are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels for two-tailed tests, respectively. Sample selection procedures are reported in Appendix A. Variable definitions are reported in Appendix B.