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CEO Clarity*

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Abstract

A key task for CEOs is to communicate with analysts and investors about their companies' past performance and prospects in quarterly earnings conference calls. Some CEOs speak fuzzily, frequently using words such as “approximately”, “probably”, and “maybe.” Others rarely use such tentative words. That is, they speak clearly. We show that CEO clarity is a matter of personal style; it is not driven by fundamental uncertainty in the companies' business activity. Analysts and the stock market respond more strongly to earnings news conveyed by clear CEOs. Past performance does not explain the style of a newly appointed CEO. However, when a firm does appoint a more clear-talking CEO, Tobin's Q increases and analyst recommendations become more favorable. Overall, investors and analysts appear to value clear talk.

Keywords: Communication style, Clarity, Earnings conference calls, Firm value, Textual analysis

JEL Classification Number: G14, G30

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1 Introduction

In this day and age of big data, market participants have an astonishing array of company information available at the click of a mouse. Yet direct, personal interactions with management remain among the most coveted ways to learn about company prospects. Conference calls are a standard accompaniment to the release of quarterly earnings reports, and one that is almost always attended by top executives (Lev, 2012). In addition, a growing body of evidence points to the importance of investor meetings (So, Wang, and Zhang, 2021).

It is an open question why market participants would show such an interest in personal interactions with managers. The seemingly obvious reason would be to obtain private information. However, given the proliferation of data as well as rules mandating equal access to information, such as Regulation Fair Disclosure (Reg FD), it is increasingly hard to argue for this explanation. Alternatively, the object of interest are the managers themselves - do they have a good grip of the business and a clear vision of its future? Or do they appear confused and fuzzy?

Under this alternative explanation, how managers communicate becomes equally important as what they actually say. Investors and the analysts, who serve them, expect managers to paint a clear picture of the company that will help them in determining its value.¹ In this paper, we propose a method for evaluating CEO clarity and test its implications for companies' stock price and long-term value.

Although the word “clarity” is simple enough, a precise definition is elusive. (Some dictionaries somewhat unhelpfully define clarity as the state of being clear.) The philosopher René Descartes defines a clear thought, or perception, through the following analogy to the physical world: “I call a perception ‘clear’ when it is present and accessible to the attentive mind - just as we say that we see something clearly when it is present to the eye’s gaze and stimulates it with a sufficient degree of strength and accessibility” (Descartes, 1985, p.

¹Clarity is seen as a virtue not only by businessmen, but also by many others. For example, Frank Lloyd Wright argued that “Lack of clarity is the number-one time-waster.”

207). Thus, something that cannot be seen at all also cannot be seen clearly. Moreover, the definition suggests that clarity is a spectrum, increasing with the strength of the stimuli.

To arrive at an empirically useful measure of CEO clarity, we make two design choices, one regarding what exactly to measure and the other where to measure it.

As for the *what*, we focus on the CEOs' use of words such as "approximately", "probably", and "maybe", as compiled in the Loughran and McDonald (2011) "uncertainty" wordlist. These are cautious words that qualify any message conveyed.² Frequent use of such words indicates lack of "sufficient degree of strength," or clarity in CEO communication. However, this lack of clarity could also reflect persistent characteristics related to the firms' communication culture or business model. It could also reflect current conditions at the firm. In times of economy-wide, industry-wide, or firm-specific crisis, we would expect managers to use uncertainty words more frequently; definite statements seem less likely when the world is, in fact, complex and confusing. In light of these considerations, we operationalize CEOs' clarity as the stable "style" component in the use of uncertainty words - the component that is not motivated by business uncertainty.³

Teasing apart CEO clarity ("style") from the other components just mentioned is challenging. This challenge motivates to choose quarterly earnings conference calls as the setting *where* we assess CEO communication. In every quarter, managers conduct such calls to discuss recent financial results and the outlook for their companies. The calls begin with a prepared presentation, followed by a Q&A session with participating security analysts.⁴

Importantly, the conference call setting allows ready comparison of a fully scripted presentation (prepared remarks) and a necessarily more improvised set of answers (the Q&A

²In fact, a subset of the uncertainty words are "weak modal" words, of which "maybe" is an example.

³A helpful analogy to this logic is to think about the frequency of negative words. These words of course reveal "soft" fundamentals and respond to the current situation of the company (Tetlock, Saar-Tsechansky, and Macskassy, 2008; Druz, Petzev, Wagner, and Zeckhauser, 2020). However, *persistent* differences across CEOs in the use of negative words, as documented by Davis, Ge, Matsumoto, and Zhang (2015), would suggest that some CEOs are generally more pessimistic than others.

⁴Seminal papers such as Matsumoto, Pronk, and Roelofsen (2011) and Mayew and Venkatachalam (2012) show that conference calls provide incremental information to investors. Analysts surveyed by Brown, Call, Clement, and Sharp (2015) rank conference calls among the most important sources of information. We discuss how we build on the extensive literature on conference calls in Section 2.

session) delivered by the same person about the same firm and on the same date, hence under identical business conditions. Comparing the two parts of the call, we can filter out the effects of time-varying uncertainty, which affects both parts. It also allows us to separate CEO style, which we expect to show mostly in the Q&A, from the firm's culture, which we expect to dominate in the presentation part.

We analyze a sample of conference calls held by public U.S. companies from 2003 through 2015. We begin by regressing CEOs' frequency of uncertainty words in answers on (1) the CEO's fixed effect, (2) the CEO's own frequency of uncertainty words during the presentation (to control for unobservable firm-level factors that influence clarity at the time of the call), and (3) other time-varying controls. Those controls include other features of the CEO's speech, the analysts' questions, and the firm's recent performance. Prior research, discussed below, has also exploited the differences between presentations and answers. Our analysis is novel in that it focuses on the fixed effect extracted from this decomposition and defines *CEO clarity* as inversely proportional to this fixed effect.

We find that CEOs differ substantially in clarity. This variability cannot be explained by firm-level uncertainty; neither does it differ systematically across industries, firm size, or manager age. Clarity also correlates only very weakly with firm-level uncertainty, as indicated by dispersion in analyst forecasts and stock price volatility. Firms for which intangibles form an important part of their assets actually tend to be led by clear CEOs. These results confirm that the clarity of CEOs' communication is a personal characteristic, and is distinct from the types of firms they run.

Next, we show that CEO clarity matters for the market - investors and analysts respond more strongly to information conveyed by clear CEOs. This is consistent with the view that market participants interpret the current earnings report in the context of a broad understanding of a company and its management. That understanding requires repeated interactions. Hence, persistent features of communication, such as CEOs' clarity, matter most. By contrast, residual use of uncertainty words - that is, the component of the overall

frequency of uncertainty words in CEO's answers during each call that is not explained by items (1) to (3) above - explains little of the market reaction. The results persist when we control for other important determinants of stock price reactions to conference calls, including a range of variables that proxy for uncertainty and the fraction of intangibles.

These results also hold in the sample of firms that experienced CEO turnover. In the turnover sample, we are able to control for firm-fixed effects. That is, unobserved firm characteristics that correlate with earnings responses would have to change systematically with a switch in CEOs to otherwise explain our results.⁵

The effects are sizable. The two-day absolute stock price response to a conference call is 9 basis points higher than average when the CEO has clarity one standard deviation above the mean. That quantity is roughly 1/5 of the effect of a one-decile move in the absolute earnings surprise. CEO clarity has similar powerful effects on abnormal trading volume and the revision of analysts' earnings forecasts.

What explains these effects? Seeking an answer, we interact clarity with the earnings surprise and with unexpected linguistic negativity of the call. We find that high clarity (a) intensifies responses to fundamental information, and (b) this intensification is particularly strong with respect to the price impact of soft information.

Clear CEOs, these results suggest, simply convey more information. If so, the stronger initial response should be permanent, and subsequent returns should be similar for all firms. A plausible alternative explanation is that fuzzy communication simply takes longer to process. In this case, firms with fuzzy CEOs would experience a stronger return drift after conference calls. A second alternative explanation is that CEOs are generally overconfident and that investors overreact to their words. If so, stock returns would revert after the initial stronger reaction to clear CEOs' earnings surprises. In fact, we find that clear- and

⁵Clayton, Hartzell, and Rosenberg (2005) show that earnings responses become stronger following CEO turnover, which they attribute to earnings announcements helping to resolve uncertainty about the firm's strategy and the new CEO's ability. We show that earnings responses actually become weaker, if the new CEO is less clear than his predecessor. It is implausible that omitted variables would generate this more differentiated pattern.

fuzzy-talking CEOs experience equivalent post-call drift, which refutes both alternative explanations. The market finds clear CEOs to be more informative.

Moreover, when a clear-talking CEO is appointed in a turnover, firm value on average increases. The economic magnitude is substantial; an increase in clarity by one standard deviation is associated with an increase of Tobin's Q by 0.081 units (averaged over the tenures of the two CEOs), which for the median firm translates to around \$77 million in added market value.

That increase in value comes although clear CEOs do not appear to be better managers in general - they perform on par with their fuzzy counterparts on standard metrics of operating performance. Nevertheless, analyst recommendations become more favorable when clear CEOs are appointed, which suggests such managers are better perceived externally. We find no evidence that firms tend to hire clear CEOs depending on recent valuations or operating performance. That negative finding diminishes concerns of assortative matching on CEO clarity. Moreover, clear CEOs do not reap the value their style creates; they get paid no more than their fuzzier peers. Taken together, these results suggest that clear talk is a significant source of firm value, though one that is insufficiently recognized by the firms themselves.

Our study makes three contributions. It introduces a simple measure of CEO clarity, a novel dimension of oral communication whose implications have not been documented in the literature.⁶ An important consideration when examining oral communication by

⁶The vast majority of existing papers in the conference call literature focus on the linguistic tone of the language used by managers and analysts on these calls (see Henry and Leone (2016) and Loughran and McDonald (2016) for surveys). The use of uncertainty words in written communication was studied by Loughran and McDonald (2013), who show that a high fraction of uncertain words (as well as negative words and weak modal words) in IPO prospectuses produce higher first-day IPO returns and greater volatility, and Ertugrul, Lei, Qiu, and Wan (2017), who show that firms with larger 10-K file sizes and a higher proportion of uncertain and weak modal words in their 10-Ks accept stricter loan contract terms and suffer a greater future risk of a stock price crash. Demers and Yu (2014) show that linguistic certainty in managerial announcements reinforces the precision of the contemporaneously provided numerical forecast. In their analysis of managerial tone Druz, Petzev, Wagner, and Zeckhauser (2020) control for the frequency of uncertain words, but they do not explore the potential of uncertainty talk to impede the incorporation of news in prices. Moreover, they control for firm/CEO fixed effects and thus focus on the time-varying components of speech variables, rather than on the stable communication style of managers. Most closely related to our work, Demers and Vega (2011) find that greater linguistic certainty in written earnings announcements leads to a stronger immediate response to earnings news and less drift. We discuss the literature on managerial strategies in conference calls in Section 2.

individual managers (as opposed to written company documents) is the extent to which any linguistic features and their associated economic effects reflect time-varying, potentially strategic behavior as opposed to being a persistent personal characteristic - a form of “style.” Davis, Ge, Matsumoto, and Zhang (2015) show that CEOs exhibit distinctive styles in the tone of conference calls (some are more optimistic than others), but they do not examine its impact on market reactions. Other papers, including those that focus on how information is conveyed, such as Lee (2016), sidestep this issue by including manager fixed effects in their outcome regressions. Our analysis is the first to explicitly decompose an important feature of CEO communication into two components: personal style and the potentially strategic component (the residual), and then to separately examine their impacts.

Methodologically, our analysis advances the style literature in two ways. First, it demonstrates how the special setting of conference calls permits style to be isolated, without having to focus on manager transitions (Bertrand and Schoar, 2003). This significantly expands the sample size and avoids the critique of Fee, Hadlock, and Pierce (2013), who argue that the special nature of manager transitions obscures the effects of style. Second, it quantifies CEO clarity (our style variable) and examines its economic consequences. In other words, it tests for directional effects, rather than the mere existence, of style with respect to various firm-level variables. Adams, Keloharju, and Knüpfer (2018) also extract CEO fixed effects, though they still rely on manager transitions. Our method can be employed to study the existence and relevance of style in other speech characteristics and for a broader sample of CEOs.

Finally, we discover several novel empirical findings. They establish CEO clarity as a significant aspect of corporate communication, and, importantly, one that is relevant for how investors value companies. This adds to evidence from studies such as Engelberg (2008) and Loughran and McDonald (2011), which highlight the importance of “soft” information contained in textual disclosures. In particular, Loughran and McDonald (2014) and Hwang and Kim (2017) show that *how* information is presented in written communication matters for

investor decisions and financial outcomes. We show that this holds for spoken communication as well. Top managers, above all CEOs, verbally communicate fundamental information, on earnings conference calls. How they talk affects how information is processed by the markets.

The paper proceeds as follows. Section 2 uses the extant literature to develop three hypotheses. Section 3 discusses the conference call data. Section 4 shows how to parse the roles of firm characteristics and CEO style in explaining word choice in the presentation and Q&A parts of the call as well as introduces our measure of clarity. Section 5 presents evidence on the economic importance of CEO clarity for analyst and investor responses. Section 6 explores the relationship of CEO clarity to firm value. Section 7 concludes.

2 Development of hypotheses

We organize our study around three main hypotheses. The first posits that CEOs differ significantly in clarity. The second addresses how a CEO's clarity affects analysts' and investors' information processing. The third examines how a firm's value responds to its CEO's clarity.

2.1 Clear talk as a matter of style

Do CEOs consistently differ in their clarity? Are some CEOs prone to fuzzy statements, while others typically speak clearly? In other words, do they exhibit distinct and persistent styles in this regard?

Communication training for CEOs might harmonize how they answer questions; hence, we adopt the null hypothesis of no systematic differences among CEOs. However, Bertrand and Schoar (2003) and numerous studies that followed, have found evidence of distinct CEO style in a range of corporate policies.⁷ That makes it plausible that managers' communications

⁷These include, e.g., accounting practices (Ge, Matsumoto, and Zhang, 2011), tax avoidance (Dyreng, Hanlon, and Maydew, 2010), and the provision, intensity and accuracy of earnings guidance (Bamber, Jiang, and Wang, 2010; Brochet, Faurel, and McVay, 2011; Yang, 2012).

may also vary in style. Indeed, Davis, Ge, Matsumoto, and Zhang (2015) find a significant manager-specific effect in the tone of earnings conference calls. With our focus on CEO clarity, we posit our first hypothesis:

H1: There are systematic differences (styles) in CEO clarity.

As developed more fully in Section 4, we argue that the structure of conference calls allows us to isolate style in a manner that avoids the criticism that has been levied against prior attempts in other settings. Even if we find the degree of clarity to be a persistent personal characteristic of CEOs, that would not preclude strategic deviations from it in specific calls. Indeed, several papers have studied managerial tactics on such calls.⁸

2.2 Clear talk and earnings responses

Our second hypothesis tests whether clarity affects the earnings response. The null hypothesis would be no impact. If there is an impact, the direction of the effect is not obvious. We posit:

H2: Analysts and investors respond more strongly to conference calls when CEO clarity is greater.

⁸For example, Mayew (2008) and Cohen, Lou, and Malloy (2020) demonstrate that managers let friendly analysts ask questions first to prevent bad news from being revealed during conference calls. Hollander, Pronk, and Roelofsen (2010) study managerial attempts to dodge questions. Larcker and Zakolyukina (2012) find that the presence of words related to deception predicts future accounting problems. Zhou (2014) documents managers' attempts to shift blame to external factors. Allee and DeAngelis (2015) find that managers structure their linguistic tone to blend with their overall narrative on the call. Bushee, Gow, and Taylor (2018) show that linguistic complexity (as measured by the Gunning fog index) diminishes information uncertainty when it is driven by the need to convey complex information, but enhances it when it indicates possible obfuscatory tactics of managers. Mayew, Sethuraman, and Venkatachalam (2020) find that manager interactions with unfavorable analysts are more informative. Barth, Mansouri, and Woebeking (2020) show that investors respond less to conference calls where managers avoid answering questions. Gow, Larcker, and Zakolyukina (2019) show that managers are less likely to answer questions when product competition is strong, but more likely to answer before raising capital. Despite this array of managerial tactics, Matsumoto, Pronk, and Roelofsen (2011) show that discussion periods on conference calls are relatively more informative than presentation periods, and that when firm performance is poor, more information is released during the discussion.

This hypothesis has two components: First, for any particular earnings result and soft information shared on the call, analysts and investors will respond more if the accompanying communication is more informative. Second, they specifically will find clear communication to be more informative.

Our hypothesis is informed by several studies that show that the ease of processing information in written corporate disclosures facilitates market responses.⁹ However, it is also plausible that a fuzzy-talking CEO could draw investors and analysts to pay more attention to the content of conference calls, be it the earnings numbers or the linguistic tone. If so, the market would respond more strongly to conference calls conducted by fuzzy talkers, even though their speech was less informative.¹⁰

Hypothesis 2 is formulated in terms of CEO clarity, that is, the CEOs' stable usage of uncertainty words. We focus on the stable component of CEO communication, because market responses to current earnings reports require the interpretation of these reports within an "understanding of the company".¹¹ Building up such an understanding is likely to require multiple encounters and hence time. Indeed, managers, analysts, and investors interact in settings other than conference calls.¹² A CEO's clarity, as exhibited in earnings

⁹For example, Loughran and McDonald (2014) show that firms whose 10-K documents are less easily readable experience higher stock return volatility, greater dispersion in analysts' earnings forecasts, and larger absolute earnings surprises. Rennekamp (2012) finds that more readable disclosures lead to stronger reactions from small investors. You and Zhang (2009) find stronger underreaction to 10-K reports for firms with more complex 10-Ks. Other studies that have linked opaqueness in language to earnings characteristics and/or investor perceptions include Li (2008), Miller (2010), Lehavy, Li, and Merkeley (2011), and Elliott, Rennekamp, and White (2015). See Loughran and McDonald (2016) for a survey.

¹⁰We do not posit that all market participants follow conference calls. Some market participants likely have advantages in processing value-relevant information from conference calls, while others will focus on other sources of information regarding the fundamental value of a firm.

¹¹Survey evidence shows that analysts regard private phone calls with management and the question-and-answer (Q&A) sessions of earnings conference calls as particularly important for generating earnings forecasts (Brown, Call, Clement, and Sharp, 2015). Fund managers interviewed by Barker, Hendry, Roberts, and Sanderson (2012) state that "*building up an understanding of the company*" is one of the main motives for systematic personal interactions with top company executives.

¹²Solomon and Soltes (2015) cite a survey showing that 97% of CEOs of publicly traded firms meet privately with investors. Private conversations of analysts and management are also frequent - Soltes (2014) concludes that analysts use the meetings to provide access to management for their clients, while Green, Jame, Markov, and Subasi (2014) show that brokerage research itself benefits from access to management through broker-hosted investor conferences. Even more intense interactions occur at analyst/investor days (Kirk and Markov, 2016).

calls, may also govern communication in these additional settings, making it difficult for market participants to obtain precise information. If, by contrast, information is provided solely through earnings conference calls, we should find that residual uncertainty talk is the central factor. In particular, if residual uncertainty talk reduces (enhances) the market response, that suggests that the market discounts (puts a premium on) the fundamental information in the call in the face of unexpected uncertainty about the firm that the CEO's words reveal.

2.3 Clear talk and firm value

Our third hypothesis predicts the way CEO clarity affects firm value. As before, our null hypothesis is that it does not matter. Our alternative hypothesis draws on the substantial body of research that discusses the link between disclosure and firm value.¹³ In particular, Durnev and Kim (2005) highlight the link between corporate transparency and firm value. Hwang and Kim (2017) show that closed-end funds with less readable reports suffer higher discounts. Such findings make it plausible that investors value the managerial transparency embedded in clear communication. Investors will only attach a premium to clear communication if they are confident it will be applied consistently to both bad and good news. Therefore, we expect persistent CEO clarity to play a key role in the firm's value. These factors lead to our third hypothesis:

H3: Company valuations increase with CEO clarity.

We examine this hypothesis in the context of CEO turnovers, to alleviate endogeneity concerns. In addition to external transparency, a CEO's high clarity may lead to superior choices within the firm and thus higher cash flows. For example, Ray Dalio, the famed founder of Bridgewater Associates, insists in his book "Principles" (Dalio, 2017) that full transparency and complete honesty regarding others' ideas is the best way to manage an

¹³See Fields, Lys, and Vincent (2001), Healy and Palepu (2001), Botosan (2006), and Beyer, Cohen, Lys, and Walther (2010) for reviews.

organization. If “Dalio’s Dictum” applies, even if somewhat overstated, we would expect that when clear-talking CEOs replace fuzzy talkers operating performance will improve, which could also increase firm value. We examine this channel in Section 6.

3 Conference call transcripts

We employ transcripts of quarterly earnings conference calls for publicly listed US companies from 2003 through 2015, which we obtain from Thomson Reuters Street Events. The full sample consists of 122,611 calls for 5,095 distinct firms, an average of 24 conference calls per firm over 6 years. Additional data requirements reduce the final sample size.

The transcript from each call includes a list of conference call participants, divided into company representatives and analysts. We use a Python script to split each call into two parts, Presentation and Q&A, and capture separately the words spoken by each company representative. First we extract the names and titles of call participants. Then we search in the “title” field for keywords such as “CEO” and “Chief Executive” to identify the leading executive on the call. We verify our identification of job titles by matching CEO names to Execucomp. We find that the CEO is present in 114,576 (or more than 93%) of the calls, confirming that the top executive is usually involved.¹⁴ We identify 9,859 individual CEOs.

The estimation of CEO clarity requires multiple observations for each CEO. Hence, we restrict the analysis to transcripts of conference calls with CEOs who participated in at least 5 such calls, possibly at more than one firm. This eliminates 9,177 calls in which a CEO was present and 3,803 distinct CEOs.¹⁵ This leaves 6,056 CEOs, for whom we have sufficient data to estimate clarity, and 105,399 transcripts. Table 1 presents summary statistics for this sample.¹⁶

¹⁴We focus on CEOs in our analysis, because they appear to be the leading voice in earnings calls, responsible for 53% of the words spoken, compared to 32% for CFOs. (Li, Minnis, Nagar, and Rajan (2014) analyze who speaks when on conference calls.) The vast majority of earnings calls also involve the CFO. We report results for the CFOs in the Internet Appendix.

¹⁵Most eliminated CEOs participated in no more than 2 calls.

¹⁶Table IA.3 in the Internet Appendix shows that this restricted sample is similar to the full sample,

[Table 1 about here]

The average call consists of about 6,000 words, roughly equally split between the presentation and the Q&A. This provides ample material for the linguistic analysis of each part. On average, the CEO speaks 1,363 words during the presentation and 1,886 words answering analysts' questions.

4 Identifying the clarity of CEOs

4.1 Overview of the approach

We assess CEOs' clarity based on their tendency to use words that qualify a statement, such as "approximately", "probably", or "maybe." The full list comprises 297 words, sourced from the "uncertainty words" of the Loughran and McDonald (2011) Master Dictionary (August 2014 version). We build our case for identifying CEO clarity in this way in several steps. Section 4.2 first gives an overview of how uncertainty words are used in earnings conference calls. Section 4.3 then offers an intuitive argument for why the conference call setting is uniquely suited to isolate individuals' communication styles, and that CEOs' use of uncertainty words in conference calls has a strong and persistent individual component. Section 4.4 formally estimates this component for each CEO and defines CEO clarity based on our estimates. Section 4.5 shows that persistently "uncertain" CEOs are not more commonly found in firms where actual uncertainty about earnings or stock price volatility are higher. By contrast, they tend to be less concrete and more vague, suggesting they just speak less clearly.

except, naturally, for the average number of calls per CEO. This reassures us that the requirement of at least 5 calls does not measurably tilt our analysis due to firm type or performance.

4.2 Uncertainty words

We calculate the fraction of uncertainty words among all the words spoken by the CEO, during the presentation and then when answering questions from analysts:

$$UncPreCEO = \frac{UnctWordsPreCEO}{WordsPreCEO} \quad (1)$$

$$UncAnsCEO = \frac{UnctWordsAnsCEO}{WordsAnsCEO} \quad (2)$$

We also calculate the fraction of uncertainty words in analyst questions:

$$UncQue = \frac{UnctWordsQue}{WordsQue} \quad (3)$$

The typical conference call contains 0.85% uncertainty words in total. CEO' presentations contain 0.67% uncertainty words on average and 0.79% for answers. Interestingly, analysts' questions contain considerably more uncertainty words than the answers they elicit.

Loughran and McDonald (2016) recommend that when applying word counts in a new context, a first step is to investigate which words occur most frequently. As Zipf's law posits, such words will have an outsized influence on any measure constructed from those counts.¹⁷

Figure 1 plots the frequencies of the 25 most-used uncertainty words in the conference call presentations and answers. Across all presentations, the top 3 words - "approximately", "believe", and "may" - account for 38% of the uncertainty word count. Across all answers, the top 3 words ("probably", "could", and "believe") account for 35% of the uncertainty word count. Overall, the top 25 uncertainty words (8.4% of 297) make up 80% of the total uncertainty word count.

[Figure 1 about here]

¹⁷Loughran and McDonald (2016) find that 1% of the negative words account for about 44% of the negative word count in 10-K/Q-type SEC filings. For uncertainty words in conference calls we find a similar concentration ratio.

The obtained list is intuitive; no “patently misclassified” (Loughran and McDonald, 2016) words appear to be driving the results. Rather, many of the top uncertainty words are qualifiers reflecting the imprecision and lack of clear message in statements made by managers on conference calls. The following exchange from the Sep 30th, 2009 Collectors Universe earnings call, is an illustrative example, containing some of the most widely used uncertainty words in our sample (underscored):

Garrett King, analyst: *“Okay. And do you have any idea about what percentage of your coin authentication revenues comes from gold coins?”*

Joseph Wallace, CFO: *“It’s probably somewhere around 20%.”*

Garrett King, analyst: *“20%, okay.”*

Michael McConnell, CEO: *“And that could change a lot quarter by quarter, because it depends in particular if we’ve got a modern coin program undertaking, the units might whip around quarter to quarter. So, I would like to just add that comment to Joe’s.”*

4.3 CEO clarity - an intuitive argument

What could lead managers to speak in a clear or fuzzy manner? One explanation would be high uncertainty about the company. For example, both *UncPreCEO* and *UncAnsCEO*, more so the former, increased in the financial crisis of 2008-09, as shown in Figure 2.

[Figure 2 about here]

However, Figure 2 also shows consistently large dispersion around mean values of *UncPreCEO* and *UncAnsCEO* in every quarter. Thus, time variation in aggregate business conditions is unlikely to be the main explanation for the heterogeneity in *UncPreCEO* and *UncAnsCEO*.

The persistent use of uncertainty words could be indicative of a firm’s culture. Alternatively, it could be due to the CEO’s personal style. The conference call setting is uniquely

suited to distinguish between these two alternative explanations.¹⁸ The language of the presentation, which is scripted and vetted beforehand, and passes before multiple sets of eyes, is likely to reflect the firm’s culture. By contrast, CEOs’ answers during the Q&A session are inevitably somewhat improvised and hence more likely to reveal each CEO’s style.¹⁹

Indeed, the modest correlation between *UncPre* and *UncAns* ($\rho = 0.22$) suggests that the language of answers is hardly a mere reflection of the presentation part. It also suggests that the degree of clarity of answers and presentations are not both driven by some overall business uncertainty.²⁰ The results from examining linguistic changes when CEOs turn over are also illuminating.

First, among the 1,578 cases where we observe two CEOs in succession at the same firm, the correlation between *UncPre* under the old and new CEO is remarkably high (=0.46). The correlation for answers is much lower (=0.26). Second, the 68 “mover” CEOs we identify present a stark contrast. For them, the correlation between *UncAns* at the old and new firm is much higher than for *UncPre* (0.43 vs 0.22).

	Turnover CEOs	Mover CEOs
$\text{Corr}(UncPre_{OldCEO}, UncPre_{NewCEO})$	0.46	0.22
$\text{Corr}(UncAns_{OldCEO}, UncAns_{NewCEO})$	0.26	0.43

Together, these two results show that the pattern of using uncertainty words in answers

¹⁸For a deeper discussion of this fundamental challenge in the style literature (Bertrand and Schoar, 2003; Adams, Keloharju, and Knüpfer, 2018; Fee, Hadlock, and Pierce, 2013) and illustrative examples of how the structure of conference calls provides insights into managerial communication style, see Internet Appendix IA.1.

¹⁹We draw inspiration from papers that argue that answers on conference calls are more related to managers’ personalities. Green, Jame, and Lock (2019) use a variety of speech markers to infer managers’ extraversion from their answers; they then show that extraversion improves career outcomes. Gow, Kaplan, Lareker, and Zakolyukina (2016) use a large number of linguistic features from managers’ answers to construct proxies for personality traits and then show that these traits correlate with firms’ policy choices. Brochet, Naranjo, Miller, and Yu (2019) study international conference calls, and document among other findings, that managers from a more individualistic culture use a more optimistic tone in answers but not in presentations. Lee (2016) measures the stylistic similarity between the presentation and answers, based on the use of so-called function words, to detect managers’ use of scripted language in the latter part. He finds that markets react negatively to scripted answers, suggesting they are perceived as unnatural. Our analysis is novel in that it focuses on the manager fixed effects in answers.

²⁰See Figure IA.1 of the Internet Appendix for illustrative examples.

travels with the CEO, but firms keep the style of presentations at home.

Two additional results sharpen our analysis. First, for a matched sample of control firms without turnover, we find stable patterns in all pieces of earnings communication. This reassures us that the effects we find for *UncAns* do not merely flow from variability in unscripted communication.²¹ Second, we also collect earnings press releases (EPRs) - the earnings communication arguably furthest removed from CEOs - from the SEC’s EDGAR system, and then measure their frequency of uncertainty words (*UncEPR*).²² We find stable patterns in the language of the EPRs, even for turnover firms. This alleviates the concern that such firms disproportionately lack a stable culture.

[Table 2 about here]

All these results are summarized in Table 2. Taken together, they support our strategy of determining CEO style from *UncAns* while using *UncPre* and other factors to control for firm effects. The next section develops the estimation procedure in more detail.

4.4 CEO clarity - estimation

Our procedure for determining each CEO’s clarity is as follows. First, according to Equation 4 we estimate each CEO’s fixed effect in the frequency of “uncertainty” words in conference call answers. Then, we define CEO *i*’s clarity as the negative of the fixed effect:

$$\begin{aligned}
 UncAnsCEO_{i,t} &= \alpha + \gamma_i \cdot CEO_{i,t} + \beta_s \cdot Speech_{i,t}^s + \beta_k \cdot FirmChars_{i,t}^k + Year_t + \epsilon_{i,t} \\
 ClarityCEO_i &= -\gamma_i
 \end{aligned}
 \tag{4}$$

²¹As an alternative benchmark we analyze the other executive of the same company, who was not replaced. For instance, in case of a CEO turnover, we construct before-and-after correlations for the CFO. This specification yields similarly strong results.

²²The average EPR contains 1.22% uncertainty words.

where $CEO_{i,t}$ is an indicator variable equal to one if manager i is CEO in quarter t and 0 otherwise. The systematic component of each CEO is captured by the $\gamma_{1,\dots,N_{CEO}}$ coefficients on the indicator variables (where N_{CEO} is the number of CEOs in our sample). Since we focus on clarity, we find it easier to handle terminology where clearer CEOs land higher on the scale. Hence, we use the negative of γ_i as our measure of clarity. The error terms, $\epsilon_{i,t}$, which we denote $UncRes$, can be interpreted as residual uncertainty that is not explained by any of the control variables included in the regression. We also consider additional specifications of Equation 4, where we vary the set of controls for both linguistic markers in the calls themselves and a range of time-varying firm characteristics.

Table 3 summarizes the results. We consider the significance of individual variables as well as their joint explanatory power. To establish a benchmark, we calculate the R^2 from regressing $UncAns$ on CEO-fixed effects alone. That value is 0.31. The ΔR^2 value reported in Table 3 can be interpreted as increments relative to that benchmark figure when additional variables are included in the regression.

[Table 3 about here]

In Column (1) of Table 3, we include $UncPreCEO$, the frequency of uncertainty words in the respective CEO’s presentation. Drawing on insights from the previous section, this variable encompasses the CEO’s use of uncertainty words that can be attributed to the firm’s culture and the current business conditions.²³ Further, to account for the fact that the language of an answer may depend on the wording of the question, we include $UncQue$ the frequency of uncertainty words used by analysts participating in the call. $UncPre$ and

²³We would expect $UncPreCEO$ to correlate with certain observable firm characteristics that indicate uncertainty. Results available on request show that $UncPreCEO$ increases markedly with volatility and decreases with stock- and market-level returns. Furthermore, $UncPreCEO$ also falls with earnings surprise and earnings growth, suggesting that presentations employ less uncertainty language when earnings are (unexpectedly) good. However, these observables have rather low explanatory power, which we take as evidence that $UncPreCEO$ also captures *unobservable* firm-specific factors affecting uncertainty talk. This makes it a useful control when estimating CEO clarity.

UncQue prove to be highly statistically significant. They increase the R^2 by more than 0.05, underscoring their importance as controls.

In Column (2) of Table 3, we add a number of firm characteristics. The matrix *FirmChars^k* is composed of the following variables: the earnings surprise decile, *SurpDec*, EPS growth from same quarter the previous year, as well as the stock and market returns over the previous quarter. These variables are defined in Table A.1. We also add *NegCall*, the ratio of negative words to total words, based on the Loughran and McDonald (2011) list of negative words. That is because uncertainty can be related to whether the nature of news is positive or negative.²⁴ Column (2) shows that *NegCall* as well as a range of firm characteristics exhibit individual statistical significance, but they contribute relatively little to the overall explanatory power. Moreover, the fixed effects continue to dominate. Their joint significance - using an F -test - is at the 0.001 level in all cases. In other words, individual CEO clarity, which we calculate from the fixed effects, is distinct from all these other variables.²⁵

How heterogeneous is CEO clarity? To answer, Figure 3 presents histograms of *ClarityCEO*, as estimated by Equation 4. The distribution is continuous with a fatter left tail, but there are no clear outliers.

[Figure 3 about here]

The heterogeneity is substantial. The mean and standard deviation are -0.62 and 0.23 respectively, which means that a clear-talking CEO (one standard deviation above mean clarity) would typically use less than half as many uncertainty words than a typical fuzzy-talker (one standard deviation below mean clarity). In subsequent analysis, we standardize *ClarityCEO* to a mean of 0 and standard deviation of 1.

²⁴The uncertainty and negative wordlists overlap to some extent. Specifically, of the 297 uncertainty words, 40 are also listed as negative (some examples are the words “confusing,” “doubt” and “risky”). However, these “overlapping” words only account for roughly 2% of the uncertainty word *count*. Such minor mechanical commonality is unlikely to bias results when we control for negativity in our regressions.

²⁵In the next section, we study the relation of the resulting estimates of style to fixed (such as industry) and slow-moving characteristics (such as firm size) as well as with measures of firm uncertainty.

4.5 Correlates of CEO clarity

This section seeks to understand the relation of CEO clarity with other linguistic features that can affect a message’s clarity, with dimensions of business uncertainty, and with other CEO characteristics. The overall message of this section is that CEO clarity is distinct from all these factors.

We begin by studying the degree of concreteness, vagueness, and answer avoidance. Summary statistics for these measures are in Panel A of Table 1.

[Table 4 about here]

First, we use the concreteness scores for individual words developed in Brysbaert, Warriner, and Kuperman (2014); see Figure IA.2, and calculate the average concreteness of words in CEO answers and relate it to each CEO’s degree of clarity.

Second, coming back to the example in Section 4.2, lack of clarity in thought or communication often results in vagueness. We employ the Communication Vagueness Dictionary of Hiller, Fisher, and Kaess (1969) to quantify the vagueness in CEOs’ answers.²⁶

Finally, departing from clarity could be a way to avoid answering uncomfortable questions (as opposed to outright refusal). We calculate the measure of avoidance developed in Barth, Mansouri, and Woebeking (2020) for all CEO answers in our sample.²⁷

We calculate the average concreteness, vagueness and avoidance for each CEO. We then regress *ClarityCEO* on these three measures. The results are summarized in Table 4, Columns (1) to (4). Clear CEOs are indeed more concrete and less vague, as we would expect. In isolation, answer avoidance is not significantly related to *ClarityCEO* (Column

²⁶The dictionary is available from Provalis Research. (<https://provalisresearch.com/products/content-analysis-software/wordstat-dictionary/>) It consists of 10 categories: Ambiguous Designation, Negated Intensifiers, Approximation, Bluffing and Recovery, Admission of Error, Indefinite Amount, Multiplicity, Reservations, Probability and Possibility and Anaphora. We combine all categories, excluding Anaphora (which contains some very common words like “this”) and Probability and Possibility (which overlaps with the Uncertainty wordlist) and calculate one average frequency of vague words.

²⁷These authors use a supervised machine-learning approach to identify trigrams that indicate that a respondent is avoiding an answer. The authors kindly make this trigrams list available at econlinguistics.org.

3) but becomes significantly and positively related when included alongside *ConcAns* and *VagAns*. Our interpretation is that both clear and fuzzy CEOs are equally likely to avoid certain questions, but they do so in different ways. A clear CEO is more likely to refuse to answer a question outright, while a fuzzy one would rather deflect it with conditional and qualifying uncertainty words (that are not captured by either concreteness or vagueness). Taken together, *ConcAnsCEO*, *VagAnsCEO* and *AvoidCEO* explain only 11% of the variation in *ClarityCEO*, which suggests that clarity is a largely independent dimension of CEO communication.

The results so far accord with Hypothesis 1 and indicate that different CEOs exhibit different levels of clarity. However, consistently clear or fuzzy talk could possibly proxy for some other persistent characteristics of CEOs or the firms they manage.²⁸

On the company side, we consider two proxies for general business uncertainty - equity volatility (*DailyVola*, computed as the standard deviation of daily returns over the previous quarter), and the dispersion in earnings forecasts of individual analysts immediately before the call (*AnDispPre*). Moreover, it seems plausible that it is more difficult to make clear statements about large firms as well as firms in certain industries - hence we include the natural logarithm of total assets, $\ln(\text{Assets})$, and industry-fixed effects. Finally, a large fraction of complex and hard-to-value assets could also present a challenge to clear communication and we use, *FracInt*, the fraction of intangible assets (from Peters and Taylor, 2017) in total assets to capture that. These variables are computed each quarter and then averaged over each CEO's tenure.

Table 4, Columns (5) to (7), presents results of cross-sectional regressions of *ClarityCEO* on these characteristics. Interestingly, both firm size and *FracInt* are significantly and *positively* related to *ClarityCEO*, as Column (5) of Table 4 shows. Thus, CEOs do not simply use fuzzy language when the company's future is more complex and difficult to discuss.

²⁸Of course, we control for these characteristics when examining whether a CEO's clarity explains relevant outcomes, such as earnings responses. The analysis yields the same inferences if we control for these characteristics in the estimation of style in the first place. However, we find it informative to consider explicitly the relation of style to these characteristics.

Of the two business uncertainty measures, only *AnDispPre* is significantly and negatively (as expected) related to *ClarityCEO*, though the explanatory power is low. Moreover, all significance disappears once we include industry fixed effects in Column (6).

Adding industry-fixed effects increases the R^2 by close to 0.08. We explore the relationship of *ClarityCEO* with particular industries in Panel (a) of Figure 4. Indeed, *ClarityCEO* is somewhat greater in more predictable industries, such as retail. Still, differences in *ClarityCEO* within industries dwarf those across industries.

[Figure 4 about here]

On the CEO side, perhaps less able CEOs are less clear in their communication. Demerjian, Lev, and McVay (2012) document significant variation in CEOs' ability. Age and gender are other candidate drivers.²⁹ In the regressions, we operationalize age as the last two digits of the CEO's year of birth (*BirthYear*). For gender, we define a binary variable equal to 1 if the CEO is female and 0 otherwise (*Female*). The typical CEO in our sample is male (only 3% are women) and was born between 1948 and 1959.

Panel (b) of Figure 4 suggest that female CEOs are clearer by about half a standard deviation on average. Panel (c), where we group CEOs by the decade they were born, shows that *ClarityCEO* has a slight upward tilt across age cohorts - very young CEOs (those born in the 1970s and 1980s) speak more clearly, while older ones tend toward fuzziness.

These patterns also hold in the regression analysis; see Column (7) of Table 4. In our main empirical analysis, so as to maximize sample size, we do not control for these additional variables. In unreported tests we verify that all our results remain significant when controlling for year of birth and gender. Finally, CEO ability appears to explain little.

²⁹Notice that the sample size is smaller for these variables because we obtain the data from ExecuComp, which only covers approximately the S&P1500.

4.6 Summary of results so far

As Hypothesis 1 posits, this section has shown that differences in clarity among CEOs are significant and largely independent of other factors. Thus, they do not merely reflect their ability, the type of firm they manage, or changing business conditions. In short, CEO clarity represents a distinct and personal “style” in communication. This hardly precludes the possibility that a manager might deviate from his or her usual level of clarity for strategic reasons. Next, we examine how actions by participants in the investment community respond to the clarity of a CEO.

5 CEO clarity and earnings responses

Hypothesis 2 holds that earnings conference calls held by CEOs who speak more clearly are more informative, hence will elicit stronger responses from market participants.

5.1 Empirical strategy

To test Hypothesis 2, we regress market and analyst responses on *ClarityCEO*, controlling for the amount of information discussed during the call and a range of control variables. Note that all of our measurements on the strength of response are measured in absolute terms. This reflects our assumption that clear-talking CEOs convey more information, whether that information be good or bad. Specifically, we estimate for the initial response (*EarnResp*) of the market to the conference call of CEO i in quarter t :

$$\begin{aligned} EarnResp_{i,t} = & \alpha + \beta_1 \cdot ClarityCEO_i + \beta_2 \cdot UncResCEO_{i,t} + \beta_3 \cdot SurpDecAbs_{i,t} + \\ & + \beta_4 \cdot \Delta NegCall + \beta_k \cdot Controls_{i,t}^k + Ind_i + Year_t + \epsilon_{i,t} \end{aligned} \quad (5)$$

Hypothesis 2 predicts that $\beta_1 > 0$.

The strength of *EarnResp* is captured in three ways. First, we measure the absolute

cumulative abnormal return (*ACAR*) over the day of the call ($t = 0$) and the next trading day ($t = 1$).³⁰ We follow the methodology of Daniel, Grinblatt, Titman, and Wermers (1997) to calculate characteristic-adjusted abnormal returns. All returns in this paper are expressed as percentages.³¹ Price and returns data are taken from CRSP.

Second, we calculate abnormal trading volume (*AbnVol*) by dividing the cumulative trading volume of a firm on the call date and on the subsequent trading day by twice 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.

Third, we define analyst response (*AnResp*) as the absolute value of the difference between analyst consensus forecast of quarter $t + 1$ earnings measured one day before and three days after the call in quarter t . We calculate the consensus as the median of all individual analyst forecasts available in IBES for a given stock-quarter, provided they were issued no more than 180 days before the call. We express the difference in consensus before and after the call as a percent of the share price 5 days before the call in quarter t .

Turning to the controls, numerous studies argue that markets should respond primarily to the surprising component of earnings. Since both positive and negative surprises can be informative, we use *SurpDecAbs*, the *absolute* value of *SurpDec* in the regression.³²

More recent studies, such as Engelberg (2008), show that the “soft”, textual content of quarterly earnings reports matters on top of “hard” accounting numbers. We capture soft information with *unexpected* negativity, defined as the change in the frequency of negative

³⁰The conference call transcripts include the start times of each call. We measure returns close-to-close, so if a call happens after hours, abnormal return (AR) day 0 is calculated from the closing price of that day to the closing price of the next. For calls conducted before and during trading, AR day 0 is calculated from the close of the previous day to the close of the call day.

³¹From 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 (producing a total of 125 matching portfolios). Each of these 125 portfolios is reformed each year at the end of June based on the market equity and prior year return (skipping one month) from the end of June of the same year, and book-to-market from the fiscal period end of the preceding year. Book-value of equity is furthermore adjusted using the 48 industry classifications available from Kenneth French’s data library. The portfolios are value-weighted.

³²Using surprise deciles follows Hirshleifer, Lim, and Teoh (2009) and DellaVigna and Pollet (2009) who show that these earnings quantiles exhibit an approximately linear relationship with earnings responses. The relationship between the earnings surprise itself and the immediate stock response, by contrast, is monotonic but highly nonlinear (Kothari, 2001).

words relative to the previous call, ΔNeg . Following empirical evidence that firms try to suppress bad news, we expect an *increase* in negativity to be “soft” information that is particularly telling.

Besides the linguistic variables already discussed (*UncRes*, *UncPre*, *UncQue*, *ConcPreCEO*, *ConcAnsCEO*, *VagPreCEO*, *VagAnsCEO*, *AvoidAnsCEO*), we control for additional features of the call that could affect its informativeness.³³ 1. the number of total words itself (*WordsCall*), reflecting the logic that longer calls potentially convey more information. 2. the frequency of numbers mentioned on the call. Numbers include dollar amounts, percentages, etc.³⁴ *NumCall* indicates the quantity of numbers per 100 words. On average, 2.6 numbers appear for each 100 words spoken on a conference call. This is in line with what Zhou (2017) reports for his sample. 3. the average sentence length (*ComplexCall*) serves as a simple measure of complexity.³⁵ The average sentence on the calls contains 18.5 words.

Analyst forecast dispersion before the call (*AnDispPre*) is an important control variable to separate the effect of uncertainty talk from the effect of general uncertainty surrounding the firm’s earnings. Further, we define *Guidance* as a binary indicator for whether the firm provides a point estimate or a range of the next quarter’s earnings. Earnings announcements may be differentially relevant for stock price responses depending on the extent of a firm’s reliance on intangible assets (*FracInt*). In addition, we include a range of firm characteristics,

³³The goal is to control for the overall impact of these characteristics, rather than to identify the individual importance of CEOs or to contrast presentations and Q&A sessions. Hence, these variables are based on the entire contents of the call.

³⁴Numbers are recorded in numeric form in the transcripts. We pay special attention to numbers reported with decimals and to numbers containing commas denoting thousands, to avoid counting them as two numbers. Thus, quantities such as “60 basis points”, “35.3%”, “\$8 million”, and “22,200” are each counted as one number. Careful review of several transcripts suggests that our algorithm works well but is not perfect. For example, a reference to “the Boeing 737 and the A-320” would be counted as two numbers. We believe the imprecision due to such cases is likely to be small, and any systematic variation in the use of product numbering should be absorbed by industry-fixed effects and other company characteristics.

³⁵Loughran and McDonald (2016) highlight that parsing business documents into sentences is an error-prone process. This danger is somewhat reduced in the context of conference calls, which, for example, do not contain tables. We pay special attention not to count decimal dots as sentence-ending periods. In robustness checks, we also compute the Gunning fog index, and our results are robust to controlling for this index instead. This fog index also uses the average sentence length, but also includes complex words. Such words – those with three or more syllables – appear very frequently in a business context, making the measure hard to interpret. See Loughran and McDonald (2014) for a critique.

StockRet, *DailyVola*, *EPS growth*, *ln(Assets)*, *Tobin's Q*, and *MarketRet*.

Finally, current business conditions are also relevant. Hence, we include year-fixed effects in all regressions to control for such common time effects.

The sample for these regressions includes all calls for firms with enough accounting information to calculate abnormal returns, and on which analysts asked at least one question. The baseline specification includes Fama-French 48 industry- and year-fixed effects. This specification allows us to examine all firms. However, despite the rich set of firm covariates, it is vulnerable to concerns about a potential omitted common driver of both earnings responses from investors and analysts and of *ClarityCEO*. While truly random assignment of *ClarityCEO* to CEOs is not achievable, a great deal can be learned by examining situations where the CEO changes. Thus, we repeat our regressions for the subsample of firms experiencing CEO turnover during the sample period (*turnover sample*). This sample includes firms whose CEOs switched firms in our sample, the so-called *movers*, as in Bertrand and Schoar (2003) as well as managers who leave the sample and new hires who join it.³⁶ This sample has the key feature that we can now include firm-fixed effects alongside *ClarityCEO*. Hence, the focus is on within-firm variation in *ClarityCEO*, while effectively controlling for any unobserved between-firm heterogeneity.

All explanatory variables (except *SurpDecAbs* and *Guidance*) are standardized using their full-sample means and standard deviations. