

The Role of Forecast Tone in Earnings Conference Calls*

Yiyang Wu, Faqin Lin, Qianqian Zhang, and Tianhui Zhao†

Is managerial optimism in earnings calls genuine or just for show? Our research uncovers a striking stylized fact that challenges the conventional view of disclosure tone as a monolithic construct. While the overall tone of conference calls is overwhelmingly positive (mean of 0.9%), the tone embedded in specific earnings-related and quantitative forward-looking statements is, on average, negative or conservative (mean of -0.7%), and only weakly correlated with overall tone (correlation of 0.11). We find that forecast tone — tone associated with earnings-oriented and quantitative forward-looking statements — drives the positive relationship between disclosure tone and firms' future earnings. However, market responses suggest that many are misled by this narrative duality. The market fails to fully appreciate that the informativeness stems from the conservative forecast tone, with the issue being more severe with investors who appear captivated by the optimistic overall “noise”. This research offers new insights into the sophisticated role of tone in corporate impression management, thereby contributing to the existing literature on financial reporting and investor behavior.

Key Words: Disclosure tone; Conference calls; Forward-looking statements; Textual analysis.

JEL Classification Numbers: G14, G17, M41.

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† Wu: Correspondence author. Research Center for the Regional Comprehensive Economic Partnership (RCEP) Member States of Ningbo University of Finance and Economics, Ningbo 315175, China. Email: wuyiyangpku@gmail.com; Lin: College of Economics and Management, Academy of Global Food Economics and Policy, China Agricultural University, Beijing, China; Zhang: College of Economics and Management, China Agricultural University, Beijing, China; Zhao: College of Economics and Management, China Agricultural University, Beijing, China.

1. INTRODUCTION

Is the sentiment conveyed by managers during earnings calls consistently genuine? Does the optimism they project when discussing grand corporate strategies translate seamlessly into their commitments on cold, hard financial numbers? Prior research has largely treated the tone of corporate communications as a monolithic construct, assuming it is informative to markets. (e.g., Davis et al., 2012; Li, 2010), but it remains unclear why the tone is informative. This paper challenges that assumption, arguing that not all tones are created equal. We uncover a stark “Tone Disconnect” within earnings calls — a strategic divergence between general optimism and specific conservatism — and explore its profound implications for market participants.

Our study begins by documenting this striking paradox. On one hand, the overall tone of conference calls is overwhelmingly positive, with a mean of 0.9%. Managers appear to curate an atmosphere of strong confidence and optimism. On the other hand, when the conversation shifts to the most critical, verifiable component — quantitative, earnings-related forecasts — the tone dramatically reverses, becoming, on average, conservative (mean of -0.7%). Most surprisingly, we find that these two tones are almost entirely uncorrelated (correlation of just 0.11). This “Tone Disconnect” suggests a sophisticated communication strategy: managers engage in a form of impression management with their overall optimistic narrative, while simultaneously practicing risk management through their cautious, specific forecasts.

This phenomenon provides a powerful new mechanism for understanding why markets often misprice soft information. We posit that this narrative duality creates a cognitive trap for investors. They may be swayed by the loud, optimistic “noise” of the overall presentation, failing to detect the uncorrelated, conservative “signal” embedded within the forecast-specific context. This is the central story of our paper.

Building on this narrative framework, we formulate and test two main hypotheses. First, we hypothesize that the conservative “signal” (forecast tone) is more informative of future earnings than the optimistic “noise” (non-forecast tone). In addition, the tone of forecast FLSs could be incrementally informative since tone may contain more subtle information than numbers.

Empirically, our results provide strong support. We find that the forecast tone significantly predicts firms’ future earnings, whereas the non-forecast tone has no predictive power, and the overall tone exhibits limited predictive power. These findings suggest that tone conveys information about future earnings only when embedded in an earnings-related forecasting context.

Second, we hypothesize that the market, particularly less sophisticated investors, struggles to see through this “facade of optimism”.¹ We expect them to overreact to the salient, but uninformative, overall tone, while underreacting to the truly informative forecast tone. We also anticipate that more sophisticated participants, like financial analysts, may be better at distinguishing the signal from the noise.

Our analysis of market responses confirms this. We find that investors react positively to overall tone, but fail to distinguish the informativeness of forecast tone and non-forecast tone. In contrast, analysts respond more strongly to forecast tone, suggesting they perceive the incremental predictive power of the true signal. Overall, they are more sensitive to forecast information than investors.

Finally, we conduct additional analyses to further assess the informational role of forecast tone. The result shows that tone in FLSs does not have the same incremental predictive power for firms’ future earnings as forecast tone. Moreover, results in a seemingly unrelated bivariate probit regression suggest that firms may be less willing to provide earnings guidance but more likely to provide forecast FLSs in conference calls when uncertainty is high. To the extent that managers’ forecast information is especially valuable to outsiders when uncertainty is high (Maslar et al., 2021), the results reinforce the informational value of forecast FLSs and forecast tone.

Our contribution is twofold. First, we provide conceptual clarity by distinguishing between forecast tone and non-forecast tone, showing that tone conveys information about future earnings only when embedded in an earnings-related forecasting context. Second, we demonstrate audience heterogeneity, showing that analysts are more sensitive to forecast information than investors. Together, our results reconcile prior mixed findings on tone, suggesting that future research should pay attention to the contexts in which tone is embedded and acknowledge the differences in the sensitivity to information among market participants.

2. HYPOTHESIS DEVELOPMENT

2.1. The Informativeness of Forecast Tone

We classify tone based on its associated context and focus on forecast tone, the tone in the earnings-oriented and quantitative forward-looking

¹Our rationale is as follows: Thoughtful participants in the market may allocate attention rationally (Kacperczyk et al., 2016) and assess the credibility based on evidence (Baginski et al., 2016). However, counterarguments exist, and market response may not rationally reflect forecast tone’s informativeness on future earnings since market participants could suffer from bias in processing information (e.g., Frydman and Wang, 2020) and the process is itself costly (Blankespoor et al., 2020).

statements (forecast FLSs). In the next section, we develop the theory for the informativeness of forecast tone.

2.1.1. The Informativeness of Forecasts in Voluntary Disclosure

Theory suggests that management forecasts are informative. While management forecasts are voluntary, there are reasons for managers to provide them and for them to be informative. First, the expectation adjustment hypothesis (Ajinkya and Gift, 1984) suggests that managers use forecasts to align the expectations of information receivers with their own. Management forecasts serve as a channel for informed insiders to share their private information about future performance, and financial statements are less suitable for this function. Second, quantitative forecasts are more ex-post verifiable than other disclosures, limiting managerial opportunism.

There is empirical evidence suggesting that management forecasts are informative. For example, Beyer et al. (2010) show that more than half of accounting-based information comes from management forecasts. Maslar et al. (2021) find that management forecasts are more valuable than analyst forecasts during economic downturns. Bozanic et al. (2018) find that earnings-related and quantitative forward-looking statements in earnings announcements are associated with more significant absolute abnormal returns during the announcement window and sharper improvements in the accuracy of analyst earnings estimates. We further reason that forecast FLSs in the earnings conference call presentations can be incrementally relative informative to other disclosure channels where managers provide forecast information. Management guidance can be issued via special press releases, and earnings press releases may have been issued before calls and contain management guidance. First, to comply with the Reg FD, the managers often need to provide initial disclosure of material information (including guidance) in the earnings press release. However, they can still discuss details in the following conference calls.² Therefore, through forecast FLSs in earnings conference calls, managers may provide details on previously issued guidance, and these details can be incrementally informative. Second, managers may issue additional forecasts not considered material enough to be stated in the press release. Lansford et al. (2009)

²To comply with Reg FD, SEC suggests that “an issuer can use the press release to provide the initial broad distribution of the information, and then discuss its release with analysts in the subsequent conference call, without fear that if it should disclose additional material details related to the original disclosure it will be engaging in a selective disclosure of material information.” For details, please refer to SEC website: <https://www.sec.gov/rules/final/33-7881.htm#P172.66198>

find that firms issue substantial forecast information exclusively via earnings conference calls.

To give a concrete example, the first quarter earnings press release of the year 2017 for Vaid Corp (VVI) and the related conference call transcript³ are differ in the guidance regarding this firm's Pursuit business.

2.1.2. The Informativeness of Forecast Tone

To the extent that forecast FLSs are informative, we further reason that the associated tone (i.e., forecast tone) can be (incrementally) informative.

First, as suggested in prior research, "the replacement of soft with hard information inevitably results in a loss of information" (Liberti and Petersen, 2019), so managers may purposely leverage tone for better communication or convey more information via tone inadvertently. For example, Mayew and Venkatachalam (2012) find that "vocal cues from executives during conference calls can inform investors about a firm's future earnings and stock returns."

Second, numerical forecasts may be more conservative than tone. Overestimation of a forecast number may ruin managers' reputation for being transparent with investors or even lead to litigation risk. However, investors can reward underestimation followed by future confirmation of an increasing trend. The asymmetric penalty for errors is less of an issue with the tone, and therefore, the tone may be more neutral than the forecasted numbers. As evidence of managers' reputation concerns, Beyer and Dye (2012) find that some managers strategically "disclose the earnings forecasts they receive only when it is in their self-interest to do so", and "managers' incentive to build a reputation for being forthcoming may be so strong that they disclose even the most negative forecasts".

Third, managerial opportunism may decrease the informativeness of the disclosure tone. Huang et al. (2013) find that managers use a more positive tone when they have higher incentives to manage investor perceptions. To the extent that forecast FLSs are supported by earnings numbers, managerial opportunism is less likely to ruin the informativeness of the forecast tone.

While the above three reasons support the informativeness of forecast tone in conference calls, there are still some counterarguments. First, facilitating the communication of managers' informed forecast on a firm's

³Press release: http://s21.q4cdn.com/760353948/files/doc_news/2017/Q1/VVI-Earnings-Release-Q117-FINAL.pdf; call transcript: <https://seekingalpha.com/article/4066500-viads-vvi-ceo-steve-moster-on-q1-2017-results-earnings-call-transcript>

future performance may only be one source of tone's informativeness. An important prerequisite to claiming the superior informativeness of forecast tone over non-forecast tone depends on the presumption that the classification of forecast and non-forecast tone is orthogonal to other classification dimensions that systematically determine tone's informativeness. Second, as suggested by Rogers and Van Buskirk (2009), litigation risk leads firms to decrease disclosures for which they may later be held accountable despite the increased protections offered by the safe harbour provisions in the 1995 Private Securities Litigation Reform Act. Hence, whether managers view the protection for forward-looking statements as sufficient and are willing to provide informative voluntary forecasts is doubtful. Besides, if it is difficult for the market to assess the credibility of management forecasts with ex-post financial reports (for example, when earnings are volatile), there is still room for managerial opportunism (Rogers and Stocken 2005). Therefore, the informativeness of management forecasts and the forecast tone in conference calls is not guaranteed.

Considering the stronger supporting arguments, we put the first hypothesis as follows.

(H1) Forecast tone in the earnings conference calls is more informative of future earnings (ROA) than the non-forecast tone in earnings conference calls.

2.1.3. The Choice of Providing Forecast in Conference Calls

Note that the informativeness of forecast tone is conditional on the managers providing forecast FLS in the first place, which is also a choice of the managers. Therefore, the informational value of forecast FLS and forecast tone hinges on the situations in which firms provide forecast FLS. We classify situations based on an important dimension — a firm's future uncertainty.

First, managers' forecasts could be valuable when uncertainty is high. Hutton et al. (2012) find that in predicting a firm's annual EPS, while analysts provide more accurate forecasts than managers when the firm's "fortunes move in concert with macroeconomic factors such as Gross Domestic Product and energy costs", managers are more accurate than analysts when management's actions are opaque to outsiders (in cases that "the firm's inventories are abnormally high or the firm has the excess capacity or is experiencing a loss"). Similarly, Maslar et al. (2021) argue that given the significantly increased uncertainty in economic downturns, managers are better positioned to predict the firm's future because they have easier

access to inside information and can take strategic actions. Their argument is supported by the findings that “larger stock price reactions and analyst forecast revisions to news in management forecasts during downturns” and “management forecast accuracy increases during downturns”.

Further, if managers are more likely to provide (or provide more) forecast FLS when uncertainty is high, the informational value of forecast FLS and forecast tone is enhanced. There are two lines of literature on managers’ incentive to provide forecast information when uncertainty is high. As the first line, prior research suggests that managers are less likely to issue earnings guidance when a firm’s future is less predictable (Chen et al., 2011; Waymire, 1985). As the second line of literature, Matsumoto et al. (2011) find that managers provide more forward-looking statements in earnings conference calls when firm performance is poor. Bozanic et al. (2018) also document that managers provide more general forward-looking statements in earnings announcements when the firm experiences a recent loss, has higher earnings volatility, or has higher implied volatility. Evidence in the second line of the literature suggests that managers may substitute earnings guidance with forward-looking disclosure in other settings when uncertainty is high.

These two lines of literature can be aligned based on insights from Waymire (1985): providing forecasts is associated with additional costs and benefits for managers when uncertainty is high; on the cost side, goals are more likely to be unattained in uncertain situations, and this may increase the likelihood of penalties for managers; on the other hand, it is more beneficial to align the expectations of outsiders with theirs when the uncertainty is high. Therefore, managers may refrain from issuing formal earnings guidance and provide other less formal disclosures to offer their opinions on the future of their firm. Following this logic, whether managers decrease or increase the provision of forecast FLSs in conference calls when uncertainty is high depends on whether they view forecast FLSs as general discussions or discussions of a specific earnings goal. This is *ex ante* unclear and requires empirical examination (section 5.2 explores this question).⁴

2.2. Market Reactions to Forecast Tone

Market reactions provide a measure of the informativeness of forecast tone. The Bayesian learning model implies that rational investors place a

⁴In a related study, Bozanic et al. (2018) find that managers provide less quantitative earnings forecasts in forward looking statements in the 8-K filings when uncertainty is high. But it is unclear whether this conclusion applies to forecast-like FLS in earnings conference calls which are more flexible in formats and richer in content.

higher weight on signals of higher quality. Empirical evidence supports that some fund managers have skills and allocate attention rationally (Kacperczyk et al., 2016). Consistent with this rationale, if the informativeness of tone arises from tone facilitating communication of managers' forecasts, market reactions should be sharper to the predicted positivity implied by forecast tone than that implied by non-forecast tone. Further, prior research suggests that the market views tone as more credible when accompanied by a consistent management earnings forecast, which is a timely alternative to ex-post verification (Baginski et al., 2016). This logic readily applies to forecast tone since it is directly incorporated in the quantitative earnings forecast, strengthening the prediction that forecast tone leads to a sharper market reaction.

(H2) The market (investors and analysts) responds more to the forecast tone than the non-forecast tone.

However, counterarguments exist, and market reactions may not fully reflect the informativeness of the forecast tone. First, investors suffer from salience bias (Frydman and Wang, 2020), and quantitative information may compete away information receivers' limited attention for its higher salience, muting the market reaction to forecast tone. Second, tone is not necessarily easier to process than the quantitative information. Empirical evidence shows that investors, anticipating managerial opportunism, make efforts to debias tone (Baginski et al., 2016; Rogers and Stocken, 2005). If information receivers view the information processing cost of the quantitative forecast as lower than tone, they may underweight tone to save on information processing capacity, consistent with implications of rational inattention models (Blankespoor et al., 2020).

3. DATA

3.1. Sample

We examine quarterly earnings conference calls for three reasons. First, quarterly earnings conference calls are an important disclosure setting, and market responses are usually significant. Studying market responses provides an alternative to looking at the informativeness of tone. Second, quarterly earnings conference calls are regular events not driven by special firm events, which may compound our empirical tests. Third, the tone should be more relevant in conference calls than SEC filings.

We obtain transcripts of 146,152 quarterly earnings conference calls for US firms from 2000 to 2020 via StreetEvents and construct tone measures for them. We then merge the transcript data with financial information

from Compustat, stock return data from CRSP, and analyst-related data from Refinitiv to construct the control variables used in the empirical analyses (section 3.4). We define a baseline sample by requiring non-missing values for tone, all control variables, the fixed-effects variables (SIC and fiscal year), and the clustering variable (firm identifier), resulting in 63,599 firm-quarter observations used in Table 2. The number of observations used in each regression further varies depending on the availability of the dependent variable. In addition, some specifications restrict the sample to firm-quarters with at least one forecast FLS. Detailed attrition tables are reported in Appendix B.

3.2. FLS (and forecast FLS) Identification and Tone Measures

In this essay, we use textual analysis to identify FLS and forecast FLS in the presentation part of conference calls⁵. Therefore, an ex-ante caveat is that the analysis is a joint test of the validity of this method and the proposed theory. Identifying FLS may be imprecise because it requires subjective judgment, and a uniform classification algorithm may not properly tackle the challenge of different industries having different forward-looking information (Bozanic et al., 2018). We use the practice in prior research with relatively established effectiveness to improve methodological validity. Following Muslu et al. (2015), a sentence is classified as FLS if it includes (1) keywords that refer to the future (e.g., “next year”), (2) verb conjugations that refer to the future (e.g., “plan to”), (3) or references to a future year compared to the conference call year. The set of keywords is from the appendix of Muslu et al. (2015). Next, we use the standards in Bozanic et al. (2018) to further classify FLS as earnings-oriented or not, and quantitative or not, and take the earnings-oriented and quantitative FLS as forecast FLS. The Python code we use is adapted from Anand et al. (2020).

In prior research, Li (2010) argues against general dictionary-based tone measurement. In this essay, we construct tone measures based on a dictionary specifically designed for financial reporting (Loughran & McDonald, 2011). We take the difference between the percentage of positive and negative keywords as a proxy for the net positivity implied in tone. In this way, we construct tone measures for the whole presentation (TONE), the FLS portion (FL_TONE) and the remaining portion (NFL_TONE), the forecast FLS portion (FORECAST_TONE) and the remaining portion (NON-

⁵ Although the results in this essay only involve linguistic measures of the presentation of the conference calls, including managers’ answers to analysts’ questions in the Q&A session does not lead to qualitative changes in conclusions.

FORECAST_TONE)⁶. We construct a fog index for the presentation part as a proxy for disclosure transparency following Li (2010). The Python code is adapted from the ling_features GitHub repository.⁷

3.3. Proxies for Informativeness of and Market Responses to Tone

To test the informativeness of tone, we follow Li (2010) and examine whether the tone has incremental predictive power on the firm's future earnings, which is proxied by returns on assets for the subsequent four quarters.

We examine the short-term and medium-term stock market performance to measure market responses. Specifically, we accumulate market and size-adjusted⁸ stock returns for the three trading days around the earnings conference call (CAR_CALL) and the following month starting from the second trading day after the call (REVERSAL_MONTH).

We examine analyst revision (REVISION) on the next quarter's EPS to measure analyst responses. Adapted from Bonsall et al. (2013), analyst forecast revision (REVISION) is calculated as the difference between the median analyst forecast within 45 days before (and most adjacent to) the conference call and the median forecast within 30 days after (and most adjacent to) the call, scaled by the stock price two trading days before the call.

3.4. Controls

Following previous studies (Bozanic et al., 2018; Campbell et al., 2021; Li, 2010), we include a set of controls in the analysis of the (incremental) informativeness of and market responses to tone.

Current performance is measured by EARN, quarterly earnings scaled by the beginning book value of assets, and LOSS, a dummy that equals one if earnings are negative and zero otherwise. The LOSS dummy is to capture the asymmetric influence of negative earnings. Accruals (ACC) are calculated as the difference between the quarterly net income and operating cash flow scaled by the beginning book value of assets. Stock returns (RET) are

⁶In the robustness analyses, we also consider tone measure for general guidance statement. Specifically, we pick up a portion of the presentation: for every speech from one speaker, if the key word "guidance" exists or the speech contains forecast FLS, we extract the forward-looking statements from that speech, and then we combine all those forward-looking statements, and construct tone measures.

⁷Ian Gow, ling_features, (2018), GitHub repository, https://github.com/iangow/ling_features

⁸As the results are qualitatively similar whether using market-adjusted returns or size-adjusted returns, this paper reports market-adjusted returns by default.

measured by the holding period return in the fiscal quarter, calculated using CRSP monthly data. Firm size (SIZE) is the natural logarithm of the market value of equity at the end of the quarter. Market-to-book ratio (MTB) is the market value of equity plus the book value of total liabilities scaled by the book value of total assets. Firm age (FIRMAGE) is the number of years since the firm first appeared in the CRSP monthly file to the focal conference call. Volatility of operations is measured by the standard deviation of quarterly returns on assets in the last five years (EARNVOL), the standard deviation of monthly stock returns in the 12 months before the end of the fiscal quarter using CRSP monthly data (RETVOL). The complexity of operations is measured by NITEMS, the number of non-missing items in the Compustat Quarterly File for each firm-quarter, and NBSEG (NGSEG), the natural logarithm of 1 plus the number of business (geographic) segments. Firm events are captured in three items: SI, the amount of special items scaled by the beginning book value of assets; MA, a dummy that equals one if the amount of acquisition (Compustat item AQC) is greater than 10 percent of the beginning total assets in that fiscal year, and zero otherwise; and SEO, a dummy that equals one if the sale of common and preferred stock (Compustat item: SSTK) is greater than 10 percent of beginning total assets, and zero otherwise. Incorporated state is measured with a dummy variable DLW that equals one if a firm is incorporated in Delaware and zero otherwise. Disclosure transparency is captured by the fog index of the presentation part of the conference call (FOG), following Li (2010). The information environment is measured by the natural logarithm of 1 plus the number of analysts following (LANALYST). Unexpected earnings (SUE) is the difference between the realized EPS and the median analyst forecast right before the conference call, scaled by the stock price two trading days before the call. Institutional ownership (IOR) is the institutional ownership percentage. Reporting quarters are measured by quarter indicators Q2, Q3, and Q4. To deal with disproportional influences of extreme outliers, RET, ACC, SIZE, MTB, RETVOL, EARNVOL, and SI are winsorized at the top and bottom 0.5%, and EARN is winsorized at -3 and 3 ⁹. Variable definitions and calculation methods are detailed in Table 1.

⁹The conclusion does not change without winsorization.

TABLE 1.

Variable Definition

Variable	Definition and Calculation
Linguistic Features of Conference Call Presentation	
FORECAST	FORECAST is a dummy if there is at least one forward-looking sentence that is both earnings-oriented and quantitative in the presentation.
FLS	FLS is a dummy if the presentation has at least one forward-looking sentence.
FORECAST_PCT	The number of forecast-like forward-looking sentences as a percentage of the number of all sentences in the presentation.
FLS_PCT	The number of forward-looking sentences is deflated by the number of all sentences in the presentation.
TONE	TONE is the difference between the percentage of positive keywords minus the percentage of negative keywords for the whole presentation part of the call. The keyword list is from Loughran & McDonald (2011)
FORECAST_TONE	It has a construction method similar to TONE, but it only considers the forecast FLS portion.
NONFORECAST_TONE	It has a similar construction method as TONE but only considers the non-forecast FLS portion.
FL_TONE	It has a similar construction method as TONE, but the difference is that it only considers the FLS portion.
NFL_TONE	It has a similar construction method as TONE, but the difference is that it only considers the non-FLS portion.
GF_TONE	It has a similar construction method as TONE, with the difference that it picks up a portion of the presentation: for every speech from one speaker, if the keyword “guidance” exists or the speech contains forecast FLS, we extract the forward-looking statements from that speech, and then we combine all those forward-looking statements, and construct tone measures. we use it as a proxy for tone in general forecast statements.
NONGF_TONE	It has a similar construction method as TONE, with the difference that it picks up a portion of the presentation: for every speech from one speaker, if the keyword “guidance” exists or the speech contains forecast FLS, we exclude the forward-looking statements from that speech, and then combine all remaining part of the presentation, and construct tone measures.
Firms’ Future Earnings Measure	
EARN	EARN is the quarterly earnings scaled by the beginning book value of assets (NIQ/Lag(ATQ)).

TABLE 1—*Continued*

Variable	Definition and Calculation
Market Response	
CAR_CALL $[-1, 1]$	Cumulative three trading days' market or size-adjusted return around the conference call date.
REVERSAL_MONTH (i.e. CAR[2:20])	Cumulative market or size-adjusted returns for the month following the conference call, from the second to the 20th trading day after the conference call.
REVISION	Analyst forecast revision for the next quarter is calculated as the difference between the median analyst forecast 45 days before (and most adjacent to) the conference call and the median forecast within 30 days after (and most adjacent to) the conference call. Scaled by the stock price two trading days before the focal conference call.
Other Variables	
LOSS	LOSS is a dummy that equals one if EARN is negative.
ACC	ACC is the accruals scaled by the beginning book value of assets (NIQ - OANCFQ)/Lag(ATQ).
RET	RET is the holding period stock return in the fiscal quarter calculated using CRSP monthly return data.
SIZE	SIZE is the natural logarithm of the market value of equity at the end of the quarter ($\log(\text{PRCCQ} * \text{CSHOQ})$).
MTB	MTB is the equity market value plus the total liabilities' book value scaled by the total assets' book value ($(\text{PRCCQ} * \text{CSHOQ} + \text{LTQ}) / \text{ATQ}$).
EARNVOL	EARNVOL is the standard deviation of EARN in the last five years.
RETVOL	RETVOL is the standard deviation of monthly stock returns in the 12 months before the end of the fiscal quarter, using CRSP monthly return data.
FIRMAGE	FIRMAGE is the number of years since a firm appears in the CRSP monthly file.
NITEMS	NITEMS is the number of non-missing items in the Compustat Quarterly File for each firm-quarters.
NBSEG/NGSEG	NBSEG is the natural logarithm of 1 plus the number of business segments, and NGSEG is the natural logarithm of 1 plus the number of geographic segments. Data is from the Compustat Segmentation File.
SI	SI is the amount of special items scaled by the book value of assets ($\text{SPIQ}/\text{Lag}(\text{ATQ})$).
MA	MA is a dummy that equals one if the amount of acquisition (AQC) is greater than 10 percent of the beginning total assets and zero otherwise.

TABLE 1—*Continued*

Variable	Definition and Calculation
SEO	SEO is a dummy that equals one if the sale of common and preferred stock (SSTK) exceeds 10 percent of the beginning total assets and zero otherwise. we use Compustat Year File for both MA and SEO measures, as quarterly information on acquisition and seasoned offerings is often missing.
DLW	DLW is a dummy variable that equals one if a firm is incorporated in Delaware and zero otherwise. Data is from the Compustat Company File.
LANALYST	LANALYST is the natural logarithm of the number of analysts following the firm, proxied by the number of quarterly EPS forecasts in the record just before the focal conference call. Data is from I/B/E/S.
SUE	SUE is standard unexpected earnings calculated as the difference between the realized EPS and the median analyst forecast just before the conference call, scaled by the stock price two trading days before the focal conference call. Data is from I/B/E/S.
IOR	Institutional ownership (percentage). Data is obtained from Thomson Reuters.
IO_G1	Institutional ownership (percentage) larger than 1%. Data is obtained from Thomson Reuters.
FOG	FOG is the fog index for the presentation part of the conference call to capture disclosure transparency.
Q2/Q3/Q4	The quarter indicator. For example, if the conference call occurs in the first quarter and the corresponding earnings reflect the firm's performance in the fourth quarter of the past calendar year. Q4 is set to 1, while Q2 and Q3 are set to zero.
GUIDANCE	GUIDANCE is a dummy that equals one if the company issued earnings guidance on the three trading days around the conference call. Data is from the I/B/E/S management guidance dataset (the identifying measures include "EPS", "GPS", and "NET", following Bozanic et al. (2018))
GUIDANCEQ	GUIDANCEQ is a dummy that equals one if the company issued an earnings guidance in the +/- 90 days around the conference call. Data is from the I/B/E/S management guidance dataset (the identifying measures include 'EPS', 'GPS', and 'NET', following Bozanic et al. (2018))

4. RESEARCH DESIGN AND EMPIRICAL TESTS

4.1. Summary Statistics and Correlation between Different Tones

Table 2 Panel C reports the annual distribution of the baseline sample. Around one-fifth of earnings conference calls annually provide forecast FLS (Panel C).

Summary statistics in Panel A show that the forecast tone has a larger standard deviation than the non-forecast tone, and its mean value is negative (-0.7%). In comparison, the mean value of the overall tone is positive (0.9%). This pattern reveals a striking divergence: while managerial communication is broadly optimistic, tone in forecast-related statements is, on average, conservative.

Panel D depicts the pair-wise correlations of selected variables. Different tones are significantly and positively correlated. However, the correlation coefficient between forecast tone and non-forecast tone (overall tone) is only 0.11 (0.16), while the correlation coefficient between non-forecast tones and overall tone is nearly perfectly correlated. This suggests that forecast tone captures a distinct dimension of communication rather than a simple refinement of general tone. The correlation between forecast tone and FLS tone is also modest (0.25), suggesting that tone in forecast FLS may be different from tone in general FLS (Panel D). However, whether these differences indicate different informativeness requires further analysis.

Additionally, the balance check in Panel B shows that firm quarters with and without forecast FLS differ in firm characteristics, emphasizing the importance of controlling for them in the main analysis.

4.2. Informativeness of Forecast Tone

We begin by examining the informativeness of overall tone (TONE) as a baseline benchmark. We then decompose TONE into forecast and non-forecast components to identify the source of its informativeness. Following Li (2010), we use the returns on assets for the following four quarters as proxies for the firm's future earnings and use the following regression design to test the informativeness of different tones (See Table 1 for variable

TABLE 2.

Initial Look at Sample and Variables

Panel A: Summary Statistics

VARIABLES	(1) N	(2) MEAN	(3) P50	(4) SD	(5) P1	(6) P25	(7) P75	(8) P99
TONE	63,599	0.932	0.931	0.800	-1.021	0.413	1.455	2.840
FORECAST_TONE	14,595	-0.707	0	2.906	-9.302	-2.128	0	6.250
NONFORECAST_TONE	63,599	0.938	0.937	0.801	-1.020	0.419	1.461	2.854
FL_TONE	63,574	0.761	0.743	1.060	-1.942	0.0858	1.401	3.396
NFL_TONE	63,599	0.971	0.968	0.868	-1.152	0.408	1.536	3.038
GUIDANCE_TONE	44,639	0.775	0.709	1.386	-2.632	0	1.515	4.505
NONGUIDANCE_TONE	63,599	0.945	0.944	0.829	-1.080	0.405	1.483	2.919
EARN	63,599	0.000939	0.00933	0.0646	-0.221	-0.00269	0.0207	0.0960
LOSS	63,599	0.281	0	0.449	0	0	1	1
RET	63,599	0.0299	0.0245	0.224	-0.536	-0.0976	0.144	0.800
ACC	63,599	-0.0167	-0.0136	0.0408	-0.191	-0.0307	0.000494	0.113
SIZE	63,599	7.142	7.083	1.713	3.360	5.983	8.220	11.48
MTB	63,599	2.107	1.592	1.473	0.689	1.187	2.419	8.689
RETVOL	63,599	0.118	0.102	0.0668	0.0311	0.0713	0.145	0.385
EARNVOL	63,599	0.0322	0.0165	0.0467	0.00132	0.00806	0.0370	0.295
NITEMS	63,599	322.1	317	44.94	248	283	357	425
NBSEG	63,599	1.137	1.099	0.458	0.693	0.693	1.609	2.079
NGSEG	63,599	1.259	1.099	0.507	0.693	0.693	1.609	2.565
FIRMAGE	63,599	20.45	14.60	18.89	1.090	7.003	26.77	86.06
SI	63,599	-0.00301	0	0.0109	-0.0757	-0.00182	0	0.0154
SEO	63,599	0.0838	0	0.277	0	0	0	1
MA	63,599	0.108	0	0.311	0	0	0	1
DLW	63,599	0.717	1	0.450	0	0	1	1
FOG	63,599	15.57	15.58	1.721	11.24	14.49	16.67	19.70
LANALYST	63,599	2.042	2.079	0.697	0.693	1.609	2.565	3.434
IOR	63,599	0.714	0.784	0.270	0.00273	0.567	0.907	1.169
IO_G1	63,599	0.0831	0	0.276	0	0	0	1
SUE	63,599	-9.22e - 05	0.000551	0.0138	-0.0773	-0.000701	0.00241	0.0490
CAR_CALL_MKT	55,385	0.00249	0.00140	0.0859	-0.246	-0.0428	0.0477	0.252
CAR_CALL_SZ	55,385	0.00311	0.00189	0.0854	-0.244	-0.0415	0.0479	0.251
REVERSAL_MONTH_MKT	60,617	0.00288	-0.000453	0.0956	-0.262	-0.0485	0.0481	0.340
REVERSAL_MONTH_SZ	60,617	0.00258	-0.000956	0.0934	-0.254	-0.0477	0.0471	0.333
REVISION	60,755	-0.155	-0.0221	0.648	-3.719	-0.199	0.0324	1.818
GUIDANCE	63,599	0.410	0	0.492	0	0	1	1
guidanceeq	63,599	0.452	0	0.498	0	0	1	1
FORECAST	63,599	0.229	0	0.421	0	0	0	1

Variable definitions in Table 1.

