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

Michał Dzieliński[1], Alexander F. Wagner[2], and Richard J. Zeckhauser[3]

[1]Stockholm University and Swedish House of Finance
[2]University of Zurich, Swiss Finance Institute, CEPR, and ECGI
[3]Harvard University and NBER

May 4, 2016

Abstract

This paper studies managers' use of words we label as *vague*, such as "conceivably", "probably", or "conditional", when they conduct earnings conference calls. The unique setting of conference calls allows us to identify some CEOs and CFOs as consistently *vague talkers*, and others as consistently *straight talkers*. Analysts and the stock market attend to the style of managerial talk, and respond less and more slowly to earnings news when the manager is vague. These results imply that quantitative information and contextual information are complements. Firms with vague CFOs have lower valuation ratios.

Keywords: Communication style, earnings conference calls, vagueness, textual analysis
JEL Classification Number: G14

1 Introduction

At least since Beaver (1968) it has been known that investors pay great attention to earnings announcements. Indeed, of the numbers they communicate externally, CFOs consider earnings as the most important (Graham, Harvey, and Rajgopal, 2005). But while the the disclosure of corporate financials is increasingly standardized, practitioners also emphasize that the human factor still plays an important role in interpreting earnings news. Brown, Call, Clement, and Sharp (2015) provide survey evidence that analysts regard private phone calls with management and the Q&A session of conference calls as particularly important for generating earnings forecasts. Based on interviews with fund managers, Barker, Hendry, Roberts, and Sanderson (2012) quote *"building up an understanding of the company"* as well as *"judging their* [the management's] *ability to deliver"* as the main motives for systematic personal interactions with top company executives.

Importantly, a casual review of managerial communication indicates that market participants encounter variation in managerial language. In this paper, we shed light on one important aspect of this variation, the vagueness in providing earnings-related information. We investigate whether such variation exists in the cross-section of top executives at large US companies, whether it is important, and whether market participants understand its importance. Specifically, we hypothesize that clearer, i.e. less vague, communication from managers should lead to a better understanding of the company by investors and analysts. This in turn should enhance their ability to interpret new information, such as earnings, and incorporate it into stock prices and forecasts. We study the use of qualifying and uncertain terms and ask: Do managers systematically differ in the way in which they employ "straight-talking" vs. "vague" communication patterns? And does the vagueness in managerial communication affect investor and analyst response to earnings news?

To answers these questions, we exploit 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 the company. They begin with a presentation that is followed by a question and answer (Q&A) session with the security analysts attending the call. These calls are routinely attended by the company's top executives. CFOs participate actively alongside the CEOs, as they play an important role in the transmission of value-relevant information from companies to markets. In particular, markets can use information discussed on the call to complement and interpret the hard earnings numbers.

We focus on the use of "uncertain", or *vague*, words such as "conceivably", "probably" or "ambiguous" (as listed in the Loughran and McDonald (2011) wordlist). This is a potentially important dimension, because it relates to the precision of the communicated information. 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 conference calls has focused on tone, that is, negativity and positivity. Very little evidence is available on the use and role of uncertain statements.

We hypothesize that vagueness has implications for analyst reactions and/or market responses. The logical question arises to what extent this is due to any of three factors: current conditions that incline management to use more vague language in a particular call, persistent firm characteristics related to its communication "culture", or, finally, the manager's consistent "style". Prior work aiming to identify managerial style in corporate policies or disclosure, has usually relied on managers transitioning from one firm to another. By contrast, the structure of earnings conference calls offers us a novel avenue for distinguishing personal characteristics from the characteristics of the firm and the effects of changing business conditions. 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 same is true of the earnings press release (EPR). The Q&A part of the conference call, though also prepared and rehearsed, features managers speaking comparably extemporaneously, responding also to questions they had no knowledge of before the call.

We can thus simultaneously observe a written (EPR), a fully scripted (presentation) and an at least somewhat more improvized (Q&A) account of the same events, under the same business conditions, and, in the case of presentation and Q&A, even keeping the actual person speaking constant. We argue that this setting provides a powerful control for both firm culture and time-varying uncertainty in the company's operations. Thus, the comparison of presentations and answers allows us to extract personal communication style of the CEOs and CFOs. We note that for this method to apply, we do not need to posit that answers are completely ad-hoc and freely chosen by the manager; all we need to assume is that company culture determines presentations more than answers.

To get a sense of whether our method works as argued, we begin by comparing the language of the EPR, of the conference call presentation, and the answers on the call, respectively, before and after a change in management. In a sample of 231 CEO turnovers we find the correlation between the average frequency of uncertain words before and after to be high in the EPR (ρ=0.66), medium in the presentation part (ρ=0.39), but low in the answers part ($\rho = 0.26$). Similar results obtain for 321 CFO turnovers we identify (ρ=0.71 ρ=0.54 vs. ρ=0.24). By contrast, in a sample of matched control firms, for which the turnover date is artificially induced as a form of placebo test, the before-after correlation is high in all three elements of earnings communication. In particular, for the control firms the correlation in the answers part is much higher than among the turnover firms (ρ=0.77 vs. 0.26 for CEOs and ρ=0.57 vs. 0.24 for CFOs). This shows that the language of answers is more associated with the specific person speaking, while the language of the presentation (and the earnings press release) is more a function of firm characteristics. It also shows that as long as the persons delivering them does not change, linguistic patterns regarding the use of uncertain words are in fact quite stable also

in the answers, which points to the existence of "style".

We then more explicitly decompose the frequency of uncertain words each managers uses when answering analyst questions into several parts. Specifically, we regress this frequency on (1) her fixed effect (which then represents that manager's *vagueness style*), (2) her own frequency of uncertain words in the presentation (which also controls for unobservable factors that influence corporate-level uncertainty at that 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.

Next, we test the consequences of vagueness. We provide six key results. First, firms run by vaguer CEOs and CFOs have lower earnings response coefficients (ERC). 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. Since "building up an understanding of the company" is a process that requires repeated interactions, we expect the persistent vagueness style to matter most. This is what we find.

Second, the market finds earnings announcements of companies run by vague managers to be less informative: For example, trading volume increases by 48% during the two days surrounding calls hosted by particularly vague CEOs (in the top decile of the vagueness distribution), compared to an average increase of 60% and 72.5% for straight-talking CEOs in the bottom decile. The resulting difference between straight- and vague-talking CEOs is statistically significant (diff=24.5%, t-stat=8.24). A similar difference exists among CFOs (55% vs. 72.5%, t-stat=5.49).

Third, a vaguer style reduces the degree to which earnings news finds its way into the stock prices over the next quarter. Thus, the muted initial reaction has long-lasting effects too. Interestingly, in the long-term results CFOs matter more than CEOs.[1]

Fourth, analysts and investors take longer to adjust to earnings news. Fifth, analyst uncertainty tends to be exacerbated by managerial vagueness. Sixth, valuation ratios of companies run by vague CFOs are lower.

Overall, these results show that earnings ("hard information") and 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, in that vagueness of the "soft" explanatory component leads to greater discounting of the earnings surprise itself.

The paper proceeds as follows. In Section 2 we review the related literature and highlight

---

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

our own contributions. Section 2 discusses the conference call and other data. In Section 4, we make the case for attributing the presentation and Q&A parts of the call to the firm and the manager respectively. We present evidence of the economic importance of vague style in Section 5. Section 6 concludes.

2   Background and literature

Our study lies at the intersection of two literatures. The first focuses on empirical identification of manager style and its importance, while the other one analyzes various aspects of earnings conference calls. Below, we briefly review each of these literatures and highlight the contributions of this paper.

2.1   Empirical research on manager style

Economic theory offers two competing images of the role of individual manager characteristics for corporate policy. The neoclassical approach essentially reduces it to zero and treats managers as perfect substitutes, who rationally respond to business conditions. By contrast, according to the upper echelons theory of Hambrick and Mason (1984) many managerial decisions are complex enough, involving conflicting goals, so that instead of a single rational solution there are certain rationality bounds, within which the exact choices made by managers can be influenced by their idiosyncratic experiences and values. The presence of such idiosyncratic characteristics is commonly referred to as manager "style".

In empirical studies, style is defined as the presence of a manager fixed effect in variables related to firm policy. The main challenge 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 the next during the sample period. In such cases, firm fixed effects can be included when regressing the variables for which style is expected to play a role on manager fixed effects. The significance of the latter means that the outcome variable includes a component unique to a given manager that he or she carries over when moving from one firm to the next and is taken as evidence that style matters. Their seminal findings that such a component can be identified for various measures of investment and financial policy, M&A activity and firm performance have spurred further inquiry, using the same methodology, 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)). Finally, in a recent and related study, 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 managers exert significant personal influence on various aspects of the firm in ways consistent with their life experience.

However, this approach 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. As described above, we introduce a proxy for firm culture by observing the same manager in both a well-prepared and an at least partially improvized setting. Thus, we do not need to rely on the controversial (and limiting) occurrence of manager transitions.[2] Another advantage of our two-step procedure, compared to the usual approach of estimating manager fixed effects directly in corporate outcomes, is that we can test directional predictions about the economic effects of vagueness.

2.2 Earlier studies of 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 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 liguistic 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 it 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,

---

[2]In 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 improvized form.

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 the revelation of bad news on conference calls. Hollander, Pronk, and Roelofsen (2010) study managerial attempts to avoid answering questions. Lee (2016) measures the stylistic similarity of 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 an incentive for them to speak naturally.

We build on and expand this literature by explicitly contrasting the (relatively) scripted presentation and the (relatively) extemporaneous answers part of the call to measure the same linguistic feature as exhibited by the firm and personally by the managers. A somewhat similar approach is used by Brochet, Naranjo, and Yu (2015) 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.[3]

3   Data

3.1   Conference call transcripts and textual analysis

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. 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 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 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

---

[3]In 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. In their analysis of earnings announcements, Demers and Vega (2011) find that higher linguistic certainty implies a stronger immediate response to earnings news and less drift. Our focus is instead on how the vagueness of individual *managers* matters for analyst and market reactions. We also examine to what extent the effects are due to consistent "style" vs. time-varying "residual" vagueness.

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]

The estimation of manager vagueness style, which we perform later in the 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 (of those in which the CEO was at all present) and 312 distinct CEOs, most of whom participated in at most 2 calls. This leaves us with 745 CEOs, for whom we can estimate style. As Table 1 shows, the CEO sample is very 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 (of those in which the CFO was at all present) for 445 distinct managers. Here too, the restricted sample of 834 CFOs appears very 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.

We proceed to count the words spoken by the CEOs and CFOs in the presentation and Q&A part of each call. From now on, the numbers we quote for CEOs refer to the CEO sample and those for CFOs to the CFO sample.[5] The average CEO participates in 17 calls and speaks 1,023 words during the presentation and 1,372 words answering analyst questions. Interestingly, 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 most of the content in both parts, which shows they are typically not only present but participate actively in the call.

We proxy vagueness by the use of "uncertain" words like "probably", "conditional" or "unknown". The full list, based on Loughran and McDonald (2011), contains 297 such words.[6] Specifically, we calculate the percentage of uncertain words in all words spoken by the CEO or CFO, separately during the presentation part and when answering questions from analysts:

---

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

[5]All of those numbers are also provided for the full sample and are very similar, except the average number of calls per manager.

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

$$\%Unct_{CEO/CFO}Pres = \frac{Uncertain\_words_{CEO/CFO}(Pres)}{Total\_words_{CEO/CFO}(Pres)} \tag{1}$$

$$\%Unct_{CEO/CFO}Answ = \frac{Uncertain\_words_{CEO/CFO}(Answ)}{Total\_words_{CEO/CFO}(Answ)} \tag{2}$$

The typical CEO presentation contains 0.84% uncertain words and the average for answers is 1.18%. For CFO the respective numbers are 1.03% and 1.28%. 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 hesitant language. 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.

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 constructed by dividing the difference of negative and positive words by the sum of such words in a given piece of the call (like CEO answers or analyst questions). Hence, negative values mean that more positive than negative words were used and this is the case for both the CEO and CFO answers. This is in contrast to analyst questions, for which negativity is on average above zero. Is suggests that managers' answers are typically more upbeat than the questions that solicited them.

3.2   Other data

This section covers other control variables. The outcome variables are discussed in Section 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.

We use 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 represent 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 calculate 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   Extracting manager vagueness from the language of earnings conference calls

Conceptually, 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 (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. Also, two different managers may speak differently because of other systematic differences in firm characteristics, but if we can control for those, the remaining variation in how managers speak in calls will indicate the managers' differing propensities to use uncertain words, i.e., what we call the style of vagueness. The basic intuition of our analysis is to associate (after suitable controls) words in answers with manager language and words in presentation with firm characteristics. A first glance at whether this approach appears supported by the data is presented in Figure 1, where we plot $\%\text{Unct}_{CFO}\text{Answ}$ versus $\%\text{Unct}_{CFO}\text{Pres}$ for all CFOs of S&P500 firms who have attended at least 5 calls.

[Figure 1 about here]

There is considerable variation along both dimensions but certain clusters are discernible. For instance, the triangles, corresponding to James Beer of Symantec Corp, line up almost completely below the stars, which we identify as Dean Bergy of Stryker Corp (a health equipment manufacturer). Furthermore, most of the triangles are concentrated to the right of the stars. Taken together, this means that James Beer consistently uses *less* uncertain words when answering analyst questions than Dean Bergy, even though the presentation part of Symantec conference calls (also delivered by James Beer) typically contains *more* such words than in the case of Stryker Corp. This illustrates that the language of answers is not merely a reflection of the presentation part and appears to confirm our intuition that presentations are more associ-

10

ated with firm characteristics (to the extent that technology companies, like Symantec, typically face a more uncertain business environment than companies in the healthcare sector).

Section 4.1 develops this intuition and provides a test for its validity. Section 4.2 gives details of how we extract systematic manager vagueness from the answers.

4.1 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 otherwise communication "culture", with $\%UnctPres$. We do so by examining the effect of manager turnover on those two parts of earnings conference calls.

Our test based on the following reasoning. Suppose a firm replaces its CEO.[7] 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, it is not going to be a perfect replacement. 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. The advantage of this test is that, because we observe CEO words, the actual person speaking changes in both parts of the call.

We fine-tune this analysis by two additional considerations. First, it may be that perhaps managers generally use more similar language in scripted than non-scripted communication, so greater similarity in $\%UnctPres$ before and after a turnover is anyway to be expected, regardless of the effects of corporate culture. To address this possibility, we compare turnover firms to similar firms where no such event took place. For these control firms, if we can find both $\%UnctPres$ and $\%UnctAnsw$ to be stable over time, it would give us confidence that the effect on $\%UnctAnsw$ observed among turnover firms is indeed due to replacing the CEO and not to lower persistence of unscripted communication in general.[8] Hence, for each turnover firm we select one control firm from the same Fama-French 17 industry which is the best match in terms of observation period, average total assets, as well as average $\%\text{Unct}_{CEO}\text{Pres}$ and average $\%\text{Unct}_{CEO}\text{Answ}$ 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, it may be that firms undergoing change in senior management are in fact lacking a stable culture. Therefore, we also look at the language of the earnings press release, $\%UnctEPR$ specifically, 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

---

[7]The same logic applies to CFO turnovers, which we also examine.

[8]As 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.

turnover, that would speak to the existence of communication culture also among turnover firms.

In sum, if the wording of the EPR is a function of firm culture and not particular CEO style, we expect the firms with the most vague releases (highest average $\%UnctEPR$) pre-turnover to remain at the high end of the $\%UnctEPR$ distribution post-turnover. Similarly, we expect firms with the lowest average $\%UnctEPR$ pre-turnover to remain at the low end of the post-turnover distribution. 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 enough 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 control firms, the before and after period is artificially constructed using the CEO replacement date from the corresponding turnover firm, while in reality the CEO stayed the same the whole time. Together with the criterion of matching observation period, 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 2 about here]

The results in Table 2 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 provides support for 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   Estimating manager style of vagueness

We identify manager style of vagueness with the systematic component of 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):

$$\%Unct_{MGR}Answ_{i,t} = \alpha + \sum_{i=1}^{N_{MGR}} \gamma_i \cdot MGR_{i,t} + \beta_1 \cdot \%Unct_{MGR}Pres_{i,t} + \beta_3 \cdot \%UnctAnaly_{i,t} +$$
$$+ \beta_2 \cdot Neg_{MGR}Answ_{i,t} + \beta_4 \cdot NegAnaly_{i,t} + \beta_k \cdot Controls_{j,t}^k + \epsilon_{i,t}$$
$$(3)$$

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.[9] As such, we would expect it to correlate with certain observable firm characteris-

---

[9]In 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.

tics, which themselves indicate uncertainty. We provide evidence of this in columns (1) and (2) of Table 3. $\%Unct_{MGR}Pres$, both for CEOs and CFOs, increases markedly with volatility and decreases with stock- and market-level returns. These findings are internally consistent, given 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 observable, which we take as evidence that $\%Unct_{MGR}Pres$ also captures *un*observable 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 3 about here]

We first estimate Equation 3 without manager fixed effects to gauge how much of the heterogeneity in $\%UnctAnsw$ 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

14

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 (1) / (3) indicates overall modest explanatory power of the control vairables. 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 3; 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 3 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 3. As can be seen in Figure 2, 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 2 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 they work for. Overall, the results in this section give us confidence in the existence of managerial style of vagueness.

5   The economic effects of vagueness

Our general hypothesis is that earnings news communicated by vague managers is harder to interpret in terms of implications for firm value and hence, less informative. This section explores various dimensions of this prediction.

We phrase the hypotheses in terms of managerial vagueness overall, but based on the method explained in the previous section, we will be able to test separately the effects of consistent managerial style and of residual, call-specific vagueness. 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.[10] If, by contrast, information is only provided through these calls, we will find that residual vagueness is the centrally important factor.

In the regressions stated below, MGR stands for either CEO or CFO. We run separate regressions for CEOs and CFOs to determine whose vagueness, if at all, has a bigger effect.

5.1   Hypotheses and methods

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 they are explained by management. We expect earnings surprises accompanied by vague explanations to appear 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 (earnings response coefficient).

Testing this hypothesis is important because an alternative story for how vagueness matters for earnings response coefficients is also ex ante plausible: Suppose that earnings ("hard infor-

---

[10]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 do 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.

mation") and managerial explanations ("soft information") are substitutes, not complements. Then, investors may, in the presence of vague managerial communication pay *more* attention to earnings numbers. To test Hypothesis 1, we estimate the following panel regression, which includes Fama-French 17 industry fixed effects:

$$CAR01_{i,t} = \alpha_i + FF17_i + \beta_1 \cdot EarnSurp_{j,t} + [\beta_2, \beta_3] \cdot \begin{bmatrix} Vague_{MGR}Style_i \\ Vague_{MGR}Resids_{i,t} \end{bmatrix} +$$
$$+ [\beta_4, \beta_5] \cdot \begin{bmatrix} Vague_{MGR}Style_i \\ Vague_{MGR}Resids_{i,t} \end{bmatrix} \cdot EarnSurp_{i,t} + \beta_k \cdot Controls_{i,t}^k + \epsilon_{i,t}. \tag{4}$$

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.[11] Our dependent variable cumulates them 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. $Vague_{MGR}Style$, is the manager's style of vagueness estimated from the language of her answers to analyst questions during earnings calls, according to Equation 3, 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. Hypothesis 1 predicts $\beta_4 < 0$ (and $\beta_5 < 0$). In addition to firm characteristics and the market return, the matrix $Controls^k$ also includes $\%Unct_{MGR}Pres_{i,t}$, $\%UnctAnaly_{i,t}$, $Neg_{MGR}Answ_{i,t}$ and $NegAnaly_{i,t}$ to control for information contained in the linguistic features of the call, in particular the firm-related vagueness of the presentation part.

As a related hypothesis, and as a consistency check, we also investigate the informativeness of earnings news, captured by the absolute responses to earnings news.

Hypothesis 2: Vagueness reduces the immediate informativeness of earnings news.

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

---

[11]From 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 Frenchs website. The portfolios are value-weighted.

cumulative trading volume of a firm on the call date and the subsequent trading day[12] 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:

$$\begin{bmatrix} ACAR01_{i,t} \\ AbnVol_{i,t} \end{bmatrix} = \alpha_i + FF17_i + \beta_1 \cdot |EarnSurp_{j,t}| + [\beta_2, \beta_3] \cdot \begin{bmatrix} Vague_{MGR}Style_i \\ Vague_{MGR}Resids_{i,t} \end{bmatrix} +$$
$$+ [\beta_4, \beta_5] \cdot \begin{bmatrix} Vague_{MGR}Style_i \\ Vague_{MGR}Resids_{i,t} \end{bmatrix} \cdot |EarnSurp_{i,t}| + \beta_k \cdot Controls_{i,t}^k + \epsilon_{i,t}$$

$$(5)$$

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. 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. 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.

Hypothesis 3: Vagueness reduces the medium-run stock price reaction to earnings.

Here, too, there is a plausible alternative hypothesis. Stock market participants may be 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. We relate both to managers vagueness using a specification analogous to Equation 4 (the difference being that we only consider absolute CARs for the extended horizon).

---

[12]We 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.

Hypothesis 3 allows for the possibility that firms run by vague managers will, everything else constant, not reach the same return after 60 days as firms run by straight talkers. Apart from the *magnitude* of the adjustment, another aspect, namely the *time frame* is also of interest. To illustrate, consider Firm A ran by a vague manager and Firm B managed by a straight-talker. Even assuming we do not find any systematic difference in ACARs after 60 days, we would expect the cumulative returns of Firm A's stock to reach their "final" value more slowly than Firm B's. To quantify this effect, we construct a novel variable, CARDelay:

$$CARDelay = min\left(\#days \mid 0.9 \leq \frac{CAR[0:n]}{CAR[0:60]}\right) \tag{6}$$

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 fourth hypothesis states that:

Hypothesis 4: Vague style increases the delay in market and analyst reactions to earnings news.

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 5, again expecting $\beta_4 < 0$ (and $\beta_5 < 0$).

---

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

[14]The 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.

In all regressions, to account for the interdependence between observations, we cluster standard errors by manager. An additional estimation challenge 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). In 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 3 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 4 etc. on the bootstrap samples gives us 1,000 coefficient estimates for each of the explanatory variables. The boostrapped standard errors, which can be used to calculate t-statistics, are simply the standard deviations of the bootstrap 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 4 we were able to verify that the inferences are unchanged with bootstrapped standard errors.

5.2   Results

5.2.1   Earnings response coefficients

Table 4 tests Hypothesis 1. 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 favor of the hypothesis that a more vague style is associated with a weaker response to earnings.

To asses the magnitude of the effects, note that we center the Vague$_{MGR}$Style before calculating the interactions terms (Vague$_{MGR}$Resids, 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 9bps. for each surprise decile increment. A very vague style on the other

hand (at the 90th percentile of the distribution), reduces earnings response by 10bps., the slight asymmetry being due to skewness in the distribution of style. 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.

[Table 4 about here]

We verify the robustness of this finding by including interactions between $SurpDec$ and other linguistic features of the call. We begin with $\%Unct_{MGR}Pres$ and $\%UnctAnaly$, in columns (2) and (5) of Table 4 as arguably the two most closely related variables. We find weak evidence of a negative effect for the interaction with $\%Unct_{CFO}Pres$, 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 $\%UnctAnaly$ 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. There is a strong negative interaction effect for both of these variables, which means that the positive effect of higher earnings surprise is mitigated by negative language surrounding it. This is a reasonable result, since negativity is likely to contain 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$_{MGR}$Style 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 in fact minus 0.75 percent on average for these firms. The actual mean surprise in the sample is positive. Thus, the coefficient on Vague$_{MGR}$Style does not give the effect of vagueness at the mean surprise, but at somewhat below the mean surprise. Vague style, especially from the CEO, cushions the otherwise negative impact of zero-surprises, consistent with how vagueness otherwise reduces earnings response.

Other variables in Table 4 obtain the expected sings. 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 sum, vagueness of managers reduces the short-run reaction to earnings.

5.2.2 Informativeness of earnings

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 5 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 5 show a consistently negative effect of $Vague_{MGR}Style$ 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 5 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 3 about here]

As can be seen in Figure 3, 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 3, 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

5.2.3 Medium-term price impact of earnings news and analyst delay

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

The 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 (1) and (2) of Table 6 show that CEO vagueness does not significantly explain the extent to which earnings news is ultimately reflected in the stock price. By contrast, columns (5) and (6) show that CFO vagueness is a statistically and economically important determinant of the medium-term stock price reaction.

[Table 6 about here]

Next, we test Hypothesis 4 regarding the delay that vagueness may induce. Columns (3)-(4) and (7)-(8) show a picture consistent with that in the prior columns: CFO vagueness very 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. CEO vagueness, while very important for the immediate reaction (recall Table 4), does not play a role in the medium term. This suggests that in the aftermath of the call, investors and analyst are more preoccupied with evaluating the language of CFO answers.

Thus, one interesting conclusion from the results in Table 6 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.

5.2.4 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 7 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 7 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.

5.2.5 Managerial vagueness and firm value

Finally, as a preliminary investigation, 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 8 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 8 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 "conceivably", "probably", or "conditional") 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 improvized 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.

References

Ashraf, Quamrul, and Oded Galor, 2013, The Out of Africa Hypothesis, Human Genetic Diversity, and Comparative Economic Development, *American Economic Review* 103, 1–46.

Bamber, Linda Smith, John Jiang, and Isabel Yanyan Wang, 2010, What's my style? The influence of top managers on voluntary corporate financial disclosure., *The Accounting Review* 85, 1131–1162.

Barker, Richard, John Hendry, John Roberts, and Paul Sanderson, 2012, Can company-fund manager meetings convey informational benefits? Exploring the rationalisation of equity investment decision making by UK fund managers, *Accounting, Organizations and Society* 37, 207–222.

Beaver, William H., 1968, The information content of annual earnings announcements, *Journal of Accounting Research* (Supplement), 67–92.

Bertrand, Marianne, and Antoinette Schoar, 2003, Managing with Style: The Effect of Managers on Firm Policies, *Quarterly Journal of Economics* 118, 1169–1208.

Blau, Benjamin M., R. Jared DeLisle, and S. McKay Price, 2015, Do Sophisticated Investors Interpret Earnings Conference Call Tone Differently than Investors at Large, *Journal of Corporate Finance* 31, 203–219.

Brochet, Francois, Lucile Faurel, and Sarah McVay, 2011, Manager-specific effects on earnings guidance: An analysis of top executive turnovers., *Journal of Accounting Research* 49, 1123–1162.

Brochet, Francois, Patricia Naranjo, and Gwen Yu, 2015, The capital market consequences of language barriers in the conference calls of non-U.S. firms, Working Paper.

Brockman, Paul, Xu Li, and S. McKay Price, 2015, Differences in Conference Call Tones: Managers versus Analysts, *Financial Analysts Journal* forthcoming.

Brown, Lawrence D., Andrew C. Call, Michael B. Clement, and Nathan Y. Sharp, 2015, Inside the Black Box of Sell-Side Financial Analysts, *Journal of Acconting Research* 53, 1–47.

Cohen, Lauren, Dong Lou, and Christopher Malloy, 2013, Playing Favorites: How Firms Prevent the Revelation of Bad News, *Working paper.*

Daniel, K., M. Grinblatt, S. Titman, and R. Wermers, 1997, Measuring mutual fund performance with characteristics-based benchmarks, *Journal of Finance* 52, 1035–1058.

Davis, Angela K., Weili Ge, Dawn Matsumoto, and Jenny Li Zhang, 2015, The effect of manager-specific optimism on the tone of earnings conference calls, *Review of Accounting Studies* 20, 639–673.

Demers, Elisabeth, and Clara Vega, 2011, Linguistic Tone in Earnings Press Releases: News or Noise?, Working Paper.

Dikolli, Shane S., Thomas Keusch, William J. Mayew, and Thomas D. Steffen, 2016, Using shareholder letters to measure CEO integrity, Working Paper.

Druz, Marina, Ivan Petzev, Alexander Wagner, and Richard Zeckhauser, 2016, Reading Managerial Tone: How Analysts and the Market Respond to Conference Calls, Working Paper.

Dyreng, Scott D., Michelle Hanlon, and Edward L. Maydew, 2010, The effects of executives on corporate tax avoidance, *The Accounting Review* 85, 1163–1189.

Fee, C. Edward, Charles J. Hadlock, and Joshua R. Pierce, 2013, Managers with and without Style: Evidence using exogenous variation., *Review of Financial Studies* 26, 567–601.

Frankel, Richard M., Marylin F. Johnson, and Douglas J. Skinner, 1999, An Empirical Examination of Conference Calls as a Voluntary Disclosure Medium, *Journal of Accounting Research* 37, 133–150.

Ge, Weili, Dawn Matsumoto, and Jenny L. Zhang, 2011, Do CFOs Have Style? An Empirical Investigation of the Effect of Individual CFOs on Accounting Practices, *Contemporary Accounting Research* 28, 1141–1179.

Graham, John R., Campbell R. Harvey, and Shiva Rajgopal, 2005, The economic implications of corporate financial reporting, *Journal of Accounting and Economics* 40, 3–73.

Green, T. Clifton, Russell Jame, and Brandon Lock, 2015, It Pays to be Extraverted: Executive Personality and Career Outcomes, Working Paper.

Green, T. Clifton, Russell Jame, Stanimir Markov, and Musa Subasi, 2014, Access to management and the informativeness of analyst research, *Journal of Financial Economics* 114, 239–255.

Hambrick, Donald C, and Phyllis A Mason, 1984, Upper Echelons: The Organization as a Reflection of Its Top Managers, *The Academy of Management Review* 9, 193–206.

Hollander, Stephen, Maarten Pronk, and Erik Roelofsen, 2010, Does Silence Speak? An Empirical Analysis of Disclosure Choices during Conference Calls, *Journal of Acconting Research* 48, 531–563.

Kross, William, and Inho Suk, 2012, Does Regulation FD work? Evidence from analysts' reliance on public disclosure, *Journal of Accounting and Economics* 53, 225–248.

Larcker, David F., and Anastasia A. Zakolyukina, 2012, Detecting Deceptive Discussions in Conference Calls, *Journal of Accounting Research* 50, 495–540.

Lee, Joshua, 2016, Can Investors Detect Managers Lack of Spontaneity? Adherence to Predetermined Scripts during Earnings Conference Calls, *The Accounting Review* 91, 229–250.

Li, Feng, Michael Minnis, Venky Nagar, and Madhav Rajan, 2014, Knowledge, compensation, and firm value: An empirical analysis of firm communication, *Journal of Accounting and Economics* 58, 96–116.

Loughran, Tim, and Bill McDonald, 2011, When is a Liability not a Liability? Textual Analysis, Dictionaries, and 10-Ks, *Journal of Finance* 66, 35–65.

Mayew, William J., 2008, Evidence of Management Discrimination Among Analysts during Earnings Conference Calls, *Journal of Acconting Research* 46, 627–659.

Mayew, William J., and Mohan Venkatachalam, 2012, The Power of Voice: Managerial Affective States and Future Firm Performance, *Journal of Finance* 67, 1–43.

Murphy, Kevin M, and Robert H Topel, 1985, Estimation and Inference in Two-Step Econometric Models, *Journal of Business and Economic Statistics* 3, 370–379.

Price, S. McKay, James S. Doran, David R. Peterson, and Barbara A. Bliss, 2012, Earnings conference calls and stock returns: The incremental informativeness of textual tone, *Journal of Banking and Finance* 36, 992–1011.

Soltes, Eugene, 2014, Private interaction between firm management and sell-side analysts, *Journal of Accounting Research* 52, 245–272.

Yang, Holly I., 2012, Capital market consequences of managers' voluntary disclosure styles, *Journal of Accounting and Economics* 53, 167–184.

Figure 1: Distribution of the frequency of uncertain words in CFO presentations and answers
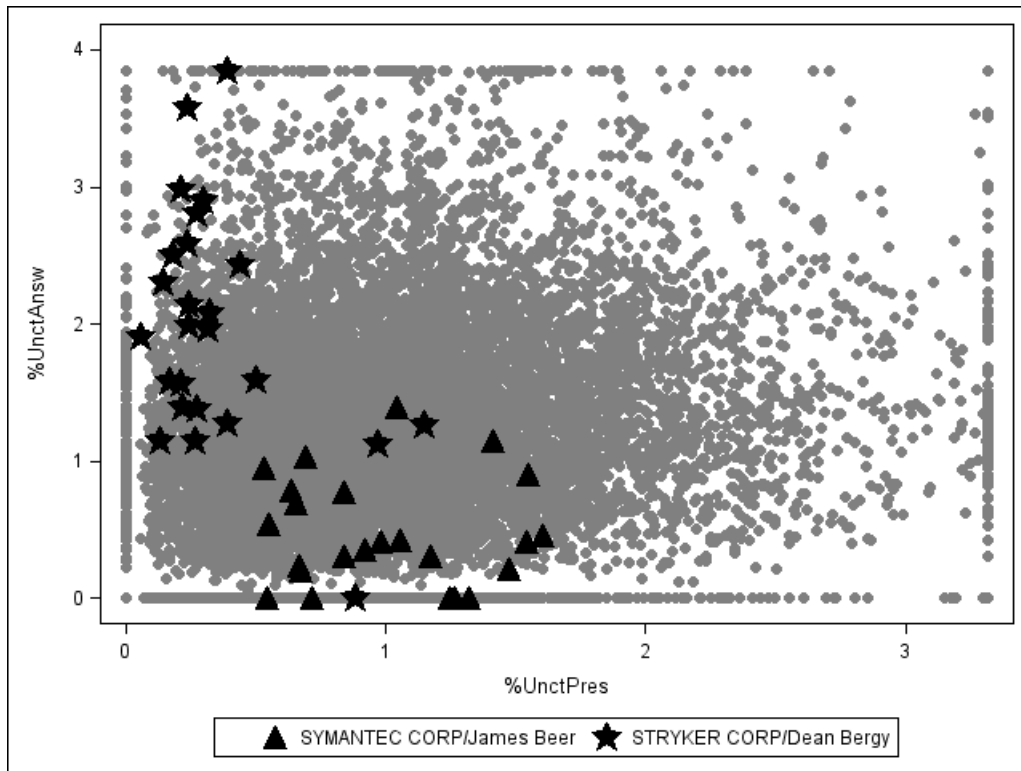
This figure plots %Unct$_{CFO}$Answ versus %Unct$_{CFO}$Pres for all CFOs of S&P500, who have attended at least 5 calls between 2004 and 2014. In total, 13,606 calls involving 843 distinct CFOs are depicted. Variables on both axes are winsorized at the 99 percentile.

