

In no (un)certain terms:
Managerial style in communicating earnings news*

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Abstract

Managers display distinctive word choice styles when they conduct earnings conference calls. Some CEOs and CFOs are *straight talkers*. Others, by contrast, are *vague talkers*. Vague talkers routinely use words such as “approximately”, “probably”, or “maybe”. Analysts and the stock market attend to the style of managerial talk. They respond more slowly, and ultimately less, to earnings news when managers are vague. In effect, quantitative information and straightforward contextual information are complements. Firms with vague CFOs receive lower valuations relative to their book value.

Keywords: Communication style, earnings conference calls, straight talk, vagueness, textual analysis, stock analysts, valuation

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1 Introduction

Graham and Dodd (1934), pioneers of value investing, introduced the idea that when analyzing the value of a company, investors should pay attention to the hard facts. The hardest of hard in their analysis was the price/earnings ratio. As has been known for at least half a century, investors indeed do pay great attention to earnings announcements (Beaver, 1968). Moreover, CFOs consider earnings to be the most important numbers they communicate externally (Graham, Harvey, and Rajgopal, 2005). Although the disclosure of corporate financials has become fairly standardized, the human factor still plays an important role in interpreting earnings news, as many practitioners emphasize. Survey evidence shows that analysts regard private phone calls with management and the Q&A session of conference calls as particularly important for generating earnings forecasts (Brown, Call, Clement, and Sharp, 2015). Fund managers, interviewed by Barker, Hendry, Roberts, and Sanderson (2012) state that “*building up an understanding of the company*” is one of the main motives for systematic personal interactions with top company executives.

Importantly, different managers employ very different phraseology when communicating with market participants. This paper sheds light on one important aspect of this variation: to what extent managers are vague or straight when discussing earnings information.

We hypothesize that clearer, i.e., less vague, communication from managers should facilitate a better understanding of the company by analysts and investors. This in turn should enhance the ability of these participants abilities to interpret newly revealed information, such as earnings, and to incorporate it into forecasts and stock prices. Therefore, we study the use of qualifying and uncertain terms and ask: How, if at all, does the vagueness in managerial communication affect analyst and investor responses to earnings news? Do managers systematically differ in the way in which they employ “vague” vs. “straight-talking” communication patterns, and does the market care?

To answer these questions, we employ information available from earnings conference calls of the S&P500 companies from 2004 to 2014. Every quarter managers conduct such calls to discuss recent financial results and the outlook for their company. They begin with a prepared presentation. This is then followed by a question and answer (Q&A) session with the security analysts attending the call. These calls are routinely led by the company’s top executives. CFOs participate actively alongside the CEOs, as CFOs also play an important role transmitting value-relevant information from companies to markets. In particular, markets use the information discussed on the conference call to complement and interpret the hard earnings numbers.

We focus on the use of uncertain words such as “approximately”, “probably” or “maybe” (as compiled in the Loughran and McDonald (2011) uncertainty wordlist). Such words introduce vagueness and cloud communication. The clarity of communication is a potentially important dimension, because it affects the precision of the information conveyed. For each call, we compute,

separately for CEOs and CFOs, the percentage of uncertain words they used in the presentation and the Q&A part of the call. As discussed in Section 2, prior work on disclosure has focused on written communication, highlighting, for example, the important role of readability. Very little evidence is available on the use and role of vagueness, uncertain or qualifying statements, in spoken communication. We argue that our analysis offers an important new angle on the market's response to corporate communication, as the conference call setting allows us to separate out company-specific and manager-specific elements of communication.

Our first basic result is that managers talk more vaguely on an earnings conference call, stock prices react less to an earnings surprise (a deviation of the earnings from the analyst consensus). A one standard deviation increase in uncertainty in their talk on the call reduces the earnings response coefficients (ERC) by nearly tenth of a standard deviation, an economically meaningful effect. In particular, uncertainty in answers drives this result more than uncertainty in presentations.

The logical next question is why this dampening of market response occurs. Any of three factors could be at play. Vaguer language may reflect: 1. persistent firm characteristics related to its communication culture or indeed its business model, 2. a manager's consistent style, or 3. current conditions. Fortunately, the conference call setting provides a uniquely suited laboratory to disentangle the roles of these three factors.

Returning to the nature of the call itself, the presentation part of each call is carefully prepared, often under the auspices of the investor relations department, arguably to be consistent with the communication culture of the firm. The Q&A part of the conference call, though also prepared and rehearsed to the extent possible, features managers speaking comparatively extemporaneously, and at times responding to questions that they did not anticipate.

We can thus simultaneously observe the same person delivering a fully scripted (presentation) and a necessarily somewhat more improvised (Q&A session) message about the same firm, under the same business conditions. We argue that this setting provides a powerful control for both firm culture and time-varying uncertainty in the company's operations. Thus, comparing presentations and answers enables us to extract the personal communication styles of the CEOs and CFOs. We note that for this method to yield insight, we do not need to find that answers are completely ad hoc and freely chosen by the manager. We need merely demonstrate that company culture influences presentations more than answers. We can also benchmark linguistic patterns in the conference call to the earnings press releases (EPR), which are not communicated by specific people and hence are even more likely to reflect firm characteristics.

Thus, we compare the language of the EPR, of the conference call presentation, and the answers on the call, respectively, before and after a change in management. We find that the language of answers changes much more strongly when the specific person speaking changes than does the language of the presentation. The language in the earnings press release is even more strongly a function of firm characteristics. Conversely, as long as the person delivering

information does not change, linguistic patterns regarding the use of uncertain words are quite stable in the answers. These results clearly point to the existence of personal *style*.

We next decompose the frequency of uncertain words each manager uses when answering analyst questions explicitly into several parts. Specifically, we regress this frequency on (1) her fixed effect (which thus represents that manager’s vagueness style), (2) her own frequency of uncertain words in the presentation (to control unobservable firm-level factors that influence uncertainty at the time of the call), and (3) other features of manager and analyst speech as well as firm characteristics. Finally, (4) there is also an unexplained residual vagueness in managers answers during each call. Crucially, we find substantial heterogeneity across managers in their vagueness styles.

Since building up an understanding of a company and its managers is a process that requires repeated interactions, we expect the persistent vagueness style to matter most. And that is what we find. When CEO vagueness is one standard deviation above the mean, the ERC is lower by around one tenth of a standard deviation, a sizable difference. By contrast, residual vagueness explains little of the ERC.

Next, we explore the channels through which the ERC effects of vagueness come about, as well as further consequences of vagueness. Five results emerge. First, the market finds earnings announcements of companies run by vague managers to be less informative. This is illustrated, for example, by trading volume during the two days surrounding conference calls. It increases by 48% for calls hosted by highly vague CEOs (in the top decile of the vagueness distribution), compared to an average increase of 60% and 73% for particularly straight-talking CEOs (those in the bottom decile of vagueness). A similar difference is found for particularly vague and straight CFOs.

Second, analysts and investors take longer to adjust to earnings news where managers are vague. Third, a vaguer style reduces the degree to which earnings news gets embedded into stock prices over the next quarter. Thus, the muted initial reaction has long-lasting effects. Interestingly, in the medium-term results, CFO vagueness matters more than CEO vagueness.¹

Fourth, analyst uncertainty, as indicated by the standard deviation in their estimates and their revision frequency, tends to be exacerbated by managerial vagueness. Fifth, companies with vaguer CFOs receive lower valuations relative to their book value.

Overall, these results show that earnings (“hard information”) and straightforward managerial explanations surrounding this information (“soft information”) are complements, not substitutes. Specifically, if earnings and contextual language were substitutes, investors would pay more, not less, attention to the quantitative information (such as earnings surprises) of vague managers. We find the opposite: vagueness in the “soft” explanatory component leads to

¹This is consistent with the finding of Li, Minnis, Nagar, and Rajan (2014) that CEOs and CFOs tend to answer questions within their respective areas of competence. Our results suggest that vagueness in matters of financial condition and performance will affect the assessments of shareholders and analysts more than the (still important) issues of overall direction and strategy.

greater discounting of the earnings surprise itself.

The paper proceeds as follows. Section 2 reviews the related literature and highlight where our contributions fit. Section 3 discusses the conference call and other data. Section 4 presents evidence on the economic importance of vagueness for the earnings response and also assesses how to parse the roles of firm characteristics and managerial style in explaining word choice in presentation and Q&A parts of the call. Section 5 explores the relation of managerial vagueness style and analyst and market responses further. Section 6 concludes.

2 Background and literature

Our study lies at the intersection of three literatures. We briefly review each of these literatures below, and highlight the contributions of this paper.

2.0.1 Research on disclosure and opaqueness

A substantial body of research discusses the effects of disclosure for firm value (see, e.g., Fields, Lys, and Vincent (2001), Healy and Palepu (2001), Botosan (2006), Beyer, Cohen, Lys, and Walther (2010) for reviews). Several papers, most closely related to the present study, have studied the ease with which *written text* in corporate disclosure documents can be processed. For example, Loughran and McDonald (2014) show that firms with less easily readable 10-K documents experience higher stock return volatility, greater analyst dispersion, and larger absolute earnings surprises, and Hwang and Kim (2016) show that closed-end funds whose reports are less readable suffer higher discounts. Other examples linking obscurity in language to investor reactions include Miller (2010), Lehavy, Li, and Merkeley (2011), Rennekamp (2012), and You and Zhang (2009). Moreover, in one of the few studies to include uncertainty, Demers and Vega (2011) find that higher linguistic certainty in written earnings announcements implies a stronger immediate response to earnings news and less drift.

Our work differs on three important dimensions from all these studies: 1. Our focus is on spoken words, not on written reports. 2. We study how the vagueness of individual managers matters, rather than overall company documents. 3. We examine to what extent any effects found are due to consistent style vs. time-varying residual vagueness. We highlight the result that the relatively more improvised answers section of the conference call, rather than the prepared remarks, that helps to explain the market response. Because we can control the vagueness of the presentation, while assessing the impact of the managers answers, we are controlling for other, potentially unobserved and hard-(or impossible)-to-measure factors that are correlated with the firms reporting style on a call.

2.1 Research on earnings conference calls

Early studies of conference calls, such as Frankel, Johnson, and Skinner (1999), focus on market activity around the time of the call to infer that relevant information is in fact being transmitted. Surveyed sell-side analysts report that conference calls provide an important information input Brown, Call, Clement, and Sharp (2015). Textual analysis has spurred attempts to directly analyze the information content of conference calls. The vast majority of papers focus on the linguistic tone of managers' language. (See, for example, Price, Doran, Peterson, and Bliss (2012), Blau, DeLisle, and Price (2015), Brockman, Li, and Price (2015), Druz, Petzev, Wagner, and Zeckhauser (2016), among others). Mayew and Venkatachalam (2012) demonstrate that not only words but also vocal cues, indicating managers' affective states during the call, are informative about future firm performance. Green, Jame, and Lock (2015) use a variety of speech markers to infer managers' extraversion from their answers to analyst questions and subsequently show that extraversion improves career outcomes. Both of the latter studies focus on answers, because less scripted language is likely to be used there.

A number of papers have analyzed managerial tactics on conference calls. For example, Larcker and Zakolyukina (2012) find that the presence of words related to deception predicts future accounting problems. Mayew (2008) and Cohen, Lou, and Malloy (2013) demonstrate that managers strategically call on analysts to prevent bad news from being revealed on conference calls. Hollander, Pronk, and Roelofsen (2010) study managerial attempts to dodge questions. Lee (2016) measures the stylistic similarity between the presentation and answers, based on the use of so-called function words, to detect managers' use of scripted language in the latter part. He finds that markets react negatively to scripted answers, which, to the extent that managers are aware of this effect, provides them an incentive to speak naturally.

Our study builds on and expands on this literature by explicitly contrasting the (relatively) scripted presentation and the (relatively) extemporaneous answers part of the call to measure the same linguistic feature. A somewhat similar approach is used by Brochet, Naranjo, and Yu (2016) to study the effect of language barriers on calls organized by non-U.S. firms. To our knowledge, the usage of uncertain words – albeit a simple and intuitive measure of vague communication – has not been explored systematically.²

2.2 Research on manager style

Economic theory offers two competing images of the role of individual manager characteristics for corporate policy. The neoclassical image is that managers are perfect substitutes; they

²In their analysis of the predictive power of managerial tone Druz, Petzev, Wagner, and Zeckhauser (2016) control for the percentage of uncertain words and other evasive tactics (such as the use of “atypical” tenses), but they do not explore the potential of vagueness to slow down the incorporation of news in prices. Moreover, they control for CEO fixed effects and thus focus on the time-varying components of tone, uncertainty, and other speech variables, rather than the stable communication style of managers.

simply rationally respond to business conditions. The upper echelons theory of Hambrick and Mason (1984), by contrast, has a satisficing flavor. Many managerial decisions are so complex and involve such hard-to-compare conflicting goals that a single rational solution cannot be identified. Rather, there are rationality bounds; within them, the choices made by managers will be influenced by their idiosyncratic experiences and values. Such idiosyncratic characteristics are commonly referred to as manager *style*. This analysis focuses on manager style.

In empirical studies, style is made evident by the importance of a manager fixed effect in variables related to firm policy. A main challenge in such analyses lies in separating manager style from the effects of firm organization or culture, since both the manager and the firm are observed simultaneously.

The identification strategy spearheaded by Bertrand and Schoar (2003) relies on managers who transition from one firm to another during the sample period. In such cases, firm fixed effects can be included when regressing the variables for which style is expected to be predictive of some component of manager fixed effects. The significance of manager fixed effects indicates that the outcome variable includes a component unique to a given manager that s/he carries over when moving across firms. It shows that style matters. Their seminal findings that such a component can be identified for various measures of investment and financial policy, firm performance, and M&A activity have spurred broad further inquiries using the same methodology. These inquiries include studies into the role of manager style for accounting practices (Ge, Matsumoto, and Zhang (2011)), tax avoidance (Dyreng, Hanlon, and Maydew (2010)) as well as the provision, intensity and accuracy of earnings guidance (Bamber, Jiang, and Wang (2010), Brochet, Faurel, and McVay (2011), Yang (2012)). In a recent study, most closely related to this work, Davis, Ge, Matsumoto, and Zhang (2015) find a significant manager-specific fixed effect in the tone of earnings conference calls. Some of the mentioned studies attempt as well to link the sign and magnitude of individual style effects to observed demographic characteristics of the managers, such as age, education or military service. Taken together, these studies suggest that managers exert significant personal influence on various aspects of the firm in ways consistent with their life experience.

However, this approach to the style issue has been criticized by Fee, Hadlock, and Pierce (2013), who argue that a manager transition is likely to coincide with a shift in company policies for endogenous reasons. In support of their argument, they find no evidence of significant changes in asset growth, capital expenditure or leverage in cases of exogenous turnover, due to death, health issues or retirement. On the other hand, they find that these policies do change if the previous CEO was forced out, suggesting that boards are selecting managers, perhaps equipped with a certain “style”, to execute a turnaround. This discussion highlights the difficulties of measuring manager style from observables, which are also affected by other important stakeholders.

We offer a methodological and a substantive contribution to this literature. We introduce a

proxy for firm culture by observing the same manager in both a well-prepared setting, the formal presentation, and an at least partially improvised setting, answers to questions, on a conference call. This approach enables us to avoid the controversial (and limited) occurrence of manager transitions.³

Our analysis focuses on a readily identified element of style, the vagueness of a manager's speech pattern. Thus, we compare the effects of vagueness in prepared remarks and in answers to questions. This two element analysis, as compared to the usual approach of estimating manager fixed effects directly in corporate outcomes, is that it enables us to test directional predictions about the economic effects of vagueness, and we can make statements about the quantitative importance of style.