Panel B: Balance Check between Forecast and No-Forecast Group (Within the Baseline Sample)

VARIABLE	(1) NO-FORECAST	(2) FORECAST	(3) DIFFERENCE	VARIABLE	(1) NO-FORECAST	(2) FORECAST	(3) DIFFERENCE
TONE	0.933 (0.808)	0.928 (0.774)	−0.005 (0.459)	MA	0.103 (0.305)	0.124 (0.330)	0.021*** (0.000)
EARN	0.000 (0.065)	0.004 (0.061)	0.003*** (0.000)	DLW	0.709 (0.454)	0.745 (0.436)	0.036*** (0.000)
LOSS	0.275 (0.447)	0.299 (0.458)	0.024*** (0.000)	FOG	15.518 (1.731)	15.731 (1.676)	0.213*** (0.000)
RET	0.030 (0.226)	0.030 (0.218)	−0.000 (0.926)	LANALYST	2.033 (0.708)	2.072 (0.659)	0.039*** (0.000)
ACC	−0.016 (0.040)	−0.018 (0.043)	−0.001*** (0.002)	IOR	0.707 (0.274)	0.737 (0.255)	0.030*** (0.000)
SIZE	7.126 (1.741)	7.195 (1.617)	0.069*** (0.000)	IO_G1	0.080 (0.272)	0.093 (0.290)	0.013*** (0.000)
MTB	2.095 (1.465)	2.147 (1.497)	0.052*** (0.000)	SUE	−0.000 (0.014)	0.001 (0.012)	0.001*** (0.000)
RETVOL	0.119 (0.068)	0.115 (0.062)	−0.004*** (0.000)	CAR_CALL_MKT	0.002 (0.085)	0.003 (0.089)	0.001 (0.441)
EARNVOL	0.032 (0.048)	0.031 (0.041)	−0.001*** (0.002)	CAR_CALL_SZ	0.003 (0.084)	0.004 (0.089)	0.001 (0.521)
NITEMS	321.354 (44.724)	324.726 (45.570)	3.372*** (0.000)	REVERSAL_MONTH_MKT	0.002 (0.096)	0.005 (0.093)	0.002** (0.014)
NBSEG	1.132 (0.456)	1.157 (0.466)	0.025*** (0.000)	REVERSAL_MONTH_SZ	0.002 (0.094)	0.004 (0.090)	0.002** (0.011)
NGSEG	1.244 (0.508)	1.311 (0.501)	0.067*** (0.000)	REVISION	−0.148 (0.646)	−0.179 (0.654)	−0.031*** (0.000)
FIRMAGE	20.372 (18.506)	20.697 (20.129)	0.325* (0.081)	GUIDANCE	0.360 (0.480)	0.578 (0.494)	0.218*** (0.000)
SI	−0.003 (0.011)	−0.003 (0.011)	−0.001*** (0.000)	GUIDANCEQ	0.403 (0.490)	0.616 (0.486)	0.213*** (0.000)
SEO	0.088 (0.283)	0.071 (0.256)	−0.017*** (0.000)				
OBSERVATIONS	49,004	14,595	63,599				

Variable definitions in Table 1; Standard errors in parentheses.

Panel C: Distribution of Baseline Samples by Year

YEAR	NO FORECAST	FORECAST	TOTAL	% OF CALLS WITH FORECAST
2001	68	31	99	31%
2002	1,340	466	1,806	26%
2003	1,774	574	2,348	24%
2004	1,771	740	2,511	29%
2005	2,032	725	2,757	26%
2006	2,181	726	2,907	25%
2007	2,470	789	3,259	24%
2008	2,724	897	3,621	25%
2009	2,876	810	3,686	22%
2010	3,062	820	3,882	21%
2011	3,115	825	3,940	21%
2012	2,818	746	3,564	21%
2013	2,911	834	3,745	22%
2014	3,278	970	4,248	23%
2015	3,458	986	4,444	22%
2016	3,382	1,008	4,390	23%
2017	3,400	958	4,358	22%
2018	3,710	1,023	4,733	22%
2019	2,634	667	3,301	20%
TOTAL	49,004	14,595	63,599	23%

definitions).

$$\begin{aligned}
 \text{EARN}_i = & \beta_0 + \alpha \text{Tone measures} + \beta_1 \text{EARN} + \beta_2 \text{LOSS} + \beta_3 \text{RET} + \beta_4 \text{ACC} \\
 & + \beta_5 \text{SIZE} + \beta_6 \text{MTB} + \beta_7 \text{FIRMAGE} + \beta_8 \text{EARNVOL} + \beta_9 \text{RETVOL} \\
 & + \beta_{10} \text{NITEMS} + \beta_{11} \text{NBSEG} + \beta_{12} \text{NGSEG} + \beta_{13} \text{SI} + \beta_{14} \text{MA} \\
 & + \beta_{15} \text{SEO} + \beta_{16} \text{DLW} + \beta_{17} \text{FOG} + \beta_{18} \text{LANALYST} + \beta_{19} \text{SUE} \\
 & + \beta_{20} \text{IOR} + \beta_{21} \text{Q2} + \beta_{22} \text{Q3} + \beta_{23} \text{Q4} + \gamma_1 \text{GUIDANCE} \\
 & + \gamma_2 \text{FORECAST} + \gamma_3 \text{FLS_PCT} + \gamma_4 \text{FORECAST_PCT} \\
 & + \text{year fixed effects} + \text{industry fixed effects} + \eta
 \end{aligned} \tag{1}$$

Panel D: Correlation Matrix of Selected Variables

VARIABLES	TONE	FORECAST _TONE	NONFORE -CAST_TONE	FL _TONE	NFL _TONE	EARN	EARN1	LOSS	RET	SIZE	MTB	RETVOL	EARNVOL
TONE	1.00												
FORECAST _TONE	0.16***	1.00											
NONFORE -CAST_TONE	1.00***	0.11***	1.00										
FL_TONE	0.59***	0.25***	0.59***	1.00									
NFL_TONE	0.97***	0.10***	0.97***	0.40***	1.00								
EARN	0.09***	0.18***	0.09***	0.01*	0.10***	1.00							
EARN1	0.07***	0.17***	0.07***	0.01	0.07***	0.46***	1.00						
LOSS	-0.12***	-0.28***	-0.12***	0.00	-0.14***	-0.51***	-0.38***	1.00					
RET	0.11***	0.03***	0.11***	0.02***	0.12***	0.08***	0.10***	-0.07***	1.00				
SIZE	0.16***	0.16***	0.15***	0.02***	0.17***	0.25***	0.26***	-0.36***	0.10***	1.00			
MTB	0.11***	-0.05***	0.11***	0.01*	0.13***	-0.03***	0.00	0.03***	0.17***	0.16***	1.00		
RETVOL	-0.09***	-0.13***	-0.09***	-0.02***	-0.10***	-0.27***	-0.25***	0.37***	0.07***	-0.47***	0.03***	1.00	
EARNVOL	-0.03***	-0.11***	-0.03***	0.00	-0.03***	-0.26***	-0.26***	0.30***	-0.01***	-0.29***	0.20***	0.36***	1.00

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Variable definitions in Table 1

Firm and call characteristics, industry (2-digit SIC), quarter, and year fixed effect are controlled for. Standard errors are clustered at the firm level¹⁰ to control for autocorrelation induced by firm heterogeneity. Note that the tone measure is the difference between the proportions of negative and positive words rather than a percentage, and return on assets (EARN) is also measured as proportions. This facilitates the display of regression coefficients.

In addition, to account for known predictors of future earnings and isolate the incremental informational content of tone beyond other disclosure signals such as guidance and forward-looking statement intensity, we also include four measures that capture the predictive power of other information signals. Specifically, GUIDANCE is a dummy that equals one if there exists at least one management earnings guidance record in the three trading days around the conference call in the I/B/E/S database, and the identifying measures include “EPS”, “GPS”, and “NET”, following Bozanic et al. (2018); FORECAST is a dummy indicating if there exist any forecast FLSs in the transcripts; FLS_PCT (FORECAST_PCT) is the number of forward-looking statements (forecast FLS) as a percentage of the total number of sentences in the presentation. Evidence in previous research (Bozanic et al., 2018; Chen et al., 2011) suggests that whether managers provide forecasts is likely to be driven by firms’ performance and future uncertainty, and therefore the presence of guidance may have implications on a firm’s future earnings.

It is worth noting that the core variables (FORECAST_TONE, NON-FORECAST_TONE) remain significant after controlling for competing information signals. Similar regression design applies to Section 4.3.

In Table 3, we report results for the subsequent quarter (EARN 1). The first four columns use the sample composed of firm-quarters with at least one forecast FLS — because forecast tone is only defined in the presence of forecast FLS as said, and these specifications are designed to assess its incremental informativeness relative to non-forecast tone. Column (5) uses firm-quarters without forecast FLS to examine whether tone remains informative in the absence of forecast-related disclosure. Column (6) further restricts the sample to firms that never provide forecast FLS, which alleviates concerns that the results are driven by firm-level selection into forecast disclosure. Finally, Column (7) uses the full sample as a benchmark. Note

¹⁰The conclusion does not change with standard errors two-way clustered by year-quarter and firm.

that the empirical design and sample partitioning in Section 4.3 follow the same structure.

TABLE 3.

Informativeness of Forecast Tone							
Forecasting ROA for next quarter (EARN1) with different specifications (Tone measures in proportions)							
VARIABLES	Dep. Var.: ROA for next quarter (EARN1)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
FORECAST_TONE	0.124*** (0.023)	0.122*** (0.023)					
NONFORECAST_TONE	-0.068 (0.082)		-0.022 (0.084)				
TONE				0.007 (0.085)	0.072* (0.040)	0.378* (0.193)	0.050 (0.039)
EARN	0.198*** (0.048)	0.198*** (0.048)	0.201*** (0.048)	0.201*** (0.048)	0.369*** (0.040)	0.435*** (0.073)	0.335*** (0.035)
LOSS	-0.022*** (0.002)	-0.022*** (0.002)	-0.024*** (0.002)	-0.024*** (0.002)	-0.016*** (0.002)	-0.006 (0.004)	-0.018*** (0.002)
OBSERVATIONS	14584	14584	14584	14584	48955	4776	63539
R-SQUARED	0.184	0.184	0.181	0.181	0.336	0.523	0.300
2-SIC FE	YES	YES	YES	YES	YES	YES	YES
YEAR FE	YES	YES	YES	YES	YES	YES	YES
CONTROLS	YES	YES	YES	YES	YES	YES	YES

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ Robust SE in parentheses, clustered at firm level. Control variables include the following though not all reported: Competing information signal controls include GUIDANCE, FORECAST, FLS_PCT, and FORECAST_PCT, which isolate the incremental informational content of tone beyond other disclosure channels. Firm and call characteristic controls include RET, ACC, SIZE, MTB, FIRMAGE, RETVOL, EARNVOL, NBSEG, NGSEG, NITEMS, SI, SEO, MA, DLW, FOG, SUE, LANALYST, IOR, as well as quarter (Q2-Q4), year, and industry fixed effects, which ensure comparability across observations. Variable definitions are detailed in Table 1. Sample in Col (1) to Col (4): firm-quarters with at least one forecast FLS. This restriction is because forecast tone is only defined when forecast FLS is present, and these specifications focus on the incremental informativeness of forecast tone relative to non-forecast tone. Col (5) uses firm-quarters without forecast FLS to examine whether tone is informative in the absence of forecast-related disclosure. Col (6) further restricts the sample to firms that never provide forecast FLS, aiming to mitigate concerns that results are driven by firm-level selection into forecast disclosure. Col (7) uses the full sample to provide a benchmark specification. All specifications further require non-missing dependent variables (EARN1), leading to differences in observation counts across columns relative to Table 2 Panel C.