Figure 2: Distribution of manager style

(a) Manager = CEO
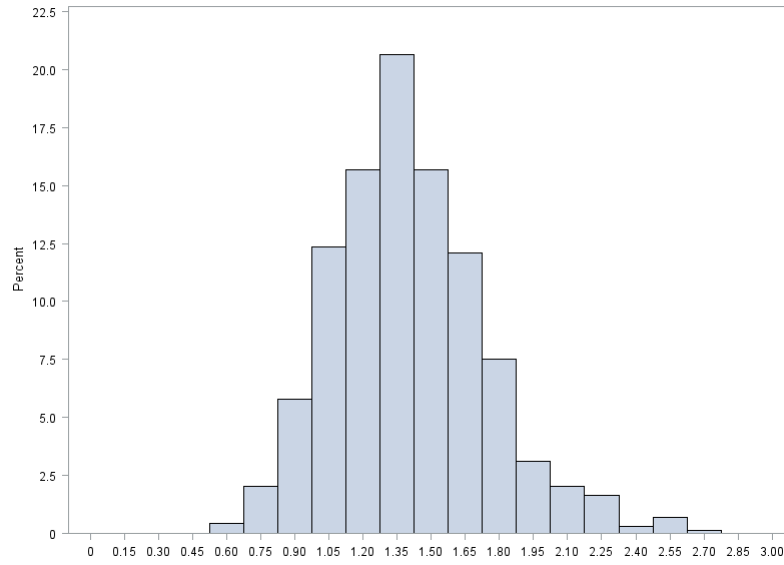
(b) Manager = CFO
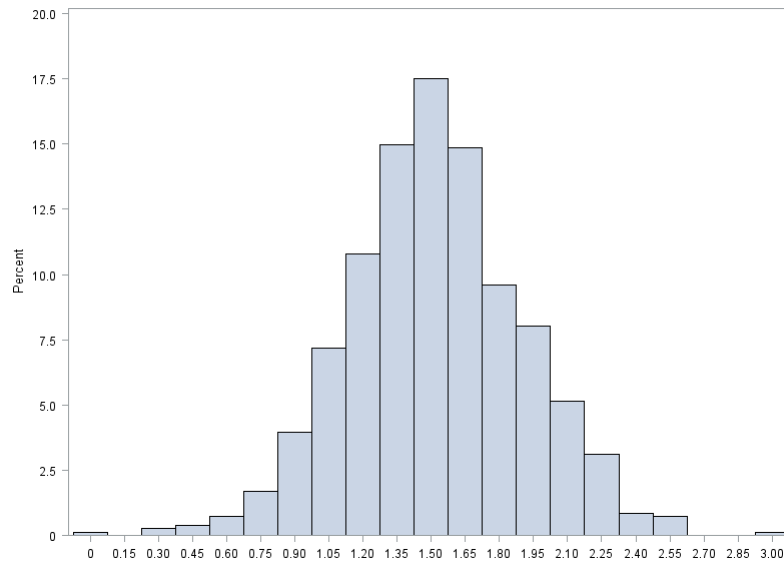
This figure shows the distribution of individual manager fixed effects estimated Equation 3, which represent the different styles of vagueness among managers. In total, 745 CEOs (upper panel) and 834 CFOs (lower panel) are included.

Figure 3: Manager vagueness and trading around the call date

(a) Manager = CEO

(b) Manager = CFO
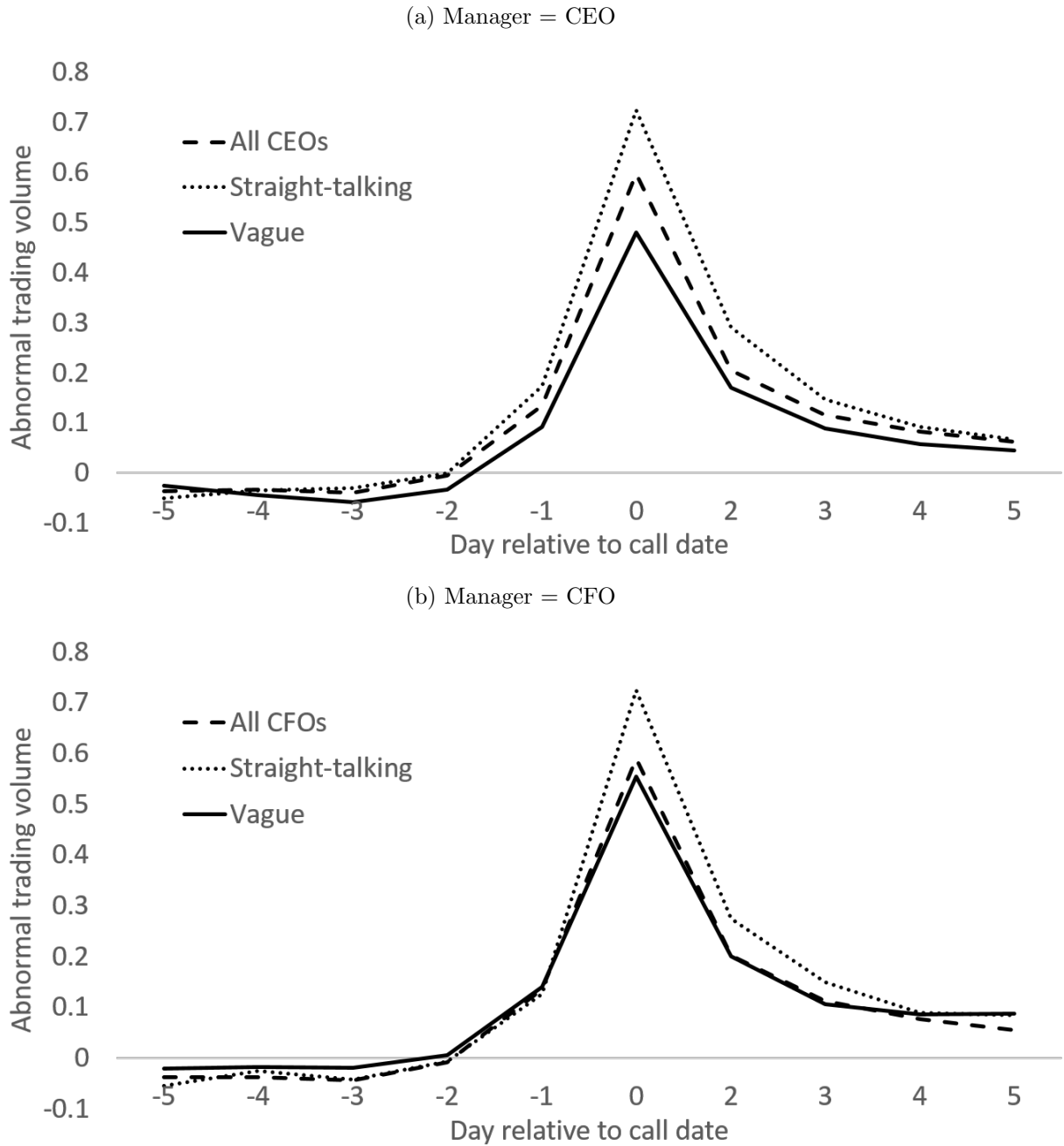
This figure illustrates the daily abnormal trading volume, taken to indicate the amount of information entering the market, around earnings calls attended by managers (CEOs and CFOs) with different levels of vague style, estimated according to Equation 3. Abnormal trading volume is defined as the natural 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 dashes 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			13,053			13,606		
N firms / Calls per firm	492 /	31.21	13.17	458 /	32.20	12.23	468 /	32.36	12.12
WordsPres		2,565	1,001		2,582	1,004		2,576	996.1
WordsAnsw		2,453	879.7		2,480	869.3		2,479	872.4
N calls (CEO present)	13,734			13,053					
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						13,606		
N CFOs / Calls per CFO	1,279 /	11.22	10.13				834 /	16.05	9.457
$Words_{CFO}Pres$		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: **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.

	$\%\text{Unct}_{MGR}\text{Pres}$		$\%\text{Unct}_{MGR}\text{Answ}$			
	CEO (1)	CFO (2)	CEO (3)	CEO (4)	CFO (5)	CFO (6)
$\%\text{Unct}_{MGR}\text{Pres}$			0.182***	0.089***	0.107***	0.105***
			(11.42)	(7.24)	(4.69)	(6.03)
%UnctAnaly	0.026***	0.044***	0.050***	0.058***	0.077***	0.075***
	(2.66)	(2.76)	(4.37)	(6.43)	(5.40)	(6.28)
$\%\text{Neg}_{MGR}\text{Answ}$	0.321***	0.069**	0.365***	0.203***	0.173***	0.104***
	(9.54)	(2.36)	(11.38)	(7.85)	(6.47)	(4.40)
%NegAnaly	0.102***	0.199***	0.091***	0.039*	0.145***	0.037
	(3.43)	(5.26)	(3.21)	(1.67)	(4.20)	(1.24)
EarnSurp	-0.005**	-0.003	0.003	0.002	-0.001	-0.003
	(-2.55)	(-1.22)	(1.56)	(1.12)	(-0.50)	(-1.15)
StockRet	-0.157***	-0.083*	-0.059	-0.139***	-0.017	-0.065
	(-4.11)	(-1.69)	(-1.45)	(-3.64)	(-0.30)	(-1.17)
EPS growth (yoy)	-0.014**	-0.004	-0.003	-0.012**	-0.009	-0.004
	(-2.29)	(-0.53)	(-0.53)	(-2.18)	(-0.97)	(-0.51)
MonthlyVol	0.464**	0.761***	0.508**	0.342	0.105	0.377
	(2.13)	(2.68)	(2.43)	(1.50)	(0.45)	(1.50)
ln(Assets)	0.011	-0.013	0.017**	-0.046***	-0.004	-0.041
	(1.00)	(-1.04)	(2.07)	(-2.59)	(-0.42)	(-1.60)
MarketRet	-0.178***	-0.225***	-0.009	-0.057	-0.112	-0.102
	(-3.10)	(-3.66)	(-0.16)	(-1.01)	(-1.33)	(-1.23)
Intercept	0.739***	1.002***	0.793***	1.440***	1.057***	1.396***
	(6.21)	(7.47)	(9.01)	(8.31)	(9.89)	(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	0.0528	0.0257	0.0185
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 ($\%\text{Unct}_{CEO}\text{Answ}$). In columns (5) and (6) it is the call-level vagueness in CFO answers ($\%\text{Unct}_{CFO}\text{Answ}$). 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 4: **Manager vagueness and immediate earnings response: Testing Hypothesis 1**

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

	MGR=CEO		MGR=CFO	
	ACAR01	AbnVol	ACAR01	AbnVol
	(1)	(2)	(3)	(4)
Vague$_{MGR}$Style	0.286	-0.072*	-0.072	-0.031
	(1.04)	(-1.74)	(-0.32)	(-0.83)
Vague$_{MGR}$Resid	0.099	0.005	-0.007	-0.003
	(0.77)	(0.28)	(-0.08)	(-0.22)
|SurpDec|	0.275***	0.034***	0.282***	0.035***
	(11.63)	(10.40)	(11.50)	(10.38)
Vague$_{MGR}$Style×|SurpDec|	-0.188**	-0.021*	-0.124*	-0.014
	(-2.32)	(-1.94)	(-1.90)	(-1.57)
Vague$_{MGR}$Resid×|SurpDec|	-0.004	0.002	-0.021	-0.003
	(-0.08)	(0.42)	(-0.73)	(-0.74)
%Unct$_{MGR}$Pres	0.074	0.012	0.123**	0.015*
	(1.07)	(1.25)	(2.09)	(1.93)
%UnctAnaly	0.022	0.009	0.013	0.009
	(0.48)	(1.46)	(0.29)	(1.40)
%Neg$_{MGR}$Answ	0.337***	0.020	0.086	-0.023**
	(3.07)	(1.27)	(0.97)	(-2.08)
%NegAnaly	0.362***	0.055***	0.429***	0.065***
	(2.85)	(3.17)	(3.39)	(3.75)
StockRet	-1.233***	0.002	-1.297***	-0.031
	(-4.51)	(0.06)	(-4.80)	(-0.99)
EPS growth (yoy)	-0.062	0.002	-0.077*	0.004
	(-1.51)	(0.56)	(-1.91)	(0.81)
MthVola	8.530***	-0.095	8.337***	-0.146
	(9.08)	(-0.76)	(8.52)	(-1.21)
ln(Assets)	-0.353***	-0.014*	-0.373***	-0.024***
	(-9.52)	(-1.89)	(-10.68)	(-3.40)
Tobin's Q	-0.008	0.040***	0.016	0.041***
	(-0.17)	(5.10)	(0.33)	(5.23)
MarketRet	-3.297***	0.562***	-3.180***	0.567***
	(-8.70)	(13.39)	(-8.79)	(13.24)
Intercept	5.439***	0.651***	5.138***	0.665***
	(9.81)	(6.07)	(10.24)	(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 3. *Vague$_{MGR}$Resids* represents the residuals from Equation 3, 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 6: **Manager vagueness and earnings informativeness in the long-run: Testing Hypotheses 3 and 4**

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

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 3. $Vague_{MGR}Resids$ represents the residuals from Equation 3, 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 post-call uncertainty: Testing Hypothesis 5**

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

	MGR=CEO		MGR=CFO	
	(1)	(2)	(3)	(4)
$\text{Vague}_{MGR}\text{Style}$	0.080	-0.070	-0.318**	-0.232***
	(0.57)	(-0.59)	(-2.16)	(-2.84)
$\text{Vague}_{MGR}\text{Resid}$	0.005		0.000	
	(0.66)		(0.07)	
$\%\text{Unct}_{MGR}\text{Pres}$	-0.023***	-0.092	0.014	0.055
	(-4.37)	(-0.74)	(1.27)	(0.88)
$\%\text{UnctAnaly}$	0.003	0.375*	-0.002	0.404***
	(0.24)	(1.87)	(-0.14)	(2.71)
$\%\text{Neg}_{MGR}\text{Answ}$	-0.003	-0.565*	-0.022*	-0.734***
	(-0.19)	(-1.93)	(-1.86)	(-3.45)
$\%\text{NegAnaly}$	-0.088***	0.203	-0.107***	0.261
	(-2.93)	(0.38)	(-3.57)	(0.48)
ln(Assets)	-0.593***	-0.361***	-0.511***	-0.345***
	(-4.34)	(-5.92)	(-5.55)	(-5.30)
Intercept	8.100***	4.490***	6.211***	4.187***
	(6.53)	(10.87)	(8.35)	(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 3. $Vague_{MGR}Resids$ represents the residuals from Equation 3, 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 answernig questions from analysts. Estimated according to Equation 3 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
EarnSurpDec	Deciles EarnSurp numbered from -5 to +5 with an additional 0 category to accommodate no-surprise cases
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

---

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

Control variables cont.

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
%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$_{CEO}$Answ					%Unct$_{CFO}$Answ				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
%Unct$_{CEO}$Pres	0.089***	0.081***	0.079***	0.081***			0.012	0.014	0.016	0.027
	(6.99)	(6.29)	(6.08)	(6.06)			(0.66)	(0.75)	(0.84)	(1.39)
%Unct$_{CEO}$Answ							0.055***	0.055***	0.054***	0.061***
							(3.65)	(3.59)	(3.44)	(3.83)
%Unct$_{CFO}$Pres		0.036***	0.033***	0.030**	0.042***	0.105***	0.102***	0.097***	0.100***	
		(3.16)	(2.90)	(2.51)	(3.66)	(5.81)	(5.27)	(4.94)	(5.04)	
%Unct$_{CFO}$Answ		0.028***	0.029***	0.028***	0.029***					
		(4.25)	(4.21)	(4.09)	(4.05)					
%Neg$_{CEO}$Answ	0.203***	0.207***	0.206***	0.211***						
	(7.64)	(7.70)	(7.62)	(7.52)						
%Neg$_{CFO}$Answ						0.105***	0.106***	0.105***	0.104***	
						(4.30)	(4.17)	(4.05)	(3.88)	
%UnctAnaly	0.058***	0.059***	0.059***	0.060***	0.064***	0.075***	0.064***	0.065***	0.070***	0.067***
	(6.25)	(6.08)	(6.04)	(6.02)	(6.15)	(6.07)	(4.90)	(4.88)	(5.42)	(5.02)
%NegAnaly	0.039	0.040	0.040	0.042	0.081***	0.037	0.027	0.028	0.029	0.054
	(1.62)	(1.60)	(1.57)	(1.63)	(3.21)	(1.21)	(0.80)	(0.83)	(0.84)	(1.59)
EarnSurp	0.018	0.020	0.022	0.019	0.021	-0.024	-0.024	-0.025	-0.020	-0.019
	(1.30)	(1.44)	(1.55)	(1.35)	(1.36)	(-1.34)	(-1.28)	(-1.33)	(-1.04)	(-0.96)
StockRet	-0.141***	-0.135***	-0.130***	-0.122***	-0.133***	-0.064	-0.047	-0.038	-0.041	-0.025
	(-3.56)	(-3.38)	(-3.19)	(-2.91)	(-3.15)	(-1.11)	(-0.77)	(-0.61)	(-0.62)	(-0.36)
EPS growth (yoy)	-0.012**	-0.012**	-0.014**	-0.011*	-0.016***	-0.004	-0.005	-0.008	-0.007	-0.013
	(-2.19)	(-2.16)	(-2.39)	(-1.85)	(-2.79)	(-0.45)	(-0.59)	(-0.85)	(-0.68)	(-1.33)
MthVola	0.342	0.392*	0.406*	0.401*	0.553**	0.382	0.278	0.239	0.336	0.249
	(1.46)	(1.70)	(1.74)	(1.70)	(2.27)	(1.47)	(1.00)	(0.83)	(1.09)	(0.78)
ln(Assets)	-0.046**	-0.042**	-0.042**	-0.041**	-0.058***	-0.040	-0.042	-0.041	-0.035	-0.034
	(-2.55)	(-2.22)	(-2.19)	(-2.17)	(-2.78)	(-1.53)	(-1.49)	(-1.45)	(-1.17)	(-1.08)
MarketRet	-0.060	-0.036	-0.033	-0.013	-0.083	-0.099	-0.107	-0.116	-0.100	-0.154
	(-1.03)	(-0.60)	(-0.54)	(-0.22)	(-1.34)	(-1.16)	(-1.17)	(-1.26)	(-1.06)	(-1.58)
%UnctEPR			0.021	0.024	0.026			-0.029	-0.030	-0.023
			(1.32)	(1.51)	(1.63)			(-1.20)	(-1.21)	(-0.92)
DispPreCall				0.102	0.141				0.216	0.244
				(1.05)	(1.40)				(1.54)	(1.64)
ΔUnct$_{CEO}$Pres					0.039***					
					(4.07)					
ΔNeg$_{CEO}$Answ					0.102***					
					(5.55)					
ΔUnct$_{CFO}$Pres										0.044***
										(3.22)
ΔNeg$_{CFO}$Answ										0.043**
										(2.37)
Intercept	1.509***	1.385***	1.360***	1.350***	1.591***	1.305***	1.269***	1.235***	1.132***	1.235***
	(7.20)	(6.28)	(6.10)	(6.02)	(6.58)	(6.09)	(5.50)	(5.34)	(4.70)	(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 3 to include additional control variables in the estimation of style. Columns (1) and (6) correspond to columns (3) and (6) in Table 3, respectively. ΔUnct$_{MGR}$Pres and ΔNeg$_{MGR}$Answ 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 3. 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 3. 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