3 Data

3.1 Conference call transcripts and textual analysis

3.1.1 Conference call transcripts

We obtain transcripts of quarterly earnings conference calls for S&P500 companies from 2004 through 2014 from Thomson Reuters Street Events. Table 1 presents summary statistics of our data. We begin with the full sample, which consists of 15,354 calls for 492 distinct firms. The average firm organizes about 31 conference calls, corresponding to an observation period of almost 8 years.

The transcript of each call contains, at the top, a list of conference call participants, divided into corporate participants and analysts. We use a Python script to capture the words spoken by each company participant, and thus create our textual variables of interest (see below) for both the overall call and for each manager separately. The transcript lists both the names and the titles of the participants. We extract these two pieces of information separately. We then search in the "title" field for keywords such as "CEO", "Chief Executive", "CFO", "Chief Financ" to identify the two respective executives. We complement and verify our identification of job titles by matching executives' names to Execucomp. Based on this procedure, we find that the CEO and CFO are present in more than 89% and 95% of the calls respectively, confirming that it is standard procedure to have the two top executives involved. We identify 1057 CEOs and 1279 CFOs.

[Table 1 about here]

³In this sense, our approach is related to Dikolli, Keusch, Mayew, and Steffen (2016), who capture a proxy for CEO integrity from language in CEO shareholder letters, controlling for 10-K disclosures. In our setting, we observe the same person speaking at the same time, once in a more prepared and well-rehearsed, once in a more improvised form.

The estimation of manager vagueness style, performed later in this analysis separately for CEOs and CFOs, requires a certain minimum number of observations for each manager. Hence, for the CEO sample we only retain transcripts of conference calls featuring CEOs who over their combined tenure (possibly at more than one firm) have participated in at least 5 such calls. This eliminates 681 calls in which a CEO was at all present and 312 distinct CEOs, most of whom participated in at most 2 calls. This leaves 745 CEOs, for whom we can estimate style. As Table 1 shows, the CEO sample is similar to the full sample, in particular with regard to firm characteristics and outcomes.⁴

Applying the same filter of at least 5 calls to CFOs removes 1,046 calls (in which the CFO was at all present) for 445 distinct managers. Here too, the restricted sample of 834 CFOs appears much the same as the full sample with respect to all relevant variables. This gives us confidence that the technical restrictions we impose in order to more reliably estimate manager style are not likely to affect our results.

3.1.2 Words spoken on the calls

Excluding stop words, listed in the Supplementary Appendix, the average call consists of just over 5,000 words, roughly equally split between the presentation and answers. This provides ample material for the linguistic analysis of each part.

The average CEO participates in 17 calls and speaks 1,023 words during the presentation and 1,372 words answering analyst questions.⁵ The CFOs speak slightly more in the presentation (1,099 words) but are on average less involved in answering questions (765 words). Relating these numbers to the total length of conference calls reveals that on average CEOs are responsible for 40% of the words in the presentation and 55% in the answers part. The respective shares for the CFOs are 42% and 31%. Hence, between them the CEO and CFO are on average responsible for the vast majority of the content in both parts.

3.1.3 Vagueness

Our main variable of interest is manager vagueness on the call. We proxy vagueness by the use of “uncertain” words like “approximately”, “probably”, or “maybe”. The full list, based on Loughran and McDonald (2011), contains 297 such words.⁶

An important step suggested by Loughran and McDonald (2016) when applying word counts in a new context is to investigate which are the most frequently occurring words, because according to Zipf’s law, they will have an outsized influence on any measure constructed from those

⁴The average number of calls per CEO is, by construction, higher in the CEO sample than in the full sample.

⁵The numbers we quote for CEOs refer to the CEO sample and those for CFOs to the CFO sample. All of those numbers are also provided for the full sample in Table 1. They are similar, except the average number of calls per manager.

⁶We use the August 2013 version from http://www3.nd.edu/~mcdonald/Word_Lists.html

counts. In Figure 1 we plot the frequencies of the 25 most popular uncertain words, separately for conference call presentations and answers for the overall management team. The obtained list is intuitive and suggests that no “patently misclassified” (Loughran and McDonald, 2016) words are driving the results. The top 25 uncertain words (about 8.4% of 297) make up 80% of all uncertain words. Loughran and McDonald (2016) find that 1% of the negative words account for about 44% of the negative word count in 10-K/Q-type SEC filings. For uncertain words in conference calls we find a similar ratio. Across all presentation sections, the top 3 of the 297 uncertain words - “approximately”, “believe” and “may” - account for 38% of the uncertain word count. Across all answers, the top 3 words are “probably”, “could” and “believe” and together account for 35% of the uncertain word count. On the other hand, 18 (12) of the 297 words (for example, “nonassessable” or “inexactness”) are never spoken in any of the conference call presentations (answers) in our sample.

[Figure 1 about here]

We calculate the percentage of uncertain words in all words spoken by the management team (T), CEO or CFO, respectively, separately during the presentation part and when answering questions from analysts:

$$\%Unct_{T/CEO/CFO}Pres = \frac{Uncertain_words_{T/CEO/CFO}(Pres)}{Total_words_{T/CEO/CFO}(Pres)} \quad (1)$$

$$\%Unct_{T/CEO/CFO}Answ = \frac{Uncertain_words_{T/CEO/CFO}(Answ)}{Total_words_{T/CEO/CFO}(Answ)} \quad (2)$$

The typical conference call contains 1.09% uncertain words, more in the answers (1.24%) than in the presentation part (0.94%). The fact that $\%Unct$ is slightly higher in answers than in presentation supports our claim that the answers are less carefully prepared and hence feature more equivocal language. Overall, CEOs appear less vague - their presentations typically contain 0.84% uncertain words and the average for answers is 1.18%. For CFO the respective numbers are 1.03% and 1.28%. Importantly, there is considerable variation in $\%Unct_{CEO/CFO}Answ$, as evidenced by standard deviation, which is high relative to the mean value for both CEOs and CFOs.

Proceeding on the descriptive level it is of interest to explore the data a bit further as regards similarities and differences of presentations and answers. In Figure 2, we plot $\%Unct_{MGR}Answ$ (Y-axis) versus $\%Unct_{MGR}Pres$ (X-axis) for all CEOs and CFOs of S&P500 firms who have attended at least 5 calls (and so MGR is either CEO or CFO).

[Figure 2 about here]

There is considerable variation along both dimensions but certain clusters are discernible.

Focusing on CEOs in Panel (a), the triangles, corresponding to Van Honeycutt of Computer Sciences Corp (CSC), line up almost completely above the stars, which we identify as Gary Butler of Automatic Data Processing (AUD), both technology companies. By contrast, the stars and triangles appear quite well aligned along the X-axis. Taken together, this means that Van Honeycutt consistently uses *more* uncertain words when answering analyst questions than Gary Butler, even though the presentation part of CSC and AUD conference calls (also delivered by Messrs. Honeycutt and Butler respectively) typically contain a similar fraction of such words, as one might expect in the case of two companies from the same industry. Applying a Wilcoxon rank sum test, we can confirm that Van Honeycutt’s $\%UnctAnsw$ is significantly higher than Gary Butler’s, while there is no significant difference in $\%UnctPres$.

Similar insights emerge from Panel (b), where we highlight CFOs of two healthcare companies. Again, $\%UnctPres$ lies in a similar range for both but one CFO (Edward Stiften of Express Scripts Holdings) delivers consistently more vague answers than the other (David Elkins of Becton Dickinson). Here too, the difference in $\%UnctAnsw$ is statistically significant, while $\%UnctPres$ are indistinguishable.

Finally, it is interesting to observe that the points we highlight in Panel (a) are more dispersed along the X-axis and located almost completely to the right of those in Panel (b). To the extent that technology companies typically face a more uncertain environment and greater fluctuations than companies in the healthcare sector, this suggests that $\%UnctPres$ is quite efficient at capturing both systematic differences *across* firms as well as time-variation in business conditions *within* firms.

These examples illustrate that the language of answers is not necessarily a mere reflection of the presentation part. They suggest that treating the two differently may provide additional insights. Moreover, they suggest that presentations are more associated with firm characteristics than are answers. Clearly, a more systematic and careful approach is required to determine if this is true in general. We develop such an approach in Section 4.2.

3.1.4 Negativity

We also calculate similar ratios based on the Loughran and McDonald (2011) list of negative words, which we later use as control variables. Negativity is the ratio of negative minus positive words divided by the sum of such words. Negativity is computed separately for CEOs and CFOs and for both presentations and answers. Hence, a value below zero means that more positive than negative words were used. Though analyst questions have a negativity value on average above zero, both CEO and CFO answers have negativity averaging below zero. This indicates that managers answers are typically more upbeat than the questions that solicited them.

3.2 Other data

This section covers other control variables. (Outcome variables are discussed in Sections 4 and 5 in conjunction with the development of the hypotheses.) To have a complete picture of earnings communication we also collect earnings press releases (EPRs) from the SEC’s EDGAR system and, similarly to what we do for the conference calls, measure the frequency of uncertain words contained in them (%UnctEPR). The average EPR contains 1.11% of uncertain words.

Price and returns data are taken from CRSP. The stock return (*StockRet*) in quarter t is the firms share-price appreciation in the elapsed quarter, that is, the difference between the share price 5 days before the earnings announcement for quarter t and the share price 5 days after the earnings announcement for quarter $t - 1$, expressed as the percentage of the stock price 5 days after the earnings announcement for quarter $t - 1$. Market return (*MarketRet*) is the percent value-weighted market return for the period starting 5 days after an earnings announcement for the quarter $t - 1$ and ending 5 days prior to the earnings announcement for the quarter t . Monthly volatility (*MthVola*) of each stock is the standard deviation of monthly returns over the past 48 months.

We also employ analyst data from IBES and accounting data from Compustat to measure a range of earnings and firm characteristics. We calculate earnings surprise as a percentage of the share price. It is the difference between actual and consensus forecast earnings, divided by the share price 5 trading days before the announcement in quarter t , multiplied by 100. Firms performing above (below) expectations experience a positive (negative) surprise. Subsequently, firms are grouped by earnings surprise decile (*SurpDec*), from 5 to 1 from largest positive to smallest positive surprise, then 0 for zero surprises, and then from -1 (for the smallest negative surprises) through -5 (for the largest negative surprises). This approach generates equally sized surprise quintiles on either side of zero but, because there are more positive than negative surprises overall, causes the unconditional means of *SurpDec* to be positive (around 1.4 in our sample). *EPS growth* is the fraction by which earnings in a quarter exceed earnings in the same quarter in the prior year. Finally, we include the natural logarithm of total assets $\ln(Assets)$ and *Tobin’s Q*, which is the ratio of the market value of assets to their book value.

4 The economic effects of vagueness: Earnings responses

Our over-arching hypothesis is that earnings news communicated by vague managers is harder to interpret in terms of implications for firm value and hence, less informative. In Section 4.1 we first test this hypothesis by looking at the role of overall vagueness of management’s communication on the earnings conference call. Then, in Section 4.2 we decompose CEO and CFO vagueness into manager-specific “vagueness style” and residual vagueness. In Section 4.3 we show that it really is that consistent vagueness style that matters most.

4.1 Earnings response coefficients and conference call vagueness

The key driver of investor reactions to earnings is the difference between the actually announced number and prior expectations, i.e. the earnings surprise. Given the unexpected nature of surprises, it is likely that investors will be particularly sensitive to how the managers explain them. We expect earnings surprises accompanied by vague explanations to be less informative. Difficulties in interpreting earnings information are likely to make investors less willing to act on it. Hence, our first hypothesis states:

Hypothesis 1: Vagueness reduces the short-run stock price reaction to earnings, that is, the earnings response coefficient.

Testing this hypothesis is important because an alternative story for how vagueness matters for earnings response coefficients is also plausible *ex ante*: Suppose that earnings (“hard information”) and managerial explanations (“soft information”) were substitutes, not complements. Then, in the presence of vague managerial communication, rational investors would pay *more* not less attention to earnings numbers.

To test Hypothesis 1, we estimate variations of the following panel regression, which includes Fama-French 17 industry fixed effects:

$$\begin{aligned}
 CAR01_{i,t} = & \beta_1 \cdot SurpDec_{i,t} + \beta_2 \cdot \%Unct_{MGR}Pres_{i,t} + \beta_3 \cdot \%Unct_{MGR}Answ_{i,t} \\
 & + \beta_4 \cdot \%Unct_{MGR}Pres_{i,t} \cdot SurpDec_{i,t} + \beta_5 \cdot \%Unct_{MGR}Answ_{i,t} \cdot SurpDec_{i,t} \quad (3) \\
 & + \beta_k \cdot Controls_{i,t}^k + FF17_i + \alpha_i + \epsilon_{i,t}
 \end{aligned}$$

We calculate daily abnormal stock returns following Daniel, Grinblatt, Titman, and Wermers (1997) (DGTW). We apply their methodology to daily returns to compute DGTW characteristic-adjusted stock returns and express such returns in percent.⁷ Our dependent variable cumulates returns over day 0 (the call date) and the following trading day, because do not know the exact timing of each call, in particular whether it happens before or after the market close. The main variables of interest are the interaction terms between vagueness and the earnings surprise. Hypothesis 1 predicts $\beta_4 < 0$ (and $\beta_5 < 0$). In this regression, *MGR* stands for either management Team (T) or CEO or CFO. We run separate regressions for CEOs and CFOs to determine whose vagueness, if at all, has a bigger effect. In addition to firm characteristics and the market return, the matrix $Controls^k$ also includes $\%UnctAnaly_{i,t}$, $Neg_{MGR}Answ_{i,t}$ and

⁷From each stock return we subtract the return on a portfolio of all CRSP firms matched on quintiles of market equity, book-to-market, and prior 1-year return (thus a total of 125 matching portfolios). Each of these 125 portfolios is reformed each year at the end of June based on the market equity and prior year return (skipping one month) from the end of June of the same year, and book-to-market from the fiscal period end of the preceding year. Book-value of equity is furthermore adjusted using the 48 industry classifications available from Kenneth French's website. The portfolios are value-weighted.

$NegAnaly_{i,t}$ to control for other important information contained in the linguistic features of the call. In all regressions, to account for the interdependence between observations, we cluster standard errors by firm or by manager, respectively.

[Table 2 about here]

Table 2 presents the results. Column (1) shows that more uncertainty in the management’s communication on the conference call overall dampens the earnings response. Columns (2) and (3) show that this is individually true for both the presentations and the answers part, but column (4) highlights that it is in particular vagueness in answers that reduces the earnings response.

Columns (5) and (6) study the role of uncertain communication for the CEO and the CFO separately. While the coefficients on the interaction terms are negative for both types of managers, they are significant only for the CFO. We will explore the different roles of CEO and CFO in greater detail further below.

Other variables in Table 2 obtain the expected signs. Negativity, both in analyst questions and manager answers, significantly reduces short-term CARs. High past returns, at the stock and the market level, have a similar effect. Finally, larger companies experience lower earnings returns. In robustness checks available on request, we find that the results continue to hold when other call-level variables, such as a proxy for complexity (number of words per sentence), and other firm characteristics (such as the number of analysts that cover the company) are included.

In sum, the baseline findings in Table 2 provide substantial support for Hypothesis 1 that vagueness in managerial communication dampens earnings responses.

4.2 Extracting manager vagueness style

The findings so far also leave open some important questions. Our basic conception is that the way a manager speaks during a specific call is driven by (1) the “style” of the manager (if it exists), (2) the company’s “culture” and business model, and (3) the manager’s incidental use of uncertain words. The incidental usage can depend on many factors. One relevant factor is current business conditions. In turbulent times it might simply be harder to make any definite statements about the future. So far, our regressions address differences among firms by controlling for a large set of control variables. In what follows, we aim to tease apart the three listed factors more explicitly.

Specifically, we generally hypothesize that overall managerial style will be the most important determinant of market and analyst responses. Stock market reactions to current earnings require interpretation from the broader context. For example, private conversations of analysts and management just after the call are frequent (Green, Jame, Markov, and Subasi, 2014; Soltes, 2014). To the extent that we in fact can identify a stable manner of managerial communication,

this vagueness style may also govern their communication in these additional settings, making it difficult for analysts and, consequently, other market participants to obtain precise information. If, by contrast, information is only provided through these calls, we will find that residual vagueness is the centrally important factor. Our next task, therefore, is to provide a method for extracting manager vagueness style.

Section 4.2.1 develops an intuitive argument for the existence of managerial vagueness style. Section 4.2.2 gives details of how we extract systematic manager vagueness from the answers.

4.2.1 Separating the manager from the firm in the absence of managerial transitions

In this section we make the case for using $\%UnctAnsw$ to extract each manager’s personal style of vagueness, while controlling for vagueness related to the specificities of the firm’s business model, or communication “culture”, with $\%UnctPres$. We do so by examining the effect of manager turnover on those two parts of earnings conference calls.

Our test employs the following reasoning. Suppose a firm replaces its CEO.⁸ If the vagueness of answers to analyst questions is specific to the person, we would expect the $\%UnctAnsw$ before and after the turnover to differ, because even if the firm searches for a CEO with similar style, the replacement will be imperfect. By contrast, if the language of the presentation part is a firm-characteristic rather than a manager-characteristic, we would expect the $\%UnctPres$ to remain rather stable despite the turnover. This test is valid, because although we observe CEO words both before and after, the actual speaker changes in both parts of the call.

Two additional measures fine-tune the analysis. First, given that managers may use more similar language in scripted than non-scripted communication, greater similarity in $\%UnctPres$ before and after a turnover is to be expected, independent of corporate culture. To address this possibility, we compare turnover firms to similar control firms without turnover. For these “without” control firms, if we find both $\%UnctPres$ and $\%UnctAnsw$ to be stable over time, that would reassure us that the effect on $\%UnctAnsw$ observed among turnover firms is indeed due to CEO replacement and merely the general lower persistence of unscripted communication.⁹ Thus, for each turnover firm we select one control firm from the same Fama-French 17 industry group that is the best match in the observation period. The matching factors, all measured in averages, are total assets, $\%Unct_{CEO}Pres$ and average $\%Unct_{CEO}Answ$ over the “before” period corresponding to the tenure of the outgoing CEO of the turnover firm. Generally, we are able to obtain close matches in the majority of cases.

Second, firms that change their CEOs may disproportionately lack a stable culture. There-

⁸The same logic applies to CFO turnovers, which we also examine.

⁹As an alternative benchmark we also use the other executive of the same company, who was not replaced. For instance, in case of a CEO turnover, we construct before-after correlations for the CFO. We obtain similarly strong results with this specification.

fore, we also look at the language of the earnings press release, $\%UnctEPR$, as the piece of earnings communication arguably most removed from the specific person in charge. If we can find high similarities in the wording of EPRs before and after a CEO turnover, that would speak to the existence of persistent communication culture for a turnover firm.

In other words, we expect the correlation between average $\%Unct_{BEF}EPR$ and average $\%Unct_{AFT}EPR$ to be high in the cross-section of turnover firms. Continuing in this vein, we expect the before-after correlation in average $\%UnctPres$ to also be rather high but low for $\%UnctAnsw$, consistent with our previous argument that the language of answers most reflects the style of the particular CEO.

We focus on turnovers with at least 5 quarters of data before and after, so that for each turnover firm we have sufficient observations to calculate average $\%Unct_{BEF}$ and $\%Unct_{AFT}$ for the EPR as well as the presentation and answers part of conference call. $\overline{\%Unct_{BEF}}$ corresponds to the outgoing CEO and $\overline{\%Unct_{AFT}}$ to the incoming one, at the same turnover firm.

For “without” control firms, the before and after period is artificially constructed using the CEO replacement date from the corresponding turnover firm. This ensures that calculations for control firms are based on similar number of observations and calendar periods as for turnover firms.

In the last step, we calculate the correlation between $\overline{\%Unct_{BEF}EPR}$ and $\overline{\%Unct_{AFT}EPR}$, $\overline{\%Unct_{BEF}Pres}$ and $\overline{\%Unct_{AFT}Pres}$, as well as between $\overline{\%Unct_{BEF}Answ}$ and $\overline{\%Unct_{AFT}Answ}$, across all CEO turnover and control firms.

[Table 3 about here]

The results in Table 3 support out conjectures. Among control firms, we observe high $\rho_{BEF/AFT}$ for all three pieces of earnings communication. In particular, high $\rho_{BEF/AFT}\overline{\%UnctAnsw}$ provides evidence that patterns in oral unscripted communication can be equally stable as in the scripted or written counterpart and as long as the person answering the questions is kept constant, the language remains stable too.

Among the 231 CEO turnover firms, the before-after correlation in $\overline{\%UnctAnsw}$ is low ($\rho_{BEF/AFT}\overline{\%UnctAnsw}=0.26$) and much lower than among control firms (diff=-0.51, significant at 1% level). For the presentation part, the before-after correlation among turnover firms is medium-high ($\rho_{BEF/AFT}\overline{\%UnctPres}=0.39$), though still significantly lower than among control firms. Finally, $\rho_{BEF/AFT}\overline{\%UnctEPR}$ among turnover firms is high ($=0.66$) and only weakly different from control firms (diff=-0.08, significant at the 10% level).

Even stronger results obtain for the 321 CFO turnovers ($\rho_{BEF/AFT}\overline{\%UnctAnsw}=0.24$, $\rho_{BEF/AFT}\overline{\%UnctPres}=0.54$, $\rho_{BEF/AFT}\overline{\%UnctEPR}=0.71$). There is only a minor difference in $\rho_{BEF/AFT}\overline{\%UnctPres}$ between turnover firms and control firms.

These results confirm three things. First, that turnover firms still appear to have a stable culture. Secondly, the language of the scripted part of the call is less sensitive to a CEO/CFO

turnover and hence more specific to the firm, than a particular person in charge. Most importantly, answers seem to reflect the language of individual CEOs/CFOs. This exercise supports our strategy of extracting manager style from $\%UnctAnsw$ using $\%UnctPres$ and other factors to control for firm effects. The next section develops the estimation procedure in more detail.

4.2.2 Estimating manager style of vagueness

We identify manager style of vagueness with the systematic component of the frequency of uncertain words in answers, which we estimate as a fixed effect from the following regression, separately for CEOs and CFOs (and so MGR can be either CEO or CFO):

$$\begin{aligned} \%Unct_{MGR}Answ_{i,t} = & \sum_{i=1}^{N_{MGR}} \gamma_i \cdot MGR_{i,t} + [\beta_1, \beta_2] \cdot \begin{bmatrix} \%Unct_{MGR}Pres_{i,t} \\ \%UnctAnaly_{i,t} \end{bmatrix} + \\ & + [\beta_3, \beta_4] \cdot \begin{bmatrix} Neg_{MGR}Answ_{i,t} \\ NegAnaly_{i,t} \end{bmatrix} + \beta_k \cdot Controls_{j,t}^k + \alpha + \epsilon_{i,t} \end{aligned} \quad (4)$$

Manager-specific vagueness (her style) is captured by the $\gamma_{1,\dots,N_{MGR}}$ coefficients on the fixed effects and denoted $Vague_{MGR}Style$. The residuals, $\epsilon_{i,t}$, which we later denote $Vague_{MGR}Resids$, can be interpreted as deviations from style, not explained by any of control variables included in the regression.

We control for both linguistic markers in the call itself and a range of firm characteristics. The matrix $Controls^k$ is composed of the following variables: total assets, EPS growth from same quarter the previous year, stock return over the previous quarter, monthly volatility as well as the earnings surprise and also includes the market return in each quarter. In terms of language-related controls, we include the negativity of answers, since vagueness can be related to the nature of news, whether it is positive or negative. To account for the fact that the language of an answer might also depend on the wording of the question, we include the frequency of uncertain and negative words used by analyst participating in the call.

Importantly, based on insights from the previous section, we control for $\%Unct_{MGR}Pres$, the frequency of uncertain words in presentation. This variable combines both the systematic (“culture”) and the time-varying (momentary business conditions) component of firm-related vagueness.¹⁰ As such, we would expect it to correlate with certain observable firm characteristics, which themselves indicate uncertainty. We provide evidence of this in columns (1) and (2) of Table 4. $\%Unct_{MGR}Pres$, both for CEOs and CFOs, increases markedly with volatility and decreases with stock- and market-level returns. These findings are internally consistent, given

¹⁰In unreported results, we experiment with separating the two components by regressing $\%UnctPres$ on firm fixed effects and recording both the coefficients on each fixed effect (the vagueness “culture” of each firm) as well as the residuals (time-varying factors). The conclusions under this alternative approach are fundamentally unchanged from those reported below.

the well-know asymmetric volatility phenomenon. Furthermore, $\%Unct_{CEO}Pres$ additionally decreases with earnings surprise and earnings growth, suggesting that CEO presentations are written in more straightforward language when earnings were (unexpectedly) good. However, we note the rather low explanatory power of these observables, which we take as evidence that $\%Unct_{MGR}Pres$ also captures *unobservable* firm-specific factors affecting vagueness of communication. This makes it a useful control when extracting manager style.

While the main specification (3) captures many key determinants of vagueness (and, by including uncertainty in presentations also captures common determinants, even time-varying ones, that are unobservable to the researcher), it is of interest also to examine some other specifications. These are shown in Supplementary Appendix Table A.1 and are discussed further below.

[Table 4 about here]

We first estimate Equation 4 without manager fixed effects to gauge how much of the heterogeneity in $\%Unct_{Answ}$ can be explained with observable characteristics alone. The results are reported in column (1) for CEOs and column (3) for CFOs. Of the firm characteristics assets and volatility are positively associated with $\%Unct_{CEO}Answ$ but the economic magnitudes are small. For $\%Unct_{CFO}Answ$ none of the firm characteristics matter, which we treat as another indication that the language of this part of conference calls is more driven by personal than corporate features.

Linguistic markers of the call are significant and have the expected effects on the frequency of uncertain words in answers. Uncertainty of managers in the presentation as well as of analysts, and negative linguistic tone of managers in the answers and of analysts are each highly significantly associated with uncertainty of managers in answers.

Columns (2) and (4) add manager fixed effects. It is informative to compare coefficients on these variables across specifications with and without manager fixed effects to get an idea how much of their impact comes from the fact that managers work at firms, which differ in culture (the *between* effect), and how much is due to time-varying factors that occur during each manager's tenure at a given firm (the *within* effect). For example, the coefficient on $\%Unct_{CEO}Pres$ drops from 0.18 in column (1) to 0.09 in column (2) - after CEO fixed effects are included - suggesting that the between / within effects are roughly equally important. By contrast, the coefficient on $\%Unct_{CFO}Pres$ hardly changes, suggesting that the relationship between vagueness in CFO answers and presentation is mostly due to within-fluctuations. We interpret this as evidence that there is matching between firm culture and manager style and that it seems more relevant for CEOs than CFOs. Interestingly, the negativity of questions from analyst appears to have a large systematic component as well, suggesting that some managers are repeatedly more aggressively questioned by analysts than others. Perhaps as a consequence of that, the negativity of *answers*

shows a similar pattern. This also suggests that bad news is communicated more vaguely than good news.

The R^2 of 9.5% / 2.6% in column (3) / (5) indicates overall modest explanatory power of the control variables. After fixed effects are included, the R^2 increases to 34.9% / 23.8%. Testing for the joint significance of all CEO (CFO) fixed effects returns a high F -statistic of 9.32 (12.79). Thus, the key message is that fixed effects dominate, even though we include a large set of control variables tightly related to our variable of interest.

Supplementary Appendix Table A.2 shows several alternative specifications. For example, for our main specification, reported for convenience again in columns (1) and (6) of that table, when examining %UnctAnsw of, e.g., CFOs, we only consider %UnctPres based on the words the CFOs themselves spoke in the presentation. In columns (2) and (7), respectively, we also allow for uncertainty “spillovers” between the CEO and CFO, whenever both are present in a call. Interestingly, we find CEOs to be more responsive to CFO language than vice versa. Columns (3) and (8), respectively, additionally control for uncertainty in the earnings press release, which does not explain much of vagueness in answers (conditional on the other controls). The same holds for analyst dispersion before the call, see columns (4) and (9), respectively. Finally, columns (5) and (10) show that the *change* in presentation uncertainty and the *change* in tone in answers also enhances vagueness in answers.

Most importantly, however, we find the fixed effects under these various specifications to be very highly correlated with and close in magnitude to the ones estimated under Equation 4; see Supplementary Appendix Table A.3. A disadvantage of the larger specification is that the number of observations is reduced. Given the similar findings our decision to proceed with the more parsimonious Equation 4 is motivated by the desire to retain the highest possible number of observations for further analysis.

To get a sense of the heterogeneity in manager style, we construct histograms of the coefficients on individual manager fixed effects estimated from Equation 4. As can be seen in Figure 3, the heterogeneity is substantial for both CEOs and CFOs but somewhat more pronounced for the latter (the 10th-90th percentile range is 0.77 for CEOs and 0.94 for CFOs).

[Figure 3 about here]

Moreover, the CFO distribution is also slightly shifted to the right relative to the CEO distribution, meaning CFOs are somewhat more vague overall. We note that no clear outliers are visible in the distributions and in both cases vague style appears to progress along a continuum, as opposed to being concentrated in a few discrete clusters. There is an asymmetry in the distributions however, with both exhibiting a fatter right tail, which means that particularly vague-talking managers are more frequent than particularly straight-talking ones. In what follows, we use a centered version of vagueness, so that the mean of CEO and CFO vagueness is zero.

In sum, this section shows that managers differ substantially from each other with respect to vagueness and that these differences cannot easily be explained by either systematic or time-varying characteristics of the firms for which they work. Managerial style of vagueness exists. We now turn to examine how it influences information flow from the corporations managers lead to the investment community.

4.3 Earnings response coefficients with style

Style could matter most directly by influencing stock price reactions to information. We are now in a position to refine the test of Hypothesis 1. Specifically, we now estimate:

$$\begin{aligned}
 CAR01_{i,t} = & FF17_i + \beta_1 \cdot SurpDec_{i,t} + [\beta_2, \beta_3] \cdot \begin{bmatrix} Vague_{MGR}Style_i \\ Vague_{MGR}Resids_{i,t} \end{bmatrix} + \\
 & + [\beta_4, \beta_5] \cdot \begin{bmatrix} Vague_{MGR}Style_i \\ Vague_{MGR}Resids_{i,t} \end{bmatrix} \cdot SurpDec_{i,t} + \beta_k \cdot Controls_{i,t}^k + \alpha_i + \epsilon_{i,t}
 \end{aligned} \tag{5}$$

$Vague_{MGR}Style_i$, is the manager’s style of vagueness estimated from the language of her answers to analyst questions during earnings calls, according to Equation 4, and $Vague_{MGR}Resids$ represents the residuals from that equation, i.e. deviations from style. The main variables of interest are the two interaction terms between vague style / residual vagueness and the earnings surprise.

An additional estimation challenge in this context comes from the fact that our main independent variable, $Vague_{MGR}Answ$, is a generated regressor. As a result, the OLS standard errors are subject to bias, the magnitude and direction of which are hard to determine, as argued by Murphy and Topel (1985). To tackle this problem, we apply a variant of the two-stage bootstrap procedure described in Ashraf and Galor (2013).¹¹

Table 5 reports the results. As can be seen in the significantly negative coefficients on the interaction term of $Vague_{MGR}Style$ with the earnings surprise, we find substantial support in

¹¹In the first stage, we randomly sample (with replacement) observations for each manager. We draw each manager once and keep the number of observations per manager the same as in the original sample. Then, we estimate equation 4 in each of the 1,000 randomly generated samples. We conduct this procedure separately for CEOs and CFOs which gives us 1,000 vintages of CEO and CFO style. We use those, together with our dependent and other explanatory variables, to draw 1,000 random samples in the second stage, on which we estimate our outcome regressions. Here, we also take in to account the clustering at the manager level, that is we first randomly draw (with replacement) the clusters (managers) and then randomly draw (again with replacement) observations within each cluster manager). In the end, we have 1,000 random samples, each associated with a different vintage of CEO/CFO style estimated in stage one, for each of our 4 dependent variables. Running the regressions described in equation 5 etc. on the bootstrap samples gives us 1,000 coefficient estimates for each of the explanatory variables. The bootstrapped standard errors, which can be used to calculate t -statistics, are simply the standard deviations of the bootstrapped estimates. The computation of these standard errors is time-intensive. In the current version of the paper, we report the usual clustered standard errors, but for the main results in Table 5 we were able to verify that the inferences are unchanged with bootstrapped standard errors.

favor of the hypothesis that a more vague style is associated with a weaker response to earnings.

How big are these effects? To answer that question, note that we center the $Vague_{MGRStyle}$ to 0 before calculating the interactions terms ($Vague_{MGRResids}$, itself a residual from a regression, is centered by construction). Therefore, the interpretation of the coefficients on $SurpDec$ is that moving to the next higher decile of earnings surprise increases short-term CAR by 0.48 (0.49) percentage points, provided the CEO (CFO) has average style of vagueness. If the CEO (CFO) is particularly straight-talking, for example at the 10th percentile of the style distribution, CAR increases by a further 9 BPS for each surprise decile increment. A very vague style on the other hand (at the 90th percentile of the distribution), reduces earnings response by 10 BPS. (The slight asymmetry arises because the distribution of style is skewed right.) In addition, deviations from style by the CFO also have the potential to affect earnings response, though the effects of residual vagueness are much smaller than those of vague style. Overall, these results confirm our conjecture that managerial vagueness style (which may also govern managerial communication in other settings), rather than occasional, call-specific vagueness, is the key determinant of stock market responses. This is especially striking in the case of CEOs, where the style component is highly significant, even though call-level CEO vagueness (combining style and residual) was reported as insignificant in Table 2.

[Table 5 about here]

We verify the robustness of this finding by including interactions between $SurpDec$ and other linguistic features of the call. We begin with $\%Unct_{MGRPres}$ and $\%Unct_{Analy}$, in columns (2) and (5) of Table 5 as arguably the two most closely related variables. We find weak evidence of a negative effect for the interaction with $\%Unct_{CFOPres}$, which is broadly consistent with our original finding for style in answers but highlights the greater importance of personal communication from the managers. Similarly, interactions with $\%Unct_{Analy}$ are negative but not significant, suggesting that uncertainty with which analysts come into the call, which we think would be reflected in the vagueness of their questions, is less important than the uncertainty with which they leave, which we base on the managers' answers. In the next step, we look at interactions with the variables measuring negativity, both in the analyst questions and the managers' answers. Both of these variables display a strong negative interaction effect, implying that the positive benefits of a higher earnings surprise are reduced by negative language surrounding its announcement. This is not surprising, since negativity likely conveys information about future earnings. Importantly, the significance of the interactions with manager style is not affected and the magnitudes of the coefficients are only moderately reduced. We conclude that vagueness and negativity operate through largely different channels.

At first glance, it might seem puzzling that $Vague_{MGRStyle}$ has a positive *unconditional* effect on short-term CAR. To understand why this occurs, note that “just-meeting” earnings ($SurpDec = 0$) appear to be, in fact, disappointing to the market on average: The short-term

CAR is minus 0.75 percent on average for these firms. The actual mean surprise in the sample is positive. Thus, the coefficient on $Vague_{MGRStyle}$ does not give the effect of vagueness at the mean surprise, but at somewhat below the mean surprise. Vague style cushions the otherwise negative impact of zero-surprises, consistent with how vagueness otherwise reduces earnings response.

In sum, Section 4 documents that vagueness of managers reduces the short-run reaction to earnings. It is in particular the consistent style of vagueness that plays the key role.

5 The economic effects of vagueness: Drilling deeper

Having established that a vague speech style by managers significantly reduces the immediate market reaction to earnings announcements, this section tests several hypotheses that emerge from that finding. Those hypotheses address the informativeness of earnings news, analyst responses, medium as opposed to short-run stock price reactions, and valuation.

5.1 Hypotheses and methods

First, we investigate the informativeness of earnings news, captured by the absolute responses to earnings news.

Hypothesis 2: Vagueness makes earnings news less immediately informative.

Again, the alternative hypothesis holds that earnings and managerial communication are, in fact, substitutes. If that is the case, earnings would be particularly informative for firms where managers otherwise communicate vaguely.

We use two standard measures of the informativeness: We first use the *absolute* cumulative abnormal return (ACAR01). Second, we calculate abnormal trading volume by dividing the cumulative trading volume of a firm on the call date and the subsequent trading day¹² by two times its daily pre-call average, calculated over a window starting 45 days and ending 6 days before each call date. To reduce skewness, we take the logarithm of the resulting ratio:

$$AbnVol = \log \left(\frac{TrdVol_{j,t:t+1}}{2 \times avg(TrdVol_{i,t-45} : TrdVol_{i,t-5})} \right)$$

We test the second hypothesis by estimating the following panel regression:

¹²We cumulate call-date and next day volume, since we do not know the exact timing of the call, in particular whether it occurred before or after market close.

$$\begin{aligned} \begin{bmatrix} ACAR01_{i,t} \\ AbnVol_{i,t} \end{bmatrix} &= \alpha_i + FF17_i + \beta_1 \cdot |SurpDec_{i,t}| + [\beta_2, \beta_3] \cdot \begin{bmatrix} Vague_{MGRStyle_i} \\ Vague_{MGRResids_{i,t}} \end{bmatrix} + \\ &+ [\beta_4, \beta_5] \cdot \begin{bmatrix} Vague_{MGRStyle_i} \\ Vague_{MGRResids_{i,t}} \end{bmatrix} \cdot |SurpDec_{i,t}| + \beta_k \cdot Controls_{i,t}^k + \epsilon_{i,t} \end{aligned} \quad (6)$$

Hypothesis 2 predicts $\beta_4 < 0$ (and $\beta_5 < 0$). We also expect $\beta_1 < 0$ (and $\beta_2 < 0$).

Next, following the initial reaction, investors are likely to continue analyzing the implications of earnings news for firm value. We expect managerial vagueness to protract this process. This aspect is related to post-earnings announcement drift (PEAD), the long-standing and robust empirical finding that stock prices only partially adjust to earnings news at the time it is released and continue to move in the direction of the initial reaction for some time afterwards. It is customary to extend this period until 60 trading days after the announcement, at which point the stock price should fully reflect last quarter's earnings news. To analyze the *timeframe* of the adjustment, we construct a novel variable, CARDelay:

$$CARDelay = \min \left(\#days \mid 0.9 \leq \frac{CAR[0 : n]}{CAR[0 : 60]} \right) \quad (7)$$

which is the number of days it takes for cumulative returns to reach 90% of their final value, which is measured 60 days after the call.¹³ For example, if $CAR[0:60]$ was measured as -10% we would count the number of days until CAR first reached -9%.

A delayed market reaction is more plausibly associated with greater managerial vagueness if analysts, who are paid for processing information set forth by companies, also have a harder time understanding the implications of We also construct a similar variable for analyst reactions, AnalyDelay, which is a variant of the *delay* measure used by Kross and Suk (2012). Specifically, we calculate the average number of trading days between the call date and subsequent revisions by individual analysts following the firm.¹⁴ That is, if one analyst revised the next day, the second analyst after 4 days and the third after 10 days, AnalyDelay would be equal to $\frac{1+4+10}{3} = 5$.

Our third hypothesis states that:

Hypothesis 3: Vague style increases the delay in analyst and market reactions to earnings news.

On top of the delayed reaction, it is possible that earnings information surrounded by vague communication is never fully interpreted. In this case, we would observe that the muted initial reaction to earnings persists even after this extended period.

¹³We take the minimum to capture only the first time the CAR crosses the threshold.

¹⁴The difference with respect to Kross and Suk (2012) is that we do not divide by the number of days until next earnings announcement, so that AnalyDelay has the more intuitive unit of trading day.

Hypothesis 4: Vagueness reduces the medium-run stock price reaction to earnings.

The alternative hypothesis would be that stock market participants are capable of dealing even with vague news, when given enough time. Then, we would not see any systematic difference in extended reactions to earnings depending on vagueness and we might even observe a greater drift after the initial reaction. We capture the extended reaction with cumulative abnormal returns measured over 0 to 60 trading days relative the call date (ACAR060) and the drift component with ACAR260. Thus, we estimate:

$$\begin{aligned} \begin{bmatrix} ACAR260_{i,t} \\ ACAR060_{i,t} \end{bmatrix} &= \alpha_i + FF17_i + \beta_1 \cdot |SurpDec_{i,t}| + [\beta_2, \beta_3] \cdot \begin{bmatrix} Vague_{MGRStyle_i} \\ Vague_{MGRResids_{i,t}} \end{bmatrix} + \\ &+ [\beta_4, \beta_5] \cdot \begin{bmatrix} Vague_{MGRStyle_i} \\ Vague_{MGRResids_{i,t}} \end{bmatrix} \cdot |SurpDec_{i,t}| + \beta_k \cdot Controls_{i,t}^k + \epsilon_{i,t} \end{aligned} \quad (8)$$

Next, we expect analysts covering firms with vague managers to be more uncertain about the value of the company as well as the correctness of their own previous forecasts:

Hypothesis 5: Dispersion in analyst forecasts and forecast revision frequency is higher following calls hosted by vague managers.

We calculate analyst dispersion as the standard deviation of analysts forecasts for earnings for quarter (t+1) tallied three days after the conference call of quarter t. Post-announcement revision frequency is the fraction of covering analysts who revise after the conference call of quarter t up to the earnings announcement of quarter t+1. Overall, for Hypotheses 4 and 5, we relate delay and uncertainty variables to vagueness in a regression analogous to Equation 6, again expecting $\beta_4 < 0$ (and $\beta_5 < 0$).

5.2 Results

5.2.1 Informativeness of earnings: Volatility and trading volume

We now turn to Hypothesis 2, which posits a negative link between manager vagueness and the total amount of information entering the market around the conference call. Table 6 tests this prediction by considering *absolute* short-term CARs as well as abnormal trading volume around the call as the dependent variables. Again, our main focus is on the interaction terms between vagueness and earnings surprise.

Results in Table 6 show a consistently negative effect of $Vague_{MGRStyle}$ on the price and volume response to earnings surprises, which is in line with our expectations. The effect is sizable

economically - going from the 10th to the 90th percentile of the distribution of VagueStyle, i.e., from straight-talking to vague, cuts the effects of the absolute earnings surprise for both ACAR and AbnVol by roughly one-third. Regarding ACAR, these magnitudes apply equally to CEOs and CFOs, suggesting both managers are of similar importance as far as communicating earnings information is concerned, although the CEOs' effect on AbnVol appears more significant.

[Table 6 about here]

To further illustrate the effect of vagueness on the short-term informativeness of earnings, we plot abnormal trading volume over the 11-day period surrounding the call. For this illustration, we summarize the unconditional effect of vagueness by averaging abnormal trading volume across all calls in the sample, irrespective of the magnitude of the earnings surprise.

[Figure 4 about here]

As can be seen in Figure 4, abnormal trading volume generally spikes on days 0 and 1 relative to the call. However, the increase in trading volume is markedly smaller around calls involving vague managers (those in the top decile of the distribution of vagueness), represented by the solid line in both panels of Figure 4, than straight-talking ones (those in the bottom decile, dotted line). For vague CEOs, trading volume increases by 48%, compared to 72.5% straight-talking ones. The resulting difference of 24.5% (percentage points) is highly statistically significant ($t = 8.24$). For CFOs, the difference between straight-talking and vague is 17% and also significant ($t = 5.49$).

In sum, these results show that investors are less willing to trade on earnings news when the communication needed to interpret this news is vague

5.2.2 Analyst delay and medium-term price impact of earnings news

How do these effects persist in the medium-term? To examine this question we relate vagueness to four distinct variables, two related to the timeframe of analyst and stock price reaction (Hypothesis 3) and two related to the magnitude of medium-term returns (Hypothesis 4).

First, we examine the delay that vagueness may induce. Columns (1)-(2) show that CEO vagueness, while important for the immediate reaction (recall Table 5), does not play a role for the delay. By contrast, as can be seen in columns (5)-(6), CFO vagueness strongly affects the *delay* in market and analyst reactions, i.e., it takes longer for cumulative returns and analyst forecasts to adjust to the newly released earnings information. A one-standard deviation increase in CFO VagueStyle adds about one day to each of these two dependent variables. This suggests that in the aftermath of the call, investors and analyst are more preoccupied with evaluating the language of CFO answers.

[Table 7 about here]

We next test whether vagueness reduces the medium-run stock price reaction to earnings. Inspired by the post-earnings announcement drift (PEAD) literature, we consider *absolute* cumulative abnormal returns (ACAR) over the period ending 60 trading days after the call. To capture the drift component, we start calculating ACAR two days after the call (ACAR260). Alternatively, we measure the total reaction from day 0 through day 60 (ACAR060). Columns (3) and (4) of Table 7 show that CEO vagueness does not significantly explain the extent to which earnings news is ultimately reflected in the stock price. By contrast, columns (7) and (8) show that CFO vagueness is a statistically and economically important determinant of the medium-term stock price reaction.

Thus, one interesting conclusion from the results in Table 7 is that CFO VagueStyle is the more important driver of medium-term market and analyst reactions. In fact, CFO vagueness appears to have a greater impact on medium-run informativeness of earnings surprises than it does in the short run. This is reminiscent of the findings of Li, Minnis, Nagar, and Rajan (2014) that executives present in the call typically answer questions from their respective areas of expertise. It is plausible to assume that ultimately, investors and, perhaps especially, analysts would be more concerned with the financial side of the company and hence be more affected by the communication style of the person discussing these topics.

In sum, these results imply that CFO vagueness reduces the medium-run stock price reaction to earnings.

5.2.3 Managerial vagueness and analyst uncertainty

If the delay of market participants in processing earnings news is partially due to vagueness of managers, we would also expect vagueness to make it more difficult for analysts to estimate future earnings. Table 8 presents some evidence consistent with this prediction.

First, columns (1) and (3) show that, naturally, a larger earnings surprise (whether positive or negative) leads to more dispersed post-call analyst forecasts. However, importantly, this effect is substantially compounded when this earnings surprise happened in a firm with a vague CEO, as can be seen in the significant interaction term of CEO VagueStyle and the earnings surprise. Similarly, though not quite as significantly, CFO vagueness exacerbates analyst uncertainty after large earnings surprises.

[Table 8 about here]

Columns (2) and (4) consider an alternative measure of analyst uncertainty, namely, the frequency with which they have to revise their forecasts in the following quarter. Here, we find a strong main effect of managerial vagueness. For the CEO, both vague style and residual vagueness is associated with more frequent revisions. For the CFO, only residual vagueness is

statistically significant, though vague style also has the predicted positive effect. The earnings surprise itself is not significantly associated with future revision frequency, and vagueness also does not add to that effect, as seen in the mostly insignificant interaction terms.

In sum, these results suggest that the negative effect of managerial vagueness on the informativeness of the earnings surprise for stock market participants goes hand-in-hand with higher confusion among analysts, too.

5.2.4 Managerial vagueness and firm value

Finally, we consider the relation between vagueness and firm value. If vagueness makes it more difficult for stock market participants to assess the situation of a company, this higher uncertainty would likely be reflected in lower valuations, too. To study this possible association, we use two approaches. Columns (1) and (3) of Table 9 present panel regressions of Tobin’s Q on vagueness as well as on industry-year fixed effects, the log of total assets, and other controls. We find that CEO style is not significantly associated with valuation ratios. CFO vagueness, by contrast is strongly negatively associated with Tobin’s Q. (Note that standard errors are clustered on the industry level.)

[Table 9 about here]

In columns (2) and (4) we take into account the concern that Tobin’s is highly persistent. Therefore, we turn to a purely cross-sectional approach, averaging Tobin’s Q and the dependent variables over time for each manager. For CEOs, the association remains insignificant, while for CFOs, it remains highly significant and of similar magnitude. We caution that these results do not necessarily imply that vagueness of CFOs causes firm valuations to decrease. Progress towards testing such a hypothesis could be made by considering changes in managers, e.g., the replacement of a vague CFO by a straight-talking CFO. We are in the process of conducting further analysis in this direction.

6 Conclusions

Earnings statements need to be interpreted by market participants. It has long been known that earnings do not get immediately impounded into stock prices. This paper highlights the role of managerial communication surrounding the release of earnings news. In particular, there is substantial variation in the extent to which managers use uncertain words (like “approximately”, “probably”, or “maybe”) when communicating with analysts and the stock market on earnings conference calls. The structure of these calls – a scripted presentation and an at least somewhat more improvised questions and answers part – allows us to separate out, without relying on manager transitions among firms, manager-fixed effects on the one hand and variation due to

the culture of the company and the current situation of the company on the other hand. Style exists: Some CEOs and CFOs are consistently “straight-talking” while others exhibit a “vague” communication style. Moreover, style matters: The variation in how fast the stock market and analysts incorporate earnings news into stock prices and earnings forecasts, respectively, depends on managerial vagueness.

A related question is whether managers adopt a vague style when they have greater incentives to do so and when it is easier for them to get away with it. For instance, if a manager’s compensation heavily depends on the stock price, she might be particularly inclined to cushion the impact of bad earnings news and hence communicate vaguely overall. Also, vague words provide the managers protection if outcomes are different than suggested. On the other hand, if there are many sophisticated investors involved in the firm, it might be more difficult to avoid providing detailed information. These natural and exciting extensions are the subject of ongoing research.

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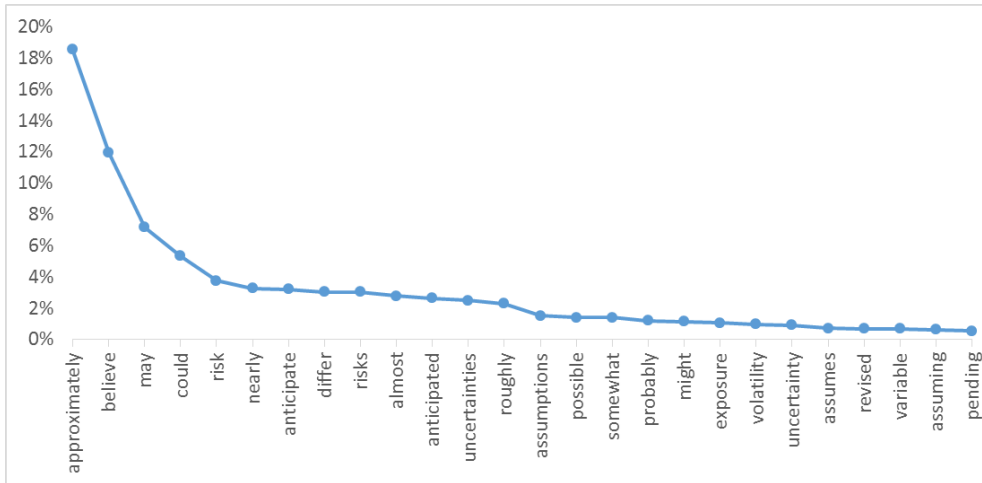
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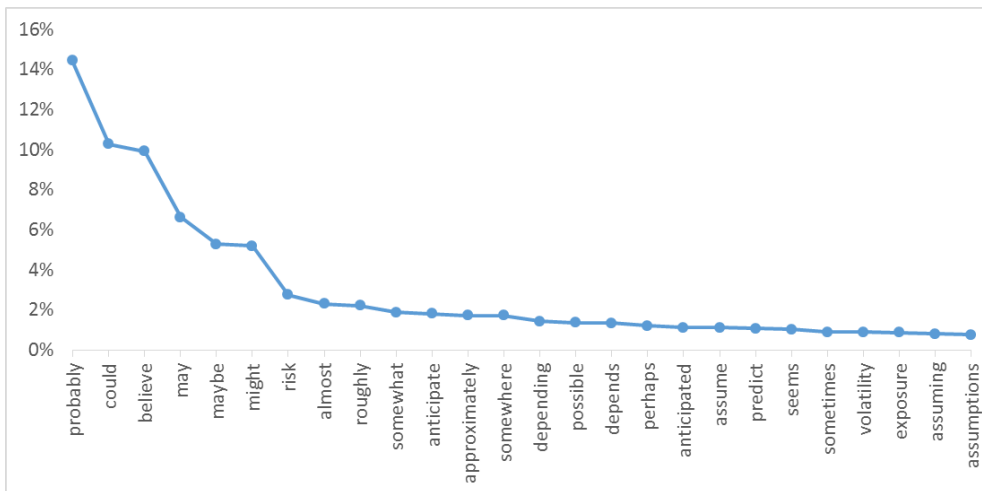
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Figure 1: Top 25 most frequently occurring uncertain words in presentations and answers

(a) Presentations



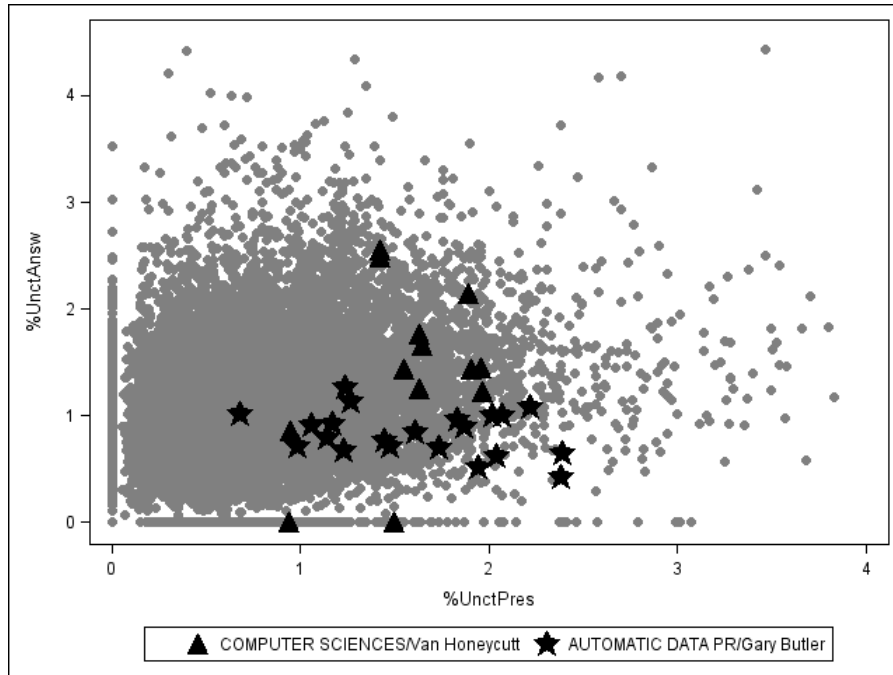
(b) Answers



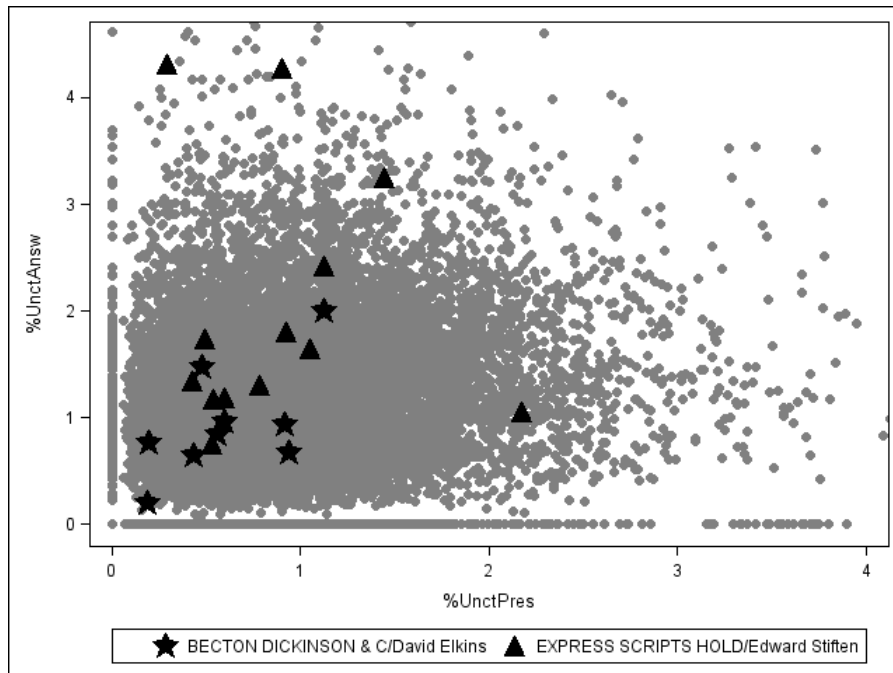
This figure plots the frequencies of the 25 most popular uncertain words occurring in conference call presentations, in panel (a) and answers, in panel (b). The denominator is the sum of all uncertain word counts across all conference call presentations or answers, respectively.

Figure 2: Distribution of the frequency of uncertain words in manager presentations and answers

(a) CEOs (N=745, NCalls=13,053)



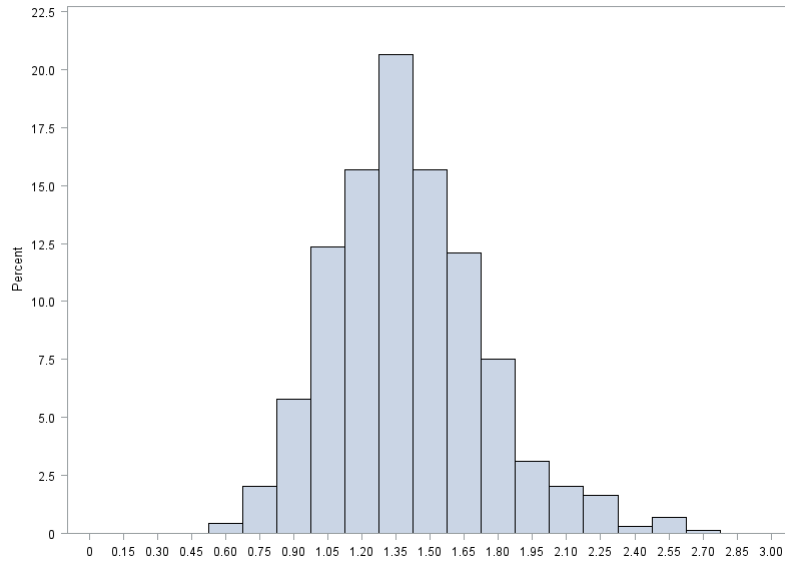
(b) CFOs (N=834, NCalls=13,606)



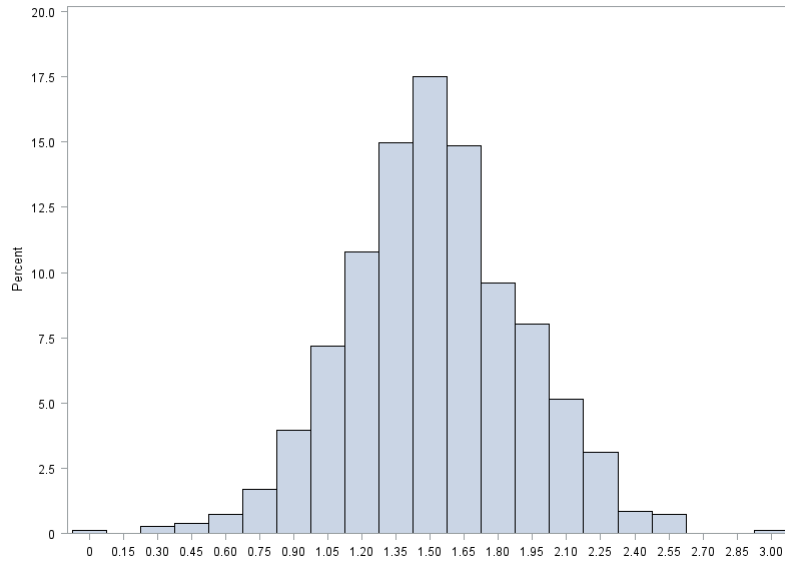
This figure plots $\%Unct_{MGR}Answ$ versus $\%Unct_{MGR}Pres$ for all CEOs, in Panel (a), and CFOs, in Panel (b), of S&P500 firms, who have attended at least 5 calls between 2004 and 2014. In total, 13,053 calls involving 745 distinct CEOs and 13,606 calls involving 834 distinct CFOs are depicted.

Figure 3: Distribution of manager style

(a) CEOs (N=745)

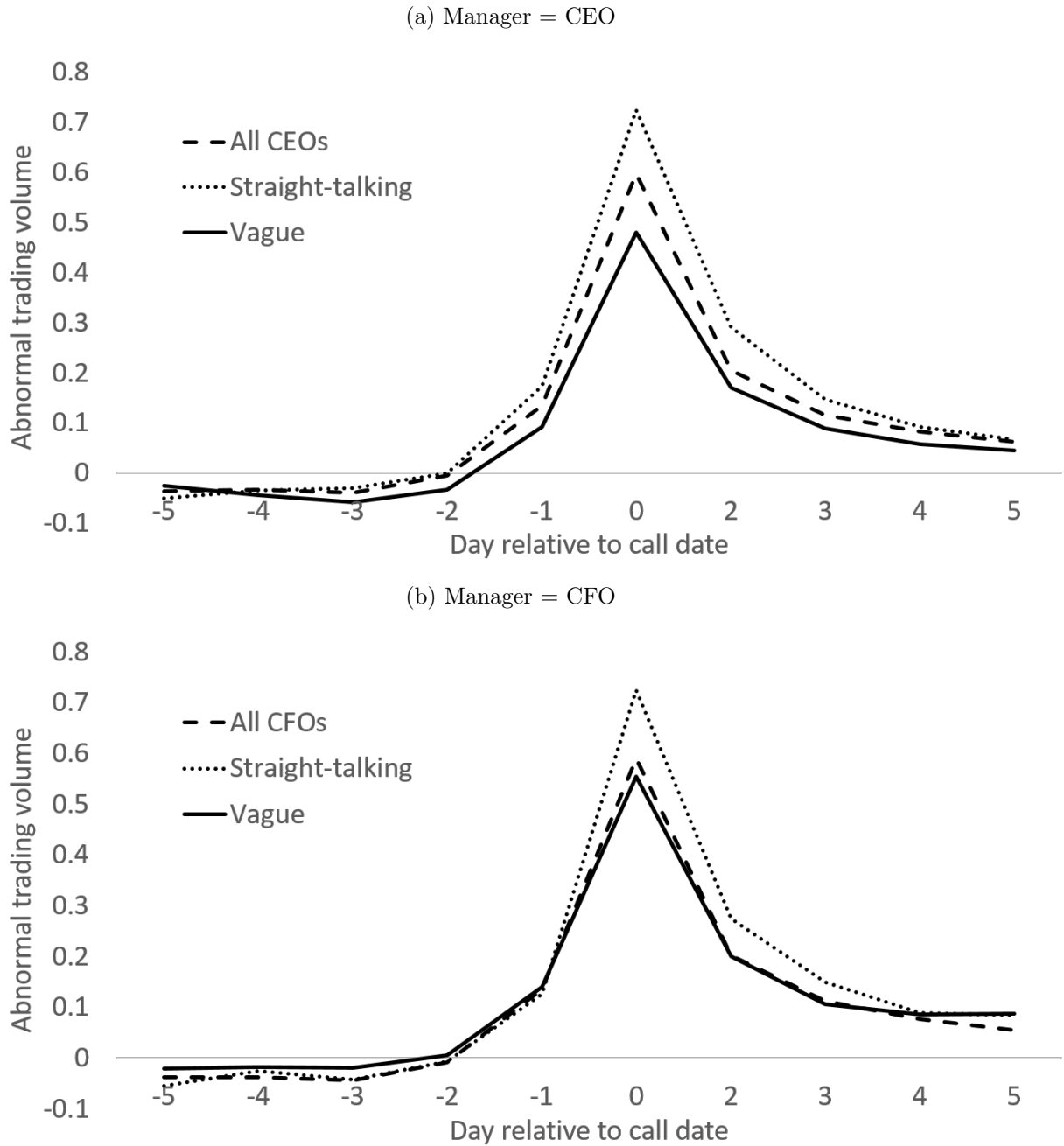


(b) CFOs (N=834)



This figure shows the distribution of individual manager fixed effects estimated Equation 4, which represent the different styles of vagueness among managers. In total, 745 CEOs (upper panel) and 834 CFOs (lower panel) are included.

Figure 4: Manager vagueness and trading around the call date



This figure illustrates the daily abnormal trading volume, taken to indicate the amount of information entering the market, around earnings calls attended by managers (CEOs and CFOs) with different levels of vague style, estimated according to Equation 4. Abnormal trading volume is defined as the natural logarithm of the ratio of daily trading volume (in shares) to its daily pre-event average, calculated over a window starting 45 days and ending 6 days before each call. Since we do not know the exact timing of the call, in particular whether it occurred before or after market close, we report the average of event days 0 and 1, rather than each of them separately. The dashed line is the average for all managers. The solid (dotted) line is the average for managers in the top (bottom) decile of vague style.

Table 1: Conference-call sample summary

	Full sample			CEO sample			CFO sample		
	N	mean	stdev	N	mean	stdev	N	mean	stdev
N calls	15,354			13,054			13,714		
N firms / Calls per firm	492 /	31.21	13.17	458 /	32.20	12.23	468 /	32.36	12.12
WordsCall		3,881	1,505		4,058	1,371		3,975	1,443
%UnctCall		1.090	0.379		1.084	0.366		1.091	0.376
WordsPres		1,953	975.0		2,042	936.1		2,001	943.7
%UnctPres		0.943	0.462		0.935	0.445		0.944	0.461
WordsAnsw		1,928	957.4		2,017	919.7		1,974	938.6
%UnctAnsw		1.239	0.499		1.234	0.480		1.239	0.493
N calls (CEO present)	13,734			13,054					
N CEOs / Calls per CEO	1,057 /	12.86	11.09	745 /	17.36	10.27			
Words _{CEO} Pres		1,020	651.8		1,023	654.1			
%Unct _{CEO} Pres		0.843	0.514		0.842	0.513			
Words _{CEO} Answ		1,357	841.1		1,372	843.9			
%Unct _{CEO} Answ		1.176	0.578		1.177	0.574			
Neg _{CEO} Answ		-0.266	0.291		-0.266	0.290			
N calls (CFO present)	14,652						13,714		
N CFOs / Calls per CFO	1,279 /	11.22	10.13				834 /	16.05	9.46
Words _{CFO} Pres		1,089	696.3					1,099	696.1
%Unct _{CFO} Pres		1.030	0.620					1.030	0.618
Words _{CFO} Answ		748.5	641.7					765.3	642.6
%Unct _{CFO} Answ		1.281	0.771					1.283	0.762
Neg _{CFO} Answ		-0.139	0.355					-0.143	0.355
Analysts & EPR									
%UnctAnaly		2.006	0.620		2.014	0.613		2.010	0.612
NegAnaly		0.143	0.246		0.140	0.246		0.142	0.246
AnalyDispPre		0.0595	0.0775		0.0590	0.0767		0.0591	0.0767
%UnctEPR		1.114	0.525		1.124	0.525		1.126	0.527
Firm characteristics									
ln(Assets)		9.666	1.364		9.588	1.334		9.654	1.358
EPS growth (yoy)		0.0757	0.855		0.0741	0.864		0.0743	0.851
MthVola		0.0923	0.0457		0.0937	0.0469		0.0923	0.0461
StockRet		0.0205	0.127		0.0199	0.129		0.0204	0.127
SurpDec		1.383	2.996		1.407	2.998		1.405	2.994
Tobin's Q		1.875	1.069		1.880	1.080		1.871	1.063
MarketRet		0.0252	0.0825		0.0240	0.0836		0.0243	0.0836
Outcomes									
AbnVol		0.588	0.461		0.599	0.456		0.601	0.457
CAR01(%)		0.0793	4.642		0.0927	4.749		0.101	4.704
ACAR01 (%)		3.474	3.080		3.581	3.120		3.526	3.114
ACAR260(%)		7.537	6.342		7.683	6.411		7.567	6.354
ACAR060 (%)		8.238	6.865		8.389	6.934		8.258	6.867
AnalyDelay		22.61	13.77		22.40	13.60		22.67	13.85
AnalyDispPost		0.0571	0.0753		0.0566	0.0747		0.0567	0.0746
CARDelay		28.12	22.11		28.11	22.17		27.98	22.10
RevFreq		0.538	0.726		0.506	0.659		0.492	0.634

Summary statistics are presented for three samples relevant to our analysis. The full sample contains all conference calls for S&P500 firms obtained from Thomson Reuters Street Events. The CEO/CFO samples reflect the data we later use to estimate CEO/CFO style. To qualify for the CEO/CFO sample, the manager must have participated (either as CEO or as CFO) in at least 5 calls during her combined tenure (possibly at more than one firm). *WordsPres* and *WordsAnsw* are calculated for all participating company representatives combined. At the CEO/CFO level, the same statistics refer to the specific manager speaking. *%Words_{MGR}Pres (Answ)* is the number of words spoken by a given manager in the presentation (answers) of a given call. *%Unct_{MGR}Pres (Answ)* the fraction of uncertain words a given manager used in the presentation (answers) part of a call. We also present *%Unct* in analyst questions and the earnings press releases (EPR). Negativity (*Neg*) is calculated as the difference of negative and positive words divided by their sum, hence negative values indicate higher use of positive words. Detailed definitions of all variables are provided in Table A.1 of the Supplementary Appendix.

Table 2: Manager vagueness and immediate earnings response: Testing Hypothesis 1

	Team vagueness				CEO	CFO
	(1)	(2)	(3)	(4)	(5)	(6)
SurpDec	0.586*** (11.59)	0.537*** (12.98)	0.577*** (14.78)	0.614*** (12.53)	0.522*** (11.87)	0.596*** (13.66)
%UnctCall	0.153 (1.10)					
%UnctCall×SurpDec	-0.109** (-2.54)					
%UnctPres		0.210** (1.96)		0.201* (1.82)	0.057 (0.55)	0.150* (1.75)
%UnctPres×SurpDec		-0.077** (-2.04)		-0.055 (-1.41)	-0.025 (-0.72)	-0.050* (-1.68)
%UnctAnsw			-0.011 (-0.11)	-0.016 (-0.17)	-0.076 (-0.89)	0.087 (1.48)
%UnctAnsw×SurpDec			-0.083*** (-3.03)	-0.078*** (-2.76)	-0.022 (-0.82)	-0.059*** (-3.04)
%UnctAnaly	-0.052 (-0.82)	-0.063 (-0.98)	-0.046 (-0.71)	-0.061 (-0.95)	-0.077 (-1.09)	-0.065 (-0.94)
NegCall	-1.169*** (-5.69)					
NegPres		-0.862*** (-5.08)		-0.761*** (-4.22)	-0.536*** (-3.02)	-0.513*** (-3.55)
NegAnsw			-0.507*** (-2.75)	-0.278 (-1.39)	-0.371** (-2.13)	-0.111 (-0.89)
NegAnaly	-1.619*** (-8.87)	-1.729*** (-9.28)	-1.743*** (-9.51)	-1.672*** (-8.91)	-1.827*** (-8.95)	-1.753*** (-8.86)
StockRet	-0.013*** (-3.21)	-0.012*** (-2.93)	-0.013*** (-3.07)	-0.013*** (-3.06)	-0.013*** (-2.80)	-0.012*** (-2.61)
EPS growth (yoy)	-0.002 (-0.03)	-0.002 (-0.03)	0.015 (0.27)	-0.002 (-0.04)	-0.004 (-0.07)	0.008 (0.13)
MthVola	0.810 (0.77)	0.848 (0.78)	0.640 (0.60)	0.904 (0.83)	0.555 (0.47)	0.705 (0.61)
ln(Assets)	-0.113*** (-2.97)	-0.100*** (-2.59)	-0.107*** (-2.82)	-0.102*** (-2.67)	-0.096** (-2.30)	-0.117*** (-2.95)
Tobin's Q	-0.002 (-0.04)	0.009 (0.16)	0.027 (0.52)	0.004 (0.08)	-0.006 (-0.10)	0.035 (0.63)
MarketRet	-1.716*** (-3.14)	-1.785*** (-3.22)	-1.583*** (-2.87)	-1.789*** (-3.22)	-2.047*** (-3.48)	-1.764*** (-2.96)
Intercept	-0.064 (-0.14)	-0.096 (-0.21)	0.240 (0.53)	-0.133 (-0.28)	-0.032 (-0.06)	0.115 (0.24)
FF17 f.e.	Yes	Yes	Yes	Yes	Yes	Yes
N Obs	13,568	13,350	13,513	13,295	11,558	11,870
R ²	0.108	0.107	0.107	0.108	0.109	0.108
N Clusters	455	455	454	454	448	446

This table presents panel regressions of the cumulative abnormal returns (CAR) over [0:1] days relative to the call date on vagueness, the earnings surprise, and control variables. Abnormal stock returns are computed following Daniel, Grinblatt, Titman, and Wermers (1997) (DGTW); see Section 5.1 for details. The basic measure of vagueness is the frequency on uncertain words in all words spoken jointly by the CEO and CFO during each conference call. We further differentiate between presentation and answers vagueness, as well as CEO and CFO vagueness. The effect of vagueness on the earnings response coefficient is modeled as an interaction term with the earnings surprise. The measure of earnings surprise (SurpDec) is obtained by grouping firms into deciles, from 5 to 1 from largest positive to smallest positive surprise, then 0 for zero surprises, and then from -1 (for the smallest negative surprises) through -5 (for the largest negative surprises), where the surprise is the difference between actual and consensus forecast earnings expressed as percentage of the share price 5 trading days before the announcement in quarter t . All remaining variables are defined in Table A.1 in the Supplementary Appendix. t -statistics shown in parentheses are clustered by firm. Significance levels: * - 10%, ** - 5%, *** - 1%

Table 3: Managerial turnover and the language of earnings conference calls

	Control firms	Turnover firms	Difference
CEO turnovers (N=231)			
$\rho_{BEF,AFT}(\%UnctEPR)$	0.74	0.66	-0.08 * (-1.76)
$\rho_{BEF,AFT}(\%Unct_{CEO}Pres)$	0.63	0.39	-0.23 *** (-3.42)
$\rho_{BEF,AFT}(\%Unct_{CEO}Answ)$	0.77	0.26	-0.51 *** (-7.94)
CFO turnovers (N=321)			
$\rho_{BEF,AFT}(\%UnctEPR)$	0.80	0.71	-0.09 *** (-2.61)
$\rho_{BEF,AFT}(\%Unct_{CFO}Pres)$	0.60	0.54	-0.06 (-1.17)
$\rho_{BEF,AFT}(\%Unct_{CFO}Answ)$	0.57	0.24	-0.33 *** (-5.03)

This table shows correlations between average frequency of uncertain words in the earnings press release (EPR) as well as the presentation and answers parts, before and after a manager (CEO or CFO) turnover takes place. For each “turnover” firm, a matching “control” firm from the same Fama-French 17 industry is identified, which did not experience a manager turnover. The matching is based on similarity of observation period, average assets as well as %Unct words spoken by the CEO or CFO in the presentation and answers part during the pre-turnover period. Average frequency of uncertain words for each “control” firm is calculated using the same number of quarters before and after the turnover date as for the corresponding “turnover” firm. Only manager turnovers with at least five quarters of data available before and after for both the “turnover” and “control” firm are considered.

Table 4: Estimating vagueness at the manager level

	%Unct _{MGR} Pres		%Unct _{MGR} Answ			
	CEO (1)	CFO (2)	CEO (3)	CEO (4)	CFO (5)	CFO (6)
%Unct _{MGR} Pres			0.182*** (11.42)	0.089*** (7.24)	0.107*** (4.69)	0.105*** (6.03)
%UnctAnaly	0.026*** (2.66)	0.044*** (2.76)	0.050*** (4.37)	0.058*** (6.43)	0.077*** (5.40)	0.075*** (6.28)
%Neg _{MGR} Answ	0.321*** (9.54)	0.069** (2.36)	0.365*** (11.38)	0.203*** (7.85)	0.173*** (6.47)	0.104*** (4.40)
%NegAnaly	0.102*** (3.43)	0.199*** (5.26)	0.091*** (3.21)	0.039* (1.67)	0.145*** (4.20)	0.037 (1.24)
EarnSurp	-0.005** (-2.55)	-0.003 (-1.22)	0.003 (1.56)	0.002 (1.12)	-0.001 (-0.50)	-0.003 (-1.15)
StockRet	-0.157*** (-4.11)	-0.083* (-1.69)	-0.059 (-1.45)	-0.139*** (-3.64)	-0.017 (-0.30)	-0.065 (-1.17)
EPS growth (yoy)	-0.014** (-2.29)	-0.004 (-0.53)	-0.003 (-0.53)	-0.012** (-2.18)	-0.009 (-0.97)	-0.004 (-0.51)
MonthlyVol	0.464** (2.13)	0.761*** (2.68)	0.508** (2.43)	0.342 (1.50)	0.105 (0.45)	0.377 (1.50)
ln(Assets)	0.011 (1.00)	-0.013 (-1.04)	0.017** (2.07)	-0.046*** (-2.59)	-0.004 (-0.42)	-0.041 (-1.60)
MarketRet	-0.178*** (-3.10)	-0.225*** (-3.66)	-0.009 (-0.16)	-0.057 (-1.01)	-0.112 (-1.33)	-0.102 (-1.23)
Intercept	0.739*** (6.21)	1.002*** (7.47)	0.793*** (9.01)	1.440*** (8.31)	1.057*** (9.89)	1.396*** (5.55)
Manager FE	NO	NO	NO	YES	NO	YES
Nobs	12,798	13,359	12,677	12,677	13,129	13,129
R ²	0.0509	0.0174	0.0940	0.3491	0.0257	0.2379
N clusters	745	834	745	745	834	834

The dependent variable in columns (1) and (2) is %Unct_{MGR}Pres, which is the call-level vagueness in the presentation part of conference calls, measured separately for CEOs and CFOs. In columns (3) and (4) the dependent variable is the call-level vagueness in CEO answers (%Unct_{CEO}Answ). In columns (5) and (6) it is the call-level vagueness in CFO answers (%Unct_{CFO}Answ). Columns (1)-(3) and (5) are estimated using OLS, columns (4) and (6) as a fixed effects panel. In columns (3)-(6), %Unct_{MGR}Pres controls for vagueness in communication resulting from persistent firm characteristics (such as firm culture) and time-varying business conditions. Other explanatory variables include negativity in answers (measured separately for CEO and CFO), negativity and uncertainty in analyst questions as well as various firm characteristics. All variables are defined in Table A.1 in the Supplementary Appendix. Columns (4) and (6) additionally include CEO and CFO fixed effects, respectively. Variants of these regressions using more and different control variables are presented in Table A.2 in the Supplementary Appendix.

t-statistics shown in parentheses are clustered by manager. Significance levels: * - 10%, ** - 5%, *** - 1%

Table 5: Manager vagueness style and immediate earnings response: Refining Hypothesis 1

	MGR=CEO			MGR=CFO		
	CAR01 (1)	CAR01 (2)	CAR01 (3)	CAR01 (4)	CAR01 (5)	CAR01 (6)
SurpDec	0.483*** (25.14)	0.544*** (9.39)	0.544*** (8.95)	0.494*** (24.95)	0.613*** (10.08)	0.622*** (10.22)
Vague _{MGR} Style	0.659*** (3.86)	0.651*** (3.79)	0.601*** (3.57)	0.388** (2.57)	0.380** (2.53)	0.335** (2.23)
Vague _{MGR} Style×SurpDec	-0.236*** (-4.04)	-0.232*** (-3.85)	-0.197*** (-3.37)	-0.200*** (-4.00)	-0.194*** (-3.89)	-0.164*** (-3.30)
Vague _{MGR} Resid	-0.257*** (-2.59)	-0.258*** (-2.60)	-0.277*** (-2.77)	0.028 (0.44)	0.023 (0.37)	0.022 (0.34)
Vague _{MGR} Resid×SurpDec	0.049 (1.60)	0.049 (1.59)	0.054* (1.76)	-0.044** (-2.17)	-0.042** (-2.08)	-0.043** (-2.11)
%Unct _{MGR} Pres	-0.034 (-0.40)	-0.028 (-0.29)	-0.049 (-0.51)	0.002 (0.02)	0.058 (0.69)	0.024 (0.28)
%Unct _{MGR} Pres×SurpDec		-0.006 (-0.20)	0.016 (0.49)		-0.043 (-1.51)	-0.024 (-0.86)
%UnctAnaly	-0.075 (-1.11)	-0.038 (-0.50)	-0.046 (-0.61)	-0.042 (-0.61)	0.005 (0.06)	0.006 (0.08)
%UnctAnaly×SurpDec		-0.027 (-1.14)	-0.019 (-0.80)		-0.037 (-1.57)	-0.032 (-1.37)
%Neg _{MGR} Answ	-0.550*** (-3.27)	-0.551*** (-3.27)	-0.443** (-2.44)	-0.198 (-1.58)	-0.198 (-1.58)	-0.053 (-0.38)
%Neg _{MGR} Answ×SurpDec			-0.089* (-1.69)			-0.114*** (-2.60)
%NegAnaly	-1.894*** (-9.16)	-1.893*** (-9.15)	-1.462*** (-6.70)	-1.828*** (-9.16)	-1.829*** (-9.14)	-1.467*** (-6.78)
%NegAnaly×SurpDec			-0.294*** (-4.37)			-0.254*** (-3.65)
StockRet	-1.300*** (-2.82)	-1.300*** (-2.83)	-1.282*** (-2.80)	-1.106** (-2.49)	-1.099** (-2.47)	-1.109** (-2.51)
EPS growth (yoy)	0.045 (0.76)	0.046 (0.77)	0.052 (0.89)	0.019 (0.32)	0.021 (0.36)	0.031 (0.53)
MthVola	0.619 (0.52)	0.639 (0.54)	0.464 (0.39)	0.519 (0.45)	0.508 (0.44)	0.409 (0.36)
ln(Assets)	-0.083* (-1.90)	-0.083* (-1.90)	-0.076* (-1.78)	-0.103*** (-2.69)	-0.102*** (-2.67)	-0.100*** (-2.61)
Tobin's Q	-0.010 (-0.18)	-0.011 (-0.20)	0.002 (0.03)	0.029 (0.49)	0.029 (0.50)	0.038 (0.64)
MarketRet	-1.719*** (-2.95)	-1.729*** (-2.97)	-1.666*** (-2.86)	-1.812*** (-3.09)	-1.817*** (-3.10)	-1.759*** (-3.01)
FF17 f.e.	Yes	Yes	Yes	Yes	Yes	Yes
N Obs	11,469	11,469	11,469	11,962	11,962	11,962
R ²	0.111	0.111	0.114	0.109	0.109	0.112
N Clusters	695	695	695	781	781	781

This table presents panel regressions of the cumulative abnormal returns (CAR) over [0;1] days relative to the call date on vagueness, the earnings surprise, and control variables. Abnormal stock returns are computed following Daniel, Grinblatt, Titman, and Wermers (1997) (DGTW); see Section 5.1 for details. The effect of vagueness on the earnings response coefficient is modeled as an interaction term of *Vague_{MGR}Style* with the earnings surprise (and *Vague_{MGR}Resids* with the earnings surprise). *Vague_{MGR}Style* is the MGR's (CEO's or CFO's) style of vagueness estimated from the language of her answers to analyst questions during earnings conference calls, according to Equation 4. *Vague_{MGR}Resids* represents the residuals from Equation 4, i.e., deviations from style. The measure of earnings surprise (*SurpDec*) is obtained by grouping firms into deciles, from 5 to 1 from largest positive to smallest positive surprise, then 0 for zero surprises, and then from -1 (for the smallest negative surprises) through -5 (for the largest negative surprises), where the surprise is the difference between actual and consensus forecast earnings expressed as percentage of the share price 5 trading days before the announcement in quarter *t*. All remaining variables are defined in Table A.1 in the Supplementary Appendix. *t*-statistics shown in parentheses are clustered by manager. Significance levels: * - 10%, ** - 5%, *** - 1%

Table 6: Manager vagueness and earnings informativeness in the short-run: Testing Hypothesis 2

	MGR=CEO		MGR=CFO	
	ACAR01 (1)	AbnVol (2)	ACAR01 (3)	AbnVol (4)
SurpDec	0.275*** (11.63)	0.034*** (10.40)	0.282*** (11.50)	0.035*** (10.38)
Vague _{MGR} Style	0.286 (1.04)	-0.072* (-1.74)	-0.072 (-0.32)	-0.031 (-0.83)
Vague _{MGR} Style× SurpDec	-0.188** (-2.32)	-0.021* (-1.94)	-0.124* (-1.90)	-0.014 (-1.57)
Vague _{MGR} Resid	0.099 (0.77)	0.005 (0.28)	-0.007 (-0.08)	-0.003 (-0.22)
Vague _{MGR} Resid× SurpDec	-0.004 (-0.08)	0.002 (0.42)	-0.021 (-0.73)	-0.003 (-0.74)
%Unct _{MGR} Pres	0.074 (1.07)	0.012 (1.25)	0.123** (2.09)	0.015* (1.93)
%UnctAnaly	0.022 (0.48)	0.009 (1.46)	0.013 (0.29)	0.009 (1.40)
%Neg _{MGR} Answ	0.337*** (3.07)	0.020 (1.27)	0.086 (0.97)	-0.023** (-2.08)
%NegAnaly	0.362*** (2.85)	0.055*** (3.17)	0.429*** (3.39)	0.065*** (3.75)
StockRet	-1.233*** (-4.51)	0.002 (0.06)	-1.297*** (-4.80)	-0.031 (-0.99)
EPS growth (yoy)	-0.062 (-1.51)	0.002 (0.56)	-0.077* (-1.91)	0.004 (0.81)
MthVola	8.530*** (9.08)	-0.095 (-0.76)	8.337*** (8.52)	-0.146 (-1.21)
ln(Assets)	-0.353*** (-9.52)	-0.014* (-1.89)	-0.373*** (-10.68)	-0.024*** (-3.40)
Tobin's <i>Q</i>	-0.008 (-0.17)	0.040*** (5.10)	0.016 (0.33)	0.041*** (5.23)
MarketRet	-3.297*** (-8.70)	0.562*** (13.39)	-3.180*** (-8.79)	0.567*** (13.24)
Intercept	5.439*** (9.81)	0.651*** (6.07)	5.138*** (10.24)	0.665*** (6.66)
FF17 f.e.	Yes	Yes	Yes	Yes
N Obs	11,469	12,620	11,962	13,080
R ²	0.109	0.106	0.118	0.110
N Clusters	695	740	781	830

This table presents panel regressions. In columns (1) and (3), the dependent variable is the absolute cumulative abnormal returns (ACAR) over [0:1] days relative to the call date. Abnormal stock returns are computed following Daniel, Grinblatt, Titman, and Wermers (1997) (DGTW); see Section 5.1 for details. In columns (2) and (4), the dependent variable is the abnormal trading volume; see Section 5.1 for details. *Vague_{MGR}Style* is the MGR's (CEO's or CFO's) style of vagueness estimated from the language of her answers to analyst questions during earnings conference calls, according to Equation 4. *Vague_{MGR}Resids* represents the residuals from Equation 4, i.e., deviations from style. The measure of earnings surprise (*SurpDec*) is obtained by grouping firms into deciles, from 5 to 1 from largest positive to smallest positive surprise, then 0 for zero surprises, and then from -1 (for the smallest negative surprises) through -5 (for the largest negative surprises), where the surprise is the difference between actual and consensus forecast earnings expressed as percentage of the share price 5 trading days before the announcement in quarter *t*. The regressions use the absolute value of *SurpDec*. All remaining variables are defined in Table A.1 in the Supplementary Appendix. *t*-statistics shown in parentheses are clustered by manager. Significance levels: : * - 10%, ** - 5%, *** - 1%

Table 7: Manager vagueness and earnings informativeness in the long-run: Testing Hypotheses 3 and 4

	MGR=CEO				MGR=CFO			
	CARDelay (1)	AnalyDelay (2)	ACAR260 (3)	ACAR060 (4)	CARDelay (5)	AnalyDelay (6)	ACAR260 (7)	ACAR060 (8)
SurpDec	-0.090 (-0.58)	-0.483*** (-5.62)	0.172*** (3.74)	0.346*** (6.54)	-0.109 (-0.73)	-0.519*** (-6.16)	0.162*** (3.43)	0.330*** (6.41)
Vague _{MGR} Style	-0.255 (-0.16)	0.954 (0.81)	0.004 (0.01)	0.350 (0.60)	2.264* (1.91)	2.755*** (2.72)	0.445 (1.03)	0.692 (1.53)
Vague _{MGR} Style× SurpDec	0.357 (0.78)	-0.096 (-0.37)	-0.077 (-0.53)	-0.224 (-1.32)	-0.648* (-1.79)	-0.557** (-2.28)	-0.252* (-1.94)	-0.314** (-2.39)
Vague _{MGR} Resid	-0.346 (-0.36)	0.151 (0.28)	-0.191 (-0.67)	-0.383 (-1.33)	0.369 (0.51)	-0.009 (-0.03)	0.253 (1.19)	0.255 (1.14)
Vague _{MGR} Resid× SurpDec	-0.033 (-0.11)	0.007 (0.04)	0.046 (0.51)	0.130 (1.48)	0.099 (0.48)	-0.012 (-0.11)	-0.065 (-1.01)	-0.074 (-1.07)
%Unct _{MGR} Pres	0.006 (0.02)	-0.271 (-1.06)	0.175 (1.41)	0.174 (1.21)	-0.256 (-0.85)	0.042 (0.18)	0.098 (0.87)	0.258** (2.13)
%UnctAnaly	-0.019 (-0.06)	-0.062 (-0.34)	0.088 (0.94)	0.082 (0.84)	0.030 (0.09)	-0.011 (-0.07)	0.076 (0.81)	0.026 (0.26)
%Neg _{MGR} Answ	0.446 (0.60)	0.363 (0.86)	0.796*** (3.56)	0.551** (2.21)	0.259 (0.42)	-0.103 (-0.35)	0.404** (2.30)	0.276 (1.46)
%NegAnaly	-0.783 (-0.81)	-1.108** (-2.23)	0.921*** (3.52)	0.715** (2.48)	-1.209 (-1.33)	-0.866* (-1.86)	0.878*** (3.39)	0.812*** (2.88)
StockRet	1.046 (0.58)	-1.002 (-1.37)	-1.949*** (-3.16)	-1.647*** (-2.60)	2.332 (1.32)	-0.882 (-1.24)	-1.683*** (-2.96)	-1.539** (-2.56)
EPS growth (yoy)	0.042 (0.18)	-0.127 (-1.01)	-0.127 (-1.39)	-0.124 (-1.39)	0.069 (0.28)	-0.080 (-0.65)	-0.163** (-2.01)	-0.154* (-1.74)
MthVola	-5.116 (-1.10)	-9.093** (-2.09)	15.252*** (6.34)	16.724*** (6.70)	-4.933 (-1.04)	-7.201* (-1.89)	13.069*** (6.32)	16.204*** (7.34)
ln(Assets)	0.479** (2.40)	0.987*** (4.37)	-0.512*** (-7.23)	-0.598*** (-7.83)	0.464** (2.56)	1.056*** (4.75)	-0.585*** (-8.35)	-0.644*** (-8.77)
Tobin's Q	0.338 (1.39)	0.208 (0.96)	-0.074 (-0.85)	0.014 (0.15)	0.368 (1.53)	0.113 (0.48)	-0.068 (-0.77)	0.077 (0.87)
MarketRet	1.313 (0.51)	1.904* (1.70)	-7.287*** (-8.70)	-8.312*** (-9.51)	-1.009 (-0.40)	2.594** (2.26)	-7.620*** (-9.73)	-8.070*** (-10.31)
Intercept	25.272*** (8.37)	12.806*** (4.64)	10.659*** (10.59)	10.691*** (10.24)	26.567*** (9.23)	12.777*** (4.69)	11.669*** (12.31)	11.054*** (12.02)
FF17 f.e.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N Obs	11,682	11,496	11,429	11,435	12,178	11,923	11,932	11,928
R ²	0.00447	0.229	0.0648	0.0685	0.00531	0.257	0.0636	0.0692
N Clusters	692	740	692	692	779	829	779	779

This table presents panel regressions. In columns (1) and (5), the dependent variable is the absolute cumulative abnormal returns (CAR) over [2:60] days relative to the call date. Abnormal stock returns are computed following Daniel, Grinblatt, Titman, and Wermers (1997) (DGTW); see Section 5.1 for details. In columns (2) and (6), the dependent variable is absolute CAR over [2:60] days relative to the call date. In columns (3) and (7), the dependent variable is CARDelay, which is the number of days it takes for cumulative returns to reach 90% of their final value, which is measured 60 days after the call. In columns (4) and (8), the dependent variable is AnalyDelay, which is the average number of trading days between the call date and subsequent revisions by individual analysts following the firm. *Vague_{MGR}Style* is the MGR's (CEO's or CFO's) style of vagueness estimated from the language of her answers to analyst questions during earnings conference calls, according to Equation 4. *Vague_{MGR}Resids* represents the residuals from Equation 4, i.e., deviations from style. The measure of earnings surprise (*SurpDec*) is obtained by grouping firms into deciles, from 5 to 1 from largest positive to smallest positive surprise, then 0 for zero surprises, and then from -1 (for the smallest negative surprises) through -5 (for the largest negative surprises), where the surprise is the difference between actual and consensus forecast earnings expressed as percentage of the share price 5 trading days before the announcement in quarter *t*. The regressions use the absolute value of *SurpDec*. All remaining variables are defined in Table A.1 in the Supplementary Appendix. *t*-statistics shown in parentheses are clustered by manager. Significance levels: : * - 10%, ** - 5%, *** - 1%

Table 8: Manager vagueness and post-call uncertainty: Testing Hypothesis 5

	MGR=CEO		MGR=CFO	
	AnalyDispPost (1)	RevFreq (2)	AnalyDispPost (3)	RevFreq (4)
SurpDec	0.005*** (10.21)	-0.001 (-0.25)	0.005*** (11.09)	0.000 (0.01)
Vague _{MGR} Style	-0.004 (-0.55)	0.209** (2.03)	-0.005 (-1.05)	0.091 (1.35)
Vague _{MGR} Style× SurpDec	0.004** (2.38)	0.010 (0.74)	0.002 (1.59)	-0.004 (-0.37)
Vague _{MGR} Resid	-0.000 (-0.11)	0.053** (2.26)	-0.000 (-0.37)	0.031** (2.30)
Vague _{MGR} Resid× SurpDec	0.000 (0.48)	-0.015** (-2.10)	0.001 (1.06)	-0.005 (-1.09)
%Unct _{MGR} Pres	0.005*** (3.56)	0.033*** (2.91)	0.004*** (2.95)	0.020* (1.88)
%UnctAnaly	0.000 (0.28)	0.004 (0.49)	0.000 (0.31)	0.008 (1.14)
%Neg _{MGR} Answ	0.014*** (4.81)	0.053*** (2.99)	0.006*** (3.32)	0.030** (2.18)
%NegAnaly	0.014*** (5.85)	0.086*** (4.29)	0.016*** (6.51)	0.079*** (4.00)
StockRet	-0.024*** (-4.69)	-0.157*** (-4.21)	-0.024*** (-4.77)	-0.122*** (-3.36)
EPS growth (yoy)	-0.003*** (-2.88)	-0.008 (-1.19)	-0.004*** (-3.30)	-0.010* (-1.84)
MthVola	0.068*** (2.60)	0.216 (1.17)	0.042 (1.57)	0.314 (1.64)
ln(Assets)	0.014*** (4.52)	0.023 (1.06)	0.015*** (4.70)	0.062*** (2.61)
Tobin's Q	0.002 (1.27)	-0.023* (-1.68)	0.001 (0.47)	-0.016 (-1.30)
MarketRet	-0.039*** (-5.96)	0.317*** (5.44)	-0.034*** (-5.47)	0.304*** (5.58)
Intercept	-0.106*** (-3.30)	0.290 (1.26)	-0.114*** (-3.65)	-0.257 (-1.10)
FF17 f.e.	Yes	Yes	Yes	Yes
N Obs	12,532	12,603	12,980	13,064
R ²	0.246	0.112	0.235	0.137
N Clusters	740	740	830	830

This table presents panel regressions. In columns (1) and (3), the dependent variable is analyst dispersion, the standard deviation of analysts forecasts for earnings for quarter (t+1) tallied three days after the conference call of quarter t. In columns (2) and (4), the dependent variable is post-announcement revision frequency, the fraction of covering analysts who revise after the conference call of quarter t up to the earnings announcement of quarter t+1. *Vague_{MGR}Style* is the MGR's (CEO's or CFO's) style of vagueness estimated from the language of her answers to analyst questions during earnings conference calls, according to Equation 4. *Vague_{MGR}Resids* represents the residuals from Equation 4, i.e., deviations from style. The measure of earnings surprise (*SurpDec*) is obtained by grouping firms into deciles, from 5 to 1 from largest positive to smallest positive surprise, then 0 for zero surprises, and then from -1 (for the smallest negative surprises) through -5 (for the largest negative surprises), where the surprise is the difference between actual and consensus forecast earnings expressed as percentage of the share price 5 trading days before the announcement in quarter t. The regressions use the absolute value of *SurpDec*. All remaining variables are defined in Table A.1 in the Supplementary Appendix. *t*-statistics shown in parentheses are clustered by manager.

Significance levels: : * - 10%, ** - 5%, *** - 1%

Table 9: Manager vagueness and firm value

	MGR=CEO		MGR=CFO	
	(1)	(2)	(3)	(4)
Vague _{MGR} Style	0.080 (0.57)	-0.070 (-0.59)	-0.318** (-2.16)	-0.232*** (-2.84)
Vague _{MGR} Resid	0.005 (0.66)		0.000 (0.07)	
%Unct _{MGR} Pres	-0.023*** (-4.37)	-0.092 (-0.74)	0.014 (1.27)	0.055 (0.88)
%UnctAnaly	0.003 (0.24)	0.375* (1.87)	-0.002 (-0.14)	0.404*** (2.71)
%Neg _{MGR} Answ	-0.003 (-0.19)	-0.565* (-1.93)	-0.022* (-1.86)	-0.734*** (-3.45)
%NegAnaly	-0.088*** (-2.93)	0.203 (0.38)	-0.107*** (-3.57)	0.261 (0.48)
ln(Assets)	-0.593*** (-4.34)	-0.361*** (-5.92)	-0.511*** (-5.55)	-0.345*** (-5.30)
Intercept	8.100*** (6.53)	4.490*** (10.87)	6.211*** (8.35)	4.187*** (9.85)
FF17 f.e.	No	No	No	No
FF17-qtr f.e.	Yes	No	Yes	No
N Obs	12,626	748	11,686	850
R ²	0.289	0.251	0.249	0.261
N Clusters	17	17	17	17

The dependent variable is Tobin's Q, which we examine in a panel regression setting, columns (1) and (3), as well as in purely cross-sectional fashion, columns (2) and (4). *Vague_{MGR}Style* is the MGR's (CEO's or CFO's) style of vagueness estimated from the language of her answers to analyst questions during earnings conference calls, according to Equation 4. *Vague_{MGR}Resids* represents the residuals from Equation 4, i.e., deviations from style. All remaining variables are defined in Table A.1 in the Supplementary Appendix. *t*-statistics shown in parentheses are clustered by Fama-French 17 industries.

Significance levels: : * - 10%, ** - 5%, *** - 1%

A Supplementary Appendix

Table A.1: Definitions of variables

Outcome variables (sorted alphabetically)	
AbnVol	Abnormal trading volume measured as the log ratio of trading volume over [0:1] days relative to the call divided by (two times) the average daily trading volume over the 40 day-period ending 5 days before the call
(A)CAR01	(Absolute) Cumulative Abnormal Return over [0:1] days relative to the call
(A)CAR260	(Absolute) Cumulative Abnormal Return over [2:60] days relative to the call
(A)CAR060	(Absolute) Cumulative Abnormal Return over [0:60] days relative to the call
AnalyDelay	Average number of days between the call and individual analyst forecast revisions
AnalyDispPost	Analyst dispersion following the call, standard deviation of analysts forecasts for earnings for quarter t+1 tallied three days after the conference call of quarter t.
CARDelay	Number of days after the call until CAR reaches 90% of its ultimate value, which is measured over [0:60] days relative to call
RevFreq	Post-announcement revision frequency, fraction of analysts who revise after the conference call of quarter t up to the earnings announcement of quarter t+1.
Tobin's Q	The ratio of the market value of assets to their book value
Style variables	
Vague _{MGR} Style	Manager's style of vagueness, that is her fixed effect in the percentage of uncertain words she used when answering questions from analysts. Estimated according to Equation 4 for all CEOs and CFOs.
Vague _{MGR} Resids	Unusual vagueness of manager's answers. Represents incidental deviations from manager style of vagueness.
Control variables (sorted alphabetically)	
AnalyDispPre	Analyst dispersion prior to the call, the standard deviation of analysts forecasts for earnings for quarter t tallied three days before the conference call of quarter t.
ln(Assets)	The natural logarithm of total assets
EarnSurp	Earnings surprise, given as a percentage of the share price. It is the difference between actual and consensus forecast earnings, divided by the share price 5 trading days before the announcement in quarter t, multiplied by 100
EPS growth	The fraction by which earnings in a quarter exceed earnings in the same quarter in the prior year
MarketRet	The percent value-weighted market return for the period starting 5 days after an earnings announcement for the quarter t1 and ending 5 days prior to the earnings announcement for the quarter t
MthVola	Monthly stock volatility computed from monthly returns over the past 48 months
%Neg _{MGR} Answ	The percentage of negative words in all words spoken by the manager, when answering questions from analysts. Calculated separately for the CEO and CFO.
%NegAnaly	The percentage of negative words in questions from analysts
StockRet	Stock return (in percent) in quarter t, that is the difference between the share price 5 days before the earnings announcement for quarter t and the share price 5 days after the earnings announcement for quarter t1, divided by the stock price 5 days after the earnings announcement for quarter t1, multiplied by 100

Table A.1: Definitions of variables (cont.)

Control variables cont.	
SurpDec	Deciles of EarnSurp numbered from -5 to +5 with an additional 0 category to accommodate no-surprise cases
%UnctAnaly	The percentage of uncertain words in questions from analysts.
%Unct _{MGR} Pres	The percentage of uncertain words in all words spoken by the manager during the presentation part of the call. Calculated separately for the CEO and CFO.

Table A.2: Estimating manager style - extended specifications

	%Unct _{CEO} Ans					%Unct _{CFO} Ans				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
%Unct _{CEO} Pres	0.089*** (6.99)	0.081*** (6.29)	0.079*** (6.08)	0.081*** (6.06)			0.012 (0.66)	0.014 (0.75)	0.016 (0.84)	0.027 (1.39)
%Unct _{CEO} Ans							0.055*** (3.65)	0.055*** (3.59)	0.054*** (3.44)	0.061*** (3.83)
%Unct _{CFO} Pres		0.036*** (3.16)	0.033*** (2.90)	0.030** (2.51)	0.042*** (3.66)	0.105*** (5.81)	0.102*** (5.27)	0.097*** (4.94)	0.100*** (5.04)	
%Unct _{CFO} Ans		0.028*** (4.25)	0.029*** (4.21)	0.028*** (4.09)	0.029*** (4.05)					
%Neg _{CEO} Ans	0.203*** (7.64)	0.207*** (7.70)	0.206*** (7.62)	0.211*** (7.52)						
%Neg _{CFO} Ans						0.105*** (4.30)	0.106*** (4.17)	0.105*** (4.05)	0.104*** (3.88)	
%Unct _{Anal}	0.058*** (6.25)	0.059*** (6.08)	0.059*** (6.04)	0.060*** (6.02)	0.064*** (6.15)	0.075*** (6.07)	0.064*** (4.90)	0.065*** (4.88)	0.070*** (5.42)	0.067*** (5.02)
%Neg _{Anal}	0.039 (1.62)	0.040 (1.60)	0.040 (1.57)	0.042 (1.63)	0.081*** (3.21)	0.037 (1.21)	0.027 (0.80)	0.028 (0.83)	0.029 (0.84)	0.054 (1.59)
EarnSurp	0.018 (1.30)	0.020 (1.44)	0.022 (1.55)	0.019 (1.35)	0.021 (1.36)	-0.024 (-1.34)	-0.024 (-1.28)	-0.025 (-1.33)	-0.020 (-1.04)	-0.019 (-0.96)
StockRet	-0.141*** (-3.56)	-0.135*** (-3.38)	-0.130*** (-3.19)	-0.122*** (-2.91)	-0.133*** (-3.15)	-0.064 (-1.11)	-0.047 (-0.77)	-0.038 (-0.61)	-0.041 (-0.62)	-0.025 (-0.36)
EPS growth (yoy)	-0.012** (-2.19)	-0.012** (-2.16)	-0.014** (-2.39)	-0.011* (-1.85)	-0.016*** (-2.79)	-0.004 (-0.45)	-0.005 (-0.59)	-0.008 (-0.85)	-0.007 (-0.68)	-0.013 (-1.33)
MthVola	0.342 (1.46)	0.392* (1.70)	0.406* (1.74)	0.401* (1.70)	0.553** (2.27)	0.382 (1.47)	0.278 (1.00)	0.239 (0.83)	0.336 (1.09)	0.249 (0.78)
ln(Assets)	-0.046** (-2.55)	-0.042** (-2.22)	-0.042** (-2.19)	-0.041** (-2.17)	-0.058*** (-2.78)	-0.040 (-1.53)	-0.042 (-1.49)	-0.041 (-1.45)	-0.035 (-1.17)	-0.034 (-1.08)
MarketRet	-0.060 (-1.03)	-0.036 (-0.60)	-0.033 (-0.54)	-0.013 (-0.22)	-0.083 (-1.34)	-0.099 (-1.16)	-0.107 (-1.17)	-0.116 (-1.26)	-0.100 (-1.06)	-0.154 (-1.58)
%Unct _{EPR}			0.021 (1.32)	0.024 (1.51)	0.026 (1.63)			-0.029 (-1.20)	-0.030 (-1.21)	-0.023 (-0.92)
DispPreCall				0.102 (1.05)	0.141 (1.40)				0.216 (1.54)	0.244 (1.64)
Δ Unct _{CEO} Pres					0.039*** (4.07)					
Δ Neg _{CEO} Ans					0.102*** (5.55)					
Δ Unct _{CFO} Pres										0.044*** (3.22)
Δ Neg _{CFO} Ans										0.043** (2.37)
Intercept	1.509*** (7.20)	1.385*** (6.28)	1.360*** (6.10)	1.350*** (6.02)	1.591*** (6.58)	1.305*** (6.09)	1.269*** (5.50)	1.235*** (5.34)	1.132*** (4.70)	1.235*** (4.76)
Observations	12,683	11,957	11,696	11,199	10,686	13,137	11,733	11,490	10,996	10,399
R-squared adjusted	0.350	0.350	0.349	0.350	0.349	0.238	0.239	0.241	0.249	0.256
CEO fixed effects	YES	YES	YES	YES	YES					
Number of CEO clusters	745	742	738	737	736					
CFO fixed effects						YES	YES	YES	YES	YES
Number of CFO clusters						834	817	813	810	808

This table expands Table 4 to include additional control variables in the estimation of style. Columns (1) and (6) correspond to columns (3) and (6) in Table 4, respectively. Δ Unct_{MGR}Pres and Δ Neg_{MGR}Ans are constructed, for each CEO and CFO, by subtracting the vagueness in her presentation (negativity in her answers) during the previous call from their respective values in the current call. All remaining variables are defined in Table A.1. *t*-statistics shown in parentheses are clustered by manager. Significance levels: : * - 10%, ** - 5%, *** - 1%

Table A.3: Comparison of different style estimation approaches

CEO					CFO				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Panel A: correlations of fixed effects obtained under different specifications									
1	0.991	0.988	0.982	0.967	1	0.954	0.949	0.936	0.905
	1	0.997	0.990	0.970		1	0.995	0.983	0.949
		1	0.994	0.973			1	0.989	0.955
			1	0.978				1	0.964
				1					1
Panel B: root mean square deviation as percentage of mean effect in (1)									
0.0%	3.4%	4.0%	4.8%	10.0%	0.0%	7.7%	9.5%	10.4%	11.7%

In this table we compare the individual manager fixed effects obtained from each of the specifications presented in Table A.2. Columns (1)-(5) refer to CEOs and columns (6)-(10) to CFOs. Columns (1) and (6) correspond to the original specification from Equation 4. Panel A presents pairwise correlations between fixed effects from all the specifications. To construct Panel B, we begin by calculating the Root Mean Square Deviation between individual manager fixed effects from the additional specifications introduced in Table A.2 and those from the original specification in Equation 4. The RMSD is then expressed as percentage of the average fixed effect from the original specification.

Table A.4: List of stop words used in the pre-processing of conference call transcripts

i	them	does	before	any
me	their	did	after	both
my	theirs	doing	above	each
myself	themselves	a	below	few
we	what	an	to	more
our	which	the	from	most
ours	who	and	up	other
ourselves	whom	but	down	some
you	this	if	in	such
your	that	or	out	no
yours	these	because	on	nor
yourself	those	as	off	not
yourselves	am	until	over	only
he	is	while	under	own
him	are	of	again	same
his	was	at	further	so
himself	were	by	then	than
she	be	for	once	too
her	been	with	here	very
hers	being	about	there	s
herself	have	against	when	t
it	has	between	where	can
its	had	into	why	will
itself	having	through	how	just
they	do	during	all	don
				should
				now