The results in Table 3 show that forecast tone is positively associated with future return on assets. Importantly, this relation remains statistically significant when forecast tone and non-forecast tone are included simultaneously, indicating that forecast tone has incremental predictive power for future earnings. Non-forecast tone does not have predictive power. Second, the results in columns (4) to (7) of Table 3 show that, with earnings of this

quarter controlled for, the overall tone is not incrementally predictive of the future return on assets in the subsequent quarter.

Importantly, our identification does not rely on comparing forecast tone across observations without forecast FLS. Instead, it relies on variation in forecast tone conditional on the presence of forecast disclosure, while controlling for the occurrence and intensity of such disclosure. This design isolates the informational content of tone embedded in forecast-related statements, rather than capturing cross-firm differences in disclosure propensity.

To formally assess whether the tone effects differ across subsamples, we conduct coefficient equality tests using pooled regressions with interaction terms. The results indicate that the effect of overall tone on future earnings is not statistically significant and does not differ significantly between firm-quarters with and without forecast FLS (Columns (4) and (5), p -value = 0.47). This evidence suggests that the informational value of tone may primarily manifest when associated with an earnings-related forecasting context.

In conclusion, the results support H1 that the forecast tone is informative and more informative than the other general tones. Further, results also suggest that overall tone does not exhibit incremental predictive power, and its informational value may manifest only when associated with an earnings-related forecasting context.

For brevity, we only report results for the subsequent quarter (EARN1) in Table 3, results for longer-horizon earnings (EARN2-EARN4) in the Appendix Table yield qualitatively similar conclusions. Importantly, the predictive power of forecast tone persists beyond the first quarter, although it gradually attenuates over time. We interpret this pattern as evidence of a non-trivial informational half-life: the tone embedded in forward-looking statements reflects managerial expectations about future fundamentals that are realized progressively across multiple quarters, rather than being fully incorporated within a single period. In contrast, both non-forecast tone and aggregate tone exhibit little persistence beyond the first quarter, suggesting that they primarily capture transitory narrative or sentiment that is quickly incorporated into expectations and does not carry durable information about future performance. Taken together, the differential decay pattern highlights that forecast tone conveys more persistent, fundamentals-based information, whereas non-forecast tone reflects short-lived linguistic content. This distinction reinforces that the informativeness of tone is concentrated in its forecast-related component.

4.3. Market Response to Forecast Tone

Next, we examine the market responses to different tones. The preceding analysis in Section 4.2 established that forecast tone possesses significant incremental predictive power for a firm's future ROA. A critical question that follows is whether and how capital market participants (investors and analysts) recognize and price this information. If markets are efficient, we would expect a stronger reaction to the more informative forecast tone. Conversely, if investors are constrained by inattention or information-processing costs, they might fail to distinguish between the different tone components. This could lead to an underreaction to the value-relevant forecast tone or an overreaction to the less informative non-forecast tone. Thus, examining market responses to different tone components provides an alternative validation of forecast tone's informativeness and, at the same time, sheds light on the market's efficiency in processing such context-embedded soft information. Ex ante, we hypothesize that the market response may not be sharper for forecast tone than for non-forecast tone for reasons detailed in Section 2.2.

$$\begin{aligned}
& \text{CAR_CALL/REVERSAL_MONTH/REVISION} = \beta_0 + \alpha \text{Tone measures} \\
& + \beta_1 \text{EARN} + \beta_2 \text{LOSS} + \beta_3 \text{RET} + \beta_4 \text{ACC} + \beta_5 \text{SIZE} + \beta_6 \text{MTB} \\
& + \beta_7 \text{FIRIMAGE} + \beta_8 \text{EARNVOL} + \beta_9 \text{RETVOL} + \beta_{10} \text{NITEMS} + \beta_{11} \text{NBSEG} \\
& + \beta_{12} \text{NGSEG} + \beta_{13} \text{SI} + \beta_{14} \text{MA} + \beta_{15} \text{SEO} + \beta_{16} \text{DLW} + \beta_{17} \text{FOG} \\
& + \beta_{18} \text{LANALYST} + \beta_{19} \text{SUE} + \beta_{20} \text{IOR} + \beta_{21} \text{Q2} + \beta_{22} \text{Q3} + \beta_{23} \text{Q4} \\
& + \gamma_1 \text{GUIDANCE} + \gamma_2 \text{FORECAST} + \gamma_3 \text{FLS_PCT} + \gamma_4 \text{FORECAST_PCT} \\
& + \text{year fixed effects} + \text{industry fixed effects} + \eta
\end{aligned} \tag{2}$$

We examine the event window cumulative market- or size-adjusted returns (CAR_CALL), cumulative market- or size-adjusted returns in the subsequent month (REVERSAL_MONTH), and analyst revisions around the event window (REVISION). The regression design is similar to that used to examine the informativeness of tones, with market response proxies replacing future ROA as dependent variables. Note that the tone measure is the difference between the proportions of negative and positive words rather than a percentage, and stock returns and analyst revisions are also measured as proportions. This facilitates the display of regression coefficients.

TABLE 4.

Market Response to Forecast Tone

Panel A: 3-day Cumulative Event Window Market-adjusted Return (CAR_CALL) (Tone measures in proportions)

Dep. Var.: 3-day Cumulative Event Window Market-adjusted Return (CAR_CALL)							
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)
FORECAST_TONE	0.035 (0.029)	0.070** (0.029)					
NONFORECAST_TONE	1.467*** (0.117)		1.480*** (0.117)				
TONE				1.499*** (0.119)	1.255*** (0.062)	0.934*** (0.246)	1.294*** (0.056)
EARN	0.037 (0.024)	0.033 (0.023)	0.038 (0.024)	0.037 (0.024)	0.080*** (0.014)	0.022 (0.030)	0.068*** (0.013)
LOSS	-0.015*** (0.002)	-0.017*** (0.002)	-0.015*** (0.002)	-0.015*** (0.002)	-0.016*** (0.001)	-0.016*** (0.005)	-0.016*** (0.001)
OBSERVATIONS	12,659	12,659	12,659	12,659	42,726	3,837	55,385
R-SQUARED	0.070	0.057	0.070	0.070	0.074	0.069	0.071
2-SIC FE	YES	YES	YES	YES	YES	YES	YES
YEAR FE	YES	YES	YES	YES	YES	YES	YES
CONTROLS	YES	YES	YES	YES	YES	YES	YES

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ Robust standard errors in parentheses, clustered at firm level. Control variables include the following though not all reported: Competing information signal controls include GUIDANCE, FORECAST, FLS_PCT, and FORECAST_PCT, which isolate the incremental informational content of tone beyond other disclosure channels. Firm and call characteristic controls include RET, ACC, SIZE, MTB, FIRMAGE, RETVOL, EARNVOL, NBSEG, NGSEG, NITEMS, SI, SEO, MA, DLW, FOG, SUE, LANALYST, IOR, as well as quarter (Q2-Q4), year, and industry fixed effects, which ensure comparability across observations. Variable definitions are detailed in Table 1. Sample in Col (1) to Col (4): firm-quarters with at least one forecast FLS. This restriction is because forecast tone is only defined when forecast FLS is present, and these specifications focus on the incremental informativeness of forecast tone relative to non-forecast tone. Col (5) uses firm-quarters without forecast FLS to examine whether tone is informative in the absence of forecast-related disclosure. Col (6) further restricts the sample to firms that never provide forecast FLS, aiming to mitigate concerns that results are driven by firm-level selection into forecast disclosure. Col (7) uses the full sample to provide a benchmark specification. All specifications further require non-missing dependent variables (EARN1), leading to differences in observation counts across columns relative to Table 2 Panel C.

Panel A in Table 4 presents the results for cumulative market-adjusted returns¹¹ (3 trading days around the conference call date) (CAR_CALL). In column (1), when forecast tone and non-forecast tone are included simultaneously, the coefficient on non-forecast tone remains positive and statistically significant, whereas the coefficient on forecast tone is statistically insignificant, indicating that forecast tone does not provide incremental pricing effects. The results are robust to Fama-MacBeth estimation (1973), which yields qualitatively similar inferences and alleviates concerns about

¹¹Using size-adjusted returns give similar results and thus not shown.

TABLE 4—*Continued*

Panel B: Cumulative Market-adjusted Returns in 1 Month (REVERSAL_MONTH) (Tone measures in proportions)

VARIABLES	Dep. Var.: Cumulative Market-adjusted Returns in 1 Month (REVERSAL_MONTH)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
FORECAST_TONE	−0.023 (0.031)	−0.016 (0.031)					
NONFORECAST_TONE	0.264** (0.114)		0.255** (0.113)				
TONE				0.250** (0.114)	0.101* (0.061)	−0.213 (0.311)	0.140** (0.055)
EARN	0.099*** (0.021)	0.098*** (0.021)	0.098*** (0.021)	0.098*** (0.021)	0.069*** (0.015)	0.060 (0.042)	0.075*** (0.012)
LOSS	−0.005* (0.003)	−0.005* (0.003)	−0.004* (0.003)	−0.004* (0.003)	−0.003** (0.002)	−0.005 (0.006)	−0.003*** (0.001)
OBSERVATIONS	13,954	13,954	13,954	13,954	46,663	4,400	60,617
R-SQUARED	0.027	0.026	0.027	0.027	0.022	0.045	0.021
2-SIC FE	YES	YES	YES	YES	YES	YES	YES
YEAR FE	YES	YES	YES	YES	YES	YES	YES
CONTROLS	YES	YES	YES	YES	YES	YES	YES

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ Robust standard errors in parentheses, clustered at firm level. Control variables include the following though not all reported: Competing information signal controls include GUIDANCE, FORECAST, FLS_PCT, and FORECAST_PCT, which isolate the incremental informational content of tone beyond other disclosure channels. Firm and call characteristic controls include RET, ACC, SIZE, MTB, FIRMAGE, RETVOL, EARNVOL, NBSEG, NGSEG, NITEMS, SI, SEO, MA, DLW, FOG, SUE, LANALYST, IOR, as well as quarter (Q2-Q4), year, and industry fixed effects, which ensure comparability across observations. Variable definitions are detailed in Table 1. Sample in Col (1) to Col (4): firm-quarters with at least one forecast FLS. This restriction is because forecast tone is only defined when forecast FLS is present, and these specifications focus on the incremental informativeness of forecast tone relative to non-forecast tone. Col (5) uses firm-quarters without forecast FLS to examine whether tone is informative in the absence of forecast-related disclosure. Col (6) further restricts the sample to firms that never provide forecast FLS, aiming to mitigate concerns that results are driven by firm-level selection into forecast disclosure. Col (7) uses the full sample to provide a benchmark specification. All specifications further require non-missing dependent variables (EARN1), leading to differences in observation counts across columns relative to Table 2 Panel C.

cross-sectional dependence¹². This finding may result from more salient and ex-post verifiable quantitative information competing away investors' limited attention, or from investors overweighting the salient overall optimism documented in Section 4.1 while underweighting the less salient but more informative forecast tone, consistent with implications of rational inattention models (Blankespoor et al., 2020).

¹²Fama-MacBeth estimation (1973) yields qualitatively similar inferences — NON-FORECAST_TONE remains significantly positive for CAR_CALL ($t = 3.14$), whereas FORECAST_TONE is not statistically significant ($t = 1.62$); for REVERSAL_MONTH, neither tone measure is statistically significant ($t = -1.03$ and -0.36 , respectively) — again, alleviating concerns about cross-sectional dependence.

TABLE 4—*Continued*

Panel C: Analyst Revision (REVISION) (Tone measures in proportions)

VARIABLES	Dep. Var.: Analyst Revision (REVISION)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
FORECAST_TONE	1.521*** (0.265)	1.703*** (0.266)					
NONFORECAST_TONE	7.515*** (0.905)		8.082*** (0.914)				
TONE				8.445*** (0.928)	5.417*** (0.478)	2.481 (2.026)	5.967*** (0.452)
EARN	−0.179 (0.132)	−0.201 (0.136)	−0.135 (0.130)	−0.139 (0.130)	−0.609*** (0.117)	−0.673*** (0.230)	−0.501*** (0.095)
LOSS	−0.105*** (0.018)	−0.113*** (0.018)	−0.126*** (0.018)	−0.123*** (0.018)	−0.138*** (0.012)	−0.107*** (0.039)	−0.137*** (0.011)
OBSERVATIONS	13,990	13,990	13,990	13,990	46,765	4,552	60,755
R-SQUARED	0.173	0.167	0.169	0.170	0.167	0.154	0.164
2-SIC FE	YES	YES	YES	YES	YES	YES	YES
YEAR FE	YES	YES	YES	YES	YES	YES	YES
CONTROLS	YES	YES	YES	YES	YES	YES	YES

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ Robust standard errors in parentheses, clustered at firm level. Control variables include the following though not all reported: Competing information signal controls include GUIDANCE, FORECAST, FLS_PCT, and FORECAST_PCT, which isolate the incremental informational content of tone beyond other disclosure channels. Firm and call characteristic controls include RET, ACC, SIZE, MTB, FIRMAGE, RETVOL, EARNVOL, NBSEG, NGSEG, NITEMS, SI, SEO, MA, DLW, FOG, SUE, LANALYST, IOR, as well as quarter (Q2-Q4), year, and industry fixed effects, which ensure comparability across observations. Variable definitions are detailed in Table 1. Sample in Col (1) to Col (4): firm-quarters with at least one forecast FLS. This restriction is because forecast tone is only defined when forecast FLS is present, and these specifications focus on the incremental informativeness of forecast tone relative to non-forecast tone. Col (5) uses firm-quarters without forecast FLS to examine whether tone is informative in the absence of forecast-related disclosure. Col (6) further restricts the sample to firms that never provide forecast FLS, aiming to mitigate concerns that results are driven by firm-level selection into forecast disclosure. Col (7) uses the full sample to provide a benchmark specification. All specifications further require non-missing dependent variables (EARN1), leading to differences in observation counts across columns relative to Table 2 Panel C.

In columns (4) to (7), the significantly positive coefficient estimates for TONE suggest that investors respond more positively to the implied positivity in overall tone, consistent with prior research (e.g., Davis et al., 2012; Li, 2010). Further, while the difference in Tone coefficients between forecast and non-forecast subsamples seems to support that the presence of forecast FLS magnifies the pricing effect of tone, Chow (1960) tests indicate that this apparent difference is not statistically significant (p -values > 0.05), suggesting that investors do not meaningfully distinguish between tone associated with and without forecast-related disclosure.

Panel B displays the result of cumulative market-adjusted returns¹³ from the second trading day to the 20th trading day after the conference call (REVERSAL_MONTH). While we expect some reversals to tone that do not incrementally predict future earnings, the result is the opposite. First, in columns (1) to (4), even when the conference call includes earnings forecast-like FLS, investors still positively respond to tone in the other portion (NONFORECAST_TONE) or the overall tone (TONE), though in a smaller magnitude than that during the three-day event window. However, there is no significant response to tone in earnings forecast-like FLS (i.e., forecast tone), after controlling for non-forecast tone, suggesting that forecast tone does not have incremental explanatory power for post-call returns. Consistent with the evidence in Panel A, Chow (1960) tests for Columns (4) to (7) indicate that the differences in tone coefficients across subsamples are not statistically significant (all p -values > 0.10), suggesting that the estimated effects of overall tone are broadly similar across subsamples and generally weak in statistical significance.

Panel C reports results on analyst revision. In column (1), unlike investors, analysts respond to the positivity implied in the forecast tone, after controlling for non-forecast tone, suggesting that analysts incorporate the incremental information contained in forecast tone into their expectations. In the analysis not tabulated, the magnitudes of analyst revisions responding to one standard deviation changes in forecast tone and non-forecast tone are comparable when using standardized tone measures. In columns (4) to (7), results show that analysts adjust the forecast for the next quarter's EPS upward for more positive tones, with the effects being larger in magnitude and statistically significant in the presence of forecast FLS. For firms never providing forecast FLS, positivity implied in tone does not lead to a significant change in analysts' forecast, suggesting that, unlike investors, analysts view tone with forecast FLS as more credible. Coefficient equality tests support that the differences in tone effects across subsamples are statistically significant ($p < 0.01$), suggesting that analysts meaningfully distinguish between tone associated with and without forecast-related disclosure.

The above analyses suggest that the market does not fully respond to the most informative part of the tone, especially for investors. Taken together with the divergence documented in Section 4.1 — namely, that overall tone is strongly positive while forecast tone is on average conservative and only weakly correlated with general tone — this evidence is consistent with

¹³Using size-adjusted returns give similar results and thus not shown.

a setting in which investors are influenced by broadly optimistic narrative tone while failing to fully incorporate the more conservative and informative signals embedded in forecast tone. However, analysts appear to recognize the incremental predictive power of forecast tone and view overall tone with forecast FLS present as more credible.

5. PLACEBO TESTS: IS THE INFORMATIVENESS DRIVEN BY FORECAST TONE OR BROADER DISCLOSURE CONTEXTS?

The main analysis shows that the informativeness of tone is concentrated in forecast tone, which is constructed from earnings-oriented and quantitative forward-looking statements. However, this raises an important identification question: whether the observed informativeness reflects the specific forecasting context, or more general forward-looking or guidance-related disclosure contexts.

TABLE 5.

Placebo Test of Informativeness

Panel A: It is Forecast Tone not Tone in Forward-looking Statements that Are Informative

VARIABLES	FUTURE EARNINGS			
	EARN1	EARN2	EARN3	EARN4
FORECAST_TONE	0.125*** (0.023)	0.096*** (0.019)	0.070*** (0.021)	0.064*** (0.021)
FL_TONE	-0.021 (0.054)	-0.015 (0.055)	-0.081 (0.060)	0.055 (0.058)
NFL_TONE	-0.035 (0.077)	-0.012 (0.075)	-0.015 (0.073)	-0.028 (0.078)
OBSERVATIONS	14,584	14,554	14,509	14,433
R-SQUARED	0.184	0.162	0.182	0.172
2-SIC FE	YES	YES	YES	YES
YEAR FE	YES	YES	YES	YES
CONTROLS	YES	YES	YES	YES

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ Robust standard errors in parentheses, clustered at firm level. Control variables include the following though not all reported: Competing information signal controls include GUIDANCE, FORECAST, FLS_PCT, and FORECAST_PCT, which isolate the incremental informational content of tone beyond other disclosure channels. Firm and call characteristic controls include RET, ACC, SIZE, MTB, FIRMAGE, RETVOL, EARNVOL, NBSEG, NGSEG, NITEMS, SI, SEO, MA, DLW, FOG, SUE, LANALYST, IOR, as well as quarter (Q2-Q4), year, and industry fixed effects, which ensure comparability across observations. Variable definitions are detailed in Table 1. The sample comprises quarterly earnings conference call presentations with at least one forecast FLS, as forecast tone is only defined in this setting and remains the focus of the analysis.

To address this concern, we implement a set of placebo tests based on alternative decompositions of the same presentation transcript. Specifically, we partition the transcript in three different ways: forecast FLS versus the remaining content (main decomposition), FLS versus non-FLS, and GF versus non-GF. The classification algorithm and illustrations of alternative partitions and their nested structure are in Appendix A.

TABLE 5—*Continued*

Panel B: It is Forecast Tone not Tone in General Forecast Statements that Matters

VARIABLES	FUTURE EARNINGS			
	EARN1	EARN2	EARN3	EARN4
FORECAST_TONE	0.121*** (0.022)	0.101*** (0.019)	0.067*** (0.021)	0.059*** (0.021)
GF_TONE	0.015 (0.045)	−0.043 (0.037)	−0.017 (0.049)	0.055 (0.043)
NONGF_TONE	−0.062 (0.073)	0.007 (0.072)	−0.054 (0.071)	−0.024 (0.080)
OBSERVATIONS	14,584	14,554	14,509	14,433
R-SQUARED	0.184	0.162	0.182	0.172
2-SIC FE	YES	YES	YES	YES
YEAR FE	YES	YES	YES	YES
CONTROLS	YES	YES	YES	YES

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ Robust standard errors in parentheses, clustered at firm level. Control variables include the following though not all reported: Competing information signal controls include GUIDANCE, FORECAST, FLS_PCT, and FORECAST_PCT, which isolate the incremental informational content of tone beyond other disclosure channels. Firm and call characteristic controls include RET, ACC, SIZE, MTB, FIRMAGE, RETVOL, EARNVOL, NBSEG, NGSEG, NITEMS, SI, SEO, MA, DLW, FOG, SUE, LANALYST, IOR, as well as quarter (Q2-Q4), year, and industry fixed effects, which ensure comparability across observations. Variable definitions are detailed in Table 1. The sample comprises quarterly earnings conference call presentations with at least one forecast FLS, as forecast tone is only defined in this setting and remains the focus of the analysis.

First, to verify that it is tone in forecast FLS rather than tone in general FLS that is informative, we examine the incremental predictive power of tone in the FLS portion (FL_TONE) and tone in the non-FLS portion (NFL_TONE) for the firm's future earnings. The analysis is conducted using firm-quarters with at least one forecast FLS, as forecast tone is only defined in this setting and remains the focus of the tests. Results are reported in Table 5 Panel A. When forecast tone is included, the results show that most of the informativeness comes from forecast tone rather than general forward-looking statements.

We next examine the incremental predictive power of tone in general guidance statements (GF_TONE) and the remaining portion (NONGF_TONE).

GF_TONE is constructed from forward-looking sentences within guidance-related speaker turns, where a turn is classified as guidance-related if it contains the keyword “guidance” or includes at least one forecast FLS (see Appendix A for details of the classification algorithm). The remaining portion of the transcript forms NONGF_TONE. Importantly, because any speaker turn containing a forecast FLS is classified as guidance-related, forecast FLS is necessarily included in GF, implying a nested structure in which forecast FLS $\subset$ GF $\subset$ FLS.

If tone informativeness arises from general guidance-related disclosure, GF_TONE should also exhibit predictive power. However, in Table 5 Panel B, we do not find evidence supporting this prediction. Taken together, these placebo tests indicate that the informativeness of tone does not stem from general forward-looking or guidance-related disclosure, but is concentrated in the most restrictive subset — forecast FLS. This supports the interpretation that tone is informative only when embedded in earnings-oriented and quantitative forecasting contexts.

6. ADDITIONAL ANALYSES

6.1. Forecast FLS can be Incrementally Informative

In developing the first hypothesis, we argue that forecasting FLS in earnings conference calls can be incrementally informative. This section presents additional support for this argument. To proceed, we manually examine randomly chosen samples of forecast FLS identified by the algorithm. This also verifies the effectiveness of the algorithm in categorizing disclosure contexts.

First, we find that some firms provide forecast FLS to disclose details on previously issued guidance, a practice suggested by the SEC¹⁴. For example, in November 2018, Supernus Pharmaceuticals Inc. (SUPN) disclosed in its third-quarter earnings conference call its forecast for the licensing and royalty revenue for 2018, which was not included in its earnings press release.¹⁵ Second, a substantial amount of forecast FLS contains fore-

¹⁴To comply with Reg FD, SEC suggests that “an issuer can use the press release to provide the initial broad distribution of the information, and then discuss its release with analysts in the subsequent conference call, without fear that if it should disclose additional material details related to the original disclosure it will be engaging in a selective disclosure of material information.” For details, please refer to SEC website: <https://www.sec.gov/rules/final/33-7881.htm#P172.66198>

¹⁵<https://seekingalpha.com/article/4219360-supernus-pharmaceuticals-supn-ceo-jack-khattar-on-q3-2018-results-earnings-call-transcript>; <https://ir.supernus.com/news-releases/news-release-details/supernus-announces-third-quarter-2018-financial-results-and>

casts that are not included in the prior earnings press release. As another example, in April 2017, during the first quarter earnings conference call, Mercantile Bank Corporation (MBWM) discussed the forecast of its non-interest income for the next three quarters of 2017¹⁶ which was not stated in its press release.¹⁷

To further verify that forecast FLS can contain information not communicated in other ways, we look for records of management earnings guidance issued within 24 hours prior to the earnings call start time in the I/B/E/S database. We use I/B/E/S records as a proxy for the existence of management earnings guidance issued in the earnings press release, following the practice of Bozanic et al. (2018). Among the 32,242 conference calls with forecast FLSs, we can find records in I/B/E/S for only 46.9% (15,133) of those earnings calls. If we restrict records in the I/B/E/S database to only quarterly management earnings guidance, the percentage is only 26.6% (8,566). Note that we only focus on the existence of records, and an exact match between the forecast information and records in the I/B/E/S database will restrict the size further. The statistics further support the argument that forecast FLSs can contain information in addition to management earnings guidance issued in the press releases.

6.2. Managers Provide Forecast FLS When it is More Valuable

As discussed in Section 2.1.3, the informational value of forecast FLS and forecast tone depends on the situations in which managers provide forecast FLS. If managers are more likely to provide (or provide more) forecast FLS when uncertainty is high, and managers' forecast is more valuable under uncertainty (Maslar et al., 2021), the informational value of forecast tone is enhanced.

To proceed, we examine the determinants of managers' decisions to issue formal earnings guidance and provide forecasts in conference calls. Since these two decisions will likely be determined together, we conduct a seemingly unrelated bivariate probit regression analysis of their determinants. The analysis is conducted using the baseline sample rather than conditional on the presence of forecast disclosure. The presence of earnings guidance is proxied by a dummy GUIDANCEQ, indicating the existence of at least one record of management earnings guidance in I/B/E/S within 90 days be-

¹⁶<https://seekingalpha.com/article/4063142-mercantile-banks-mbwm-ceo-bob-kaminski-on-q1-2017-results-earnings-call-transcript>

¹⁷<https://ir.mercbank.com/news-market-data/press-releases/press-release/2017/Mercantile-Bank-Corporation-Reports-Strong-First-Quarter-2017-Results/default.aspx>

fore or after the earnings conference call. The identifying measures include “EPS”, “GPS”, and “NET”, following Bozanic et al. (2018).

TABLE 6.
Seemingly Uncorrelated Bivariate Probit Regression on Earnings Guidance
and Providing Forecast in Conference Call Presentations

VARIABLES	(1) GUIDANCEQ	(2) FORECAST
EARN	0.927*** (0.253)	0.774*** (0.200)
LOSS	-0.146*** (0.038)	0.187*** (0.030)
RET	0.036 (0.031)	0.018 (0.029)
RETVOL	-1.474*** (0.304)	-0.440** (0.202)
EARNVOL	-2.273*** (0.540)	0.153 (0.289)
OBSERVATIONS	63,599	63,599
2-SIC FE	YES	YES
YEAR FE	YES	YES
CONTROLS	YES	YES

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ Robust standard errors in parentheses, clustered at firm level. Other firm and call characteristic as explaining variables include ACC, SIZE, MTB, FIRMAGE, NBSEG, NGSEG, NITEMS, SI, SEO, MA, DLW, FOG, SUE, LANALYST, IOR, as well as quarter (Q2-Q4), year, and industry fixed effects, which ensure comparability across observations. The definition is detailed in Table 1. Sample: baseline sample with non-missing variables required for the bivariate probit estimation. This specification uses the full sample because the objective is to examine the determinants of providing forecast FLS and earnings guidance across all firm-quarters.

Though I/B/E/S records may include those forecast disclosed through forecast FLS in conference calls (ideally, we want to have a proxy for the existence of other management earnings guidance), the significantly different coefficient estimates in Table 6 provide some assurance that the GUIDANCEQ dummy mostly captures other formal management guidance. The results show that managers in firms experiencing loss are more likely to provide forecasts in conference calls and less likely to issue management guidance. While managers in firms with more volatile earnings and stock returns are less likely to issue earnings guidance, the decision to provide forecasts in earnings conference calls is much less sensitive to operational volatility. These findings suggest that forecast FLSs are present when un-

certainty is high (and when they are more valuable) and the informational value of forecast tone is enhanced.

7. CONCLUSION

Understanding why tone is informative is important for researchers and market participants to treat tone as a form of soft disclosure rather than a mere linguistic feature and for regulators to consider how to discipline it. In this essay, we aim to find the source of its informativeness.

The tone related to predicting a firm's future may be more informative. However, the validity of this argument depends on multiple factors. For example, it requires managers to have an informational advantage and be willing to disclose voluntarily. Even when the forecast is informative, this does not translate into an incrementally informative tone. To proceed, we examine firms' quarterly earnings conference calls, a situation where tone is more relevant. Specifically, we classify tone based on its embedded contexts and examine the predictive power of and the market reaction to different tones.

We find that forecast tone, the tone in earnings-oriented and quantitative forward-looking statements, predicts the firm's future earnings, whereas the tone in other parts of the prepared scripts is less informative. We suggest that the informational value of tone may only manifest when embedded in an earnings-related forecasting context. However, investors do not fully distinguish the source of this informativeness and appear to rely more on the overall narrative tone, with the issue being less severe with analysts.

Further analysis shows that it is the forecast tone rather than the tone in general forward-looking statements that is informative, supporting the argument that the informativeness of tone comes from facilitating communication of managers' informed opinions on the firm's future. In addition, firms are less willing to provide earnings guidance but more likely to provide forecasts in earnings conference calls when uncertainty is high. To the extent that managers' forecasts are valuable when uncertainty is high (Maslar et al., 2021), the informational value of forecast tone is enhanced.

Overall, the above analysis suggests that tone conveys information about future earnings only when embedded in an earnings-related forecasting context, and market participants differ in their sensitivity to information. These findings help reconcile mixed evidence in the prior literature by showing that the informativeness of tone depends critically on its contextual embedding.

There are some caveats in this study. First, to test the informativeness of tone, it is important to control for other predictors of a firm's future earnings. If the list of controls is not exhaustive (which is very likely), the validity of the test requires that uncontrolled factors are uncorrelated with tone. One mitigation for this concern is that the tone in forward-looking statements does not seem different from that in other portions regarding informativeness (both lack informativeness). This finding at least rules out the possibility of missing controls correlated with both the tone in FLSs and that in forecast FLSs, because if they exist, we would expect to observe similar patterns for tone in FLSs.

Second, while the findings support the usefulness of dictionary-based tone measures and textual analysis in classifying FLS and forecast FLS, our test is still a joint test of the validity of the methodology and the proposed hypothesis. Even when the methodology is valid, the tone measure in this essay only captures one dimension of tone — implied positivity. Other dimensions of tone may also be informative, and future research can explore dimensions such as certainty, uncertainty, and sentiment complexity to enhance a more nuanced understanding.

DATA AVAILABILITY STATEMENT

The data that supports the findings of this study are openly available in the following repositories:

- Center for Research in Security Prices (CRSP) at <https://www.crsp.org>. Access is provided through a subscription.
- Refinitiv I/B/E/S at <https://www.refinitiv.com/en/products/ibes-research>. Access is provided through a subscription.
- Compustat Database at <https://www.s&pglobal.com/marketintelligence/en/solutions/sp-capitaliq-platform>. Access is provided through a subscription.
- Refinitiv Business Ownership at <https://www.refinitiv.com/en/products/ownership-data>. Access is provided through a subscription.
- Refinitiv StreetEvents at <https://www.refinitiv.com/en/products/streetevents>. Access is provided through a subscription.

The code that supports the findings of this study is openly available in the following repositories:

- GitHub `ling_features` repository at https://github.com/iangow/ling_features. This repository is publicly accessible.

- Publication: Anand, V., Bochkay, K., Chychyla, R., and Leone, A. (2020). Using Python for Text Analysis in Accounting Research. *Foundations and Trends® in Accounting*, 14(3-4), 128-359. <https://doi.org/10.1561/14000000062>.

APPENDIX A

Keyword Lists and Classification Algorithm (Pseudocode)

FORWARD-LOOKING KEYWORD LIST (FLS TRIGGER TERMS)

We identify forward-looking statements using a predefined dictionary of forward-looking expressions. The list is constructed based on prior literature on forward-looking disclosures (e.g., Bozanic et al., 2018; Muslu et al., 2015) and computational implementations in accounting textual analysis (e.g., Anand et al., 2020), and is further expanded to reflect the linguistic characteristics of conference-call transcripts. Importantly, rather than directly adopting any single prior dictionary, we construct an expanded list tailored to conference-call language, where forward-looking expressions are more varied and less standardized. Specifically, each term is implemented using regular expressions with word-boundary constraints to avoid partial matches (e.g., “plan” does not match “planet”).

In addition, we incorporate dynamic future-year detection to identify forward-looking statements that reference specific calendar years beyond the conference-call year. Concretely, for each call, we extract the fiscal year associated with the transcript and classify any sentence containing references to subsequent calendar years (e.g., $t + 1$ to $t + 9$) as forward-looking. This extension is particularly important in conference-call settings, where managers frequently refer to explicit future fiscal periods (e.g., “2025” or “2026”) rather than using generic forward-looking expressions. Here is the full list.

(1) Temporal indicators

- will
- future
- next fiscal / next month / next period / next quarter / next year
- incoming fiscal / month / period / quarter / year
- coming fiscal / month / period / quarter / year
- upcoming fiscal / month / period / quarter / year
- subsequent fiscal / month / period / quarter / year

- following fiscal / month / period / quarter / year

(2) Expectation-related verbs

- expect / expects / expected / expecting
- do not expect / does not expect / not expected / not expecting
- normally expect / currently expect / also expect

(3) Intention / planning verbs

- aim / aims / aiming
- plan / plans / planning
- intend / intends / intending
- target / targets / targeting
- seek / seeks / seeking

(4) Forecasting / projection verbs

- forecast / forecasts / forecasting
- project / projects / projecting
- foresee / foresees / foreseeing
- anticipate / anticipates / anticipating

(5) Commitment / assumption verbs

- commit / commits / committing
- assume / assumes / assuming

(6) Soft expectation verbs

- hope / hopes / hoping

EARNINGS-RELATED KEYWORD LIST

We define earnings-related content using a narrow, profitability-focused dictionary. Specifically, we exclude broader performance terms such as revenue, sales, or growth, as these do not necessarily map to realized profitability and may reflect non-earnings operational outcomes. Besides, earnings-related terms are also matched using case-insensitive regular expressions with word boundaries. Our list is as follows:

- earnings
- EPS

- income
- loss / losses
- profit / profits

QUANTITATIVE INDICATORS

To identify forecast-type statements, we further require the presence of quantitative content:

- thousand / million / billion
- percent / %
- dollar / dollars / \$

CLASSIFICATION ALGORITHM (PSEUDOCODE)

Input: Conference call transcript (text)

Step 1: Sentence segmentation

Split the transcript into sentences using an NLP tokenizer.

Step 2: Forward-looking classification

For each sentence:

- If the sentence contains any FLS keyword or a future-year reference, classify it as a Forward-Looking Sentence (FLS).
- Otherwise, classify it as Non-FLS.

Step 3: Earnings classification (within FLS)

For each FLS sentence:

- If it contains at least one earnings-related keyword, mark it as Earnings-related.

Step 4: Quantitative classification (within FLS)

For each FLS sentence:

- If it contains numeric or quantitative content, mark it as Quantitative.

Step 5: Forecast FLS identification

For each FLS sentence:

- If both Earnings-related = TRUE and Quantitative = TRUE, classify it as a Forecast FLS.

Step 6: Speaker-turn level classification (guidance context)

Group sentences into speaker turns (continuous speech by a single speaker).

For each speaker turn:

- If the turn contains the keyword “guidance”, or if the turn includes at least one forecast FLS, classify the turn as guidance-related.

Step 7: Construction of text partitions

Using the above classifications, construct three alternative partitions of the same transcript:

(A) Main decomposition:

- Forecast FLS
- Non-forecast part = all remaining sentences in the transcript

(B) Forward-looking decomposition (placebo, section 5):

- FLS
- Non-FLS

(C) Guidance-based decomposition (placebo, section 5):

- GF: all FLS sentences within guidance-related speaker turns
- Non-GF: all remaining sentences in the transcript

Note: Forecast FLS $\subset$ GF $\subset$ FLS.

Step 8: Aggregation and tone construction (call level)

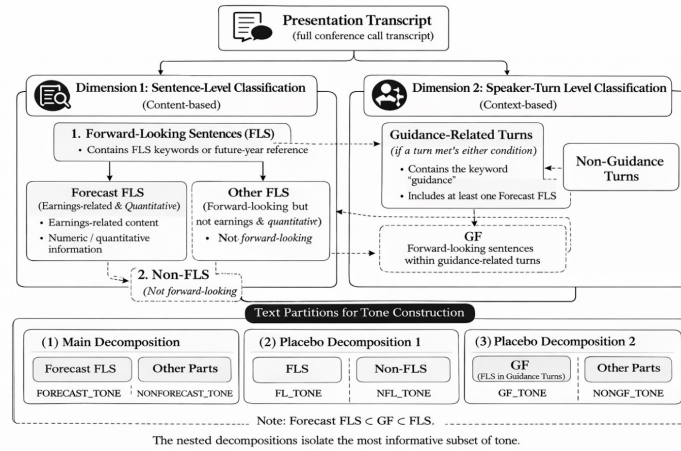
Using the aggregated counts, construct call-level variables for empirical analysis, including:

- FLS proportion and forecast-FLS proportion;
- tone measures for the full presentation, the FLS portion, the non-FLS portion, the forecast-FLS portion, and the non-forecast portion;
- corresponding length, numeric intensity, and fog measures.

For example, forecast tone is computed as the difference between positive and negative word counts scaled by total word count within the forecast-FLS partition, and non-forecast measures are constructed as the complement of forecast-FLS measures within the presentation (i.e., Transcript ? Forecast FLS, rather than other FLS only).

Step 9: Regression input

Use these constructed call-level measures as the explanatory variables in the call-level regressions.

FIG. 1. Alternative Transcript Decompositions

Note: Figure created by authors with assistance from ChatGPT (OpenAI).

APPENDIX B

Sample Attrition and Regression-Level Availability

Panel A. Sample Attrition

VARIABLES	(1) Number of Obs.	(2) Percentage of raw call sample	(3) Percentage of previous
Raw transcript sample	146,152	100.0%	
Baseline sample	63,599	43.5%	43.5%
Forecast subsample	14,595	10.0%	22.9%

Notes: The baseline sample requires non-missing values for linguistic measures, all control variables, the fixed-effects variables (SIC and fiscal year), and the clustering variable (firm identifier). The forecast subsample is defined as observations in the baseline sample with at least one forecast FLS in the transcript.

Panel B. Dependent Variable Availability within the Baseline Sample

Regression Table	Dependent variable	N_baseline_s	N_forecast_s	pct_base	pct_forecast
Table 3&5	EARN1	63,539	14,584	99.9%	99.9%
	EARN2	63,442	14,554	99.8%	99.7%
	EARN3	63,260	14,509	99.5%	99.4%
	EARN4	62,940	14,433	99.0%	98.9%
Table 6	GUIDANCEQ/FORECAST	63,539		100.0%	
Table 4	CAR_CALL_MKT	55,385	12,659	87.1%	86.7%
	REVERSAL_MONTH_MKT	60,617	13,954	95.3%	95.6%
	REVISION	60,755	13,990	95.5%	95.9%

Notes: This panel reports the number and percentage of observations available for each dependent variable within the baseline sample and the forecast subsample. Differences in regression sample sizes across specifications are driven by the availability of dependent variables. Variable definitions are provided in Table 1.

APPENDIX: TABLE

Panel A: Forecasting ROA for the next second quarter (EARN2) with different specifications (Tone measures in proportions)

VARIABLES	Dep. Var.: ROA for next second quarter (EARN2)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
FORECAST_TONE	0.096*** (0.019)	0.095*** (0.019)					
NONFORECAST_TONE	-0.027 (0.076)		0.008 (0.074)				
TONE				0.034 (0.073)	-0.049 (0.047)	0.333 (0.256)	0.050 (0.039)
EARN	0.154*** (0.039)	0.154*** (0.039)	0.157*** (0.039)	0.157*** (0.039)	0.295*** (0.041)	0.363*** (0.061)	0.335*** (0.035)
LOSS	-0.021*** (0.002)	-0.021*** (0.002)	-0.022*** (0.002)	-0.022*** (0.002)	-0.016*** (0.002)	-0.013*** (0.005)	-0.018*** (0.002)
OBSERVATIONS	14554	14554	14554	14554	48888	4759	63539
R-SQUARED	0.162	0.162	0.160	0.160	0.261	0.408	0.300
2-SIC FE	YES	YES	YES	YES	YES	YES	YES
YEAR FE	YES	YES	YES	YES	YES	YES	YES
CONTROLS	YES	YES	YES	YES	YES	YES	YES

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ Robust SE in parentheses, clustered at firm level. Control variables include the following though not all reported: Competing information signal controls include GUIDANCE, FORECAST, FLS_PCT, and FORECAST_PCT, which isolate the incremental informational content of tone beyond other disclosure channels. Firm and call characteristic controls include RET, ACC, SIZE, MTB, FIRMAGE, RETVOL, EARNVOL, NBSEG, NGSEG, NITEMS, SI, SEO, MA, DLW, FOG, SUE, LANALYST, IOR, as well as quarter (Q2-Q4), year, and industry fixed effects, which ensure comparability across observations. Variable definitions are detailed in Table 1. Sample definition for different columns follows Table 3.

Panel B: Forecasting ROA for the next third quarter (EARN3) with different specifications (Tone measures in proportions)

VARIABLES	Dep. Var.: ROA for next third quarter (EARN3)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
FORECAST_TONE	0.065*** (0.021)	0.063*** (0.021)					
NONFORECAST_TONE	-0.076 (0.077)		-0.052 (0.077)				
TONE				-0.035 (0.078)	-0.061 (0.048)	0.353 (0.229)	0.050 (0.039)
EARN	0.135*** (0.039)	0.135*** (0.039)	0.137*** (0.039)	0.137*** (0.039)	0.310*** (0.034)	0.376*** (0.062)	0.335*** (0.035)
LOSS	-0.022*** (0.002)	-0.022*** (0.002)	-0.022*** (0.002)	-0.022*** (0.002)	-0.016*** (0.002)	-0.009** (0.004)	-0.018*** (0.002)
OBSERVATIONS	14509	14509	14509	14509	48751	4721	63539
R-SQUARED	0.182	0.181	0.180	0.180	0.255	0.386	0.300
2-SIC FE	YES	YES	YES	YES	YES	YES	YES
YEAR FE	YES	YES	YES	YES	YES	YES	YES
CONTROLS	YES	YES	YES	YES	YES	YES	YES

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ Robust SE in parentheses, clustered at firm level. Control variables include the following though not all reported: Competing information signal controls include GUIDANCE, FORECAST, FLS_PCT, and FORECAST_PCT, which isolate the incremental informational content of tone beyond other disclosure channels. Firm and call characteristic controls include RET, ACC, SIZE, MTB, FIRMAGE, RETVOL, EARNVOL, NBSEG, NGSEG, NITEMS, SI, SEO, MA, DLW, FOG, SUE, LANALYST, IOR, as well as quarter (Q2-Q4), year, and industry fixed effects, which ensure comparability across observations. Variable definitions are detailed in Table 1. Sample definition for different columns follows Table 3.

Panel C: Forecasting ROA for the next fourth quarter (EARN4) with different specifications (Tone measures in proportions)

VARIABLES	Dep. Var.: ROA for next fourth quarter (EARN4)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
FORECAST_TONE	0.067*** (0.021)	0.067*** (0.021)					
NONFORECAST_TONE	0.009 (0.083)		0.033 (0.084)				
TONE				0.053 (0.085)	-0.010 (0.056)	0.435 (0.296)	0.050 (0.039)
EARN	0.117*** (0.034)	0.117*** (0.034)	0.119*** (0.034)	0.119*** (0.034)	0.285*** (0.035)	0.351*** (0.053)	0.335*** (0.035)
LOSS	-0.021*** (0.002)	-0.022*** (0.002)	-0.022*** (0.002)	-0.022*** (0.002)	-0.017*** (0.002)	-0.014*** (0.005)	-0.018*** (0.002)
OBSERVATIONS	14433	14433	14433	14433	48507	4646	63539
R-SQUARED	0.172	0.172	0.171	0.171	0.231	0.345	0.300
2-SIC FE	YES	YES	YES	YES	YES	YES	YES
YEAR FE	YES	YES	YES	YES	YES	YES	YES
CONTROLS	YES	YES	YES	YES	YES	YES	YES

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ Robust SE in parentheses, clustered at firm level. Control variables include the following though not all reported: Competing information signal controls include GUIDANCE, FORECAST, FLS_PCT, and FORECAST_PCT, which isolate the incremental informational content of tone beyond other disclosure channels. Firm and call characteristic controls include RET, ACC, SIZE, MTB, FIRMAGE, RETVOL, EARNVOL, NBSEG, NGSEG, NITEMS, SI, SEO, MA, DLW, FOG, SUE, LANALYST, IOR, as well as quarter (Q2-Q4), year, and industry fixed effects, which ensure comparability across observations. Variable definitions are detailed in Table 1. Sample definition for different columns follows Table 3.

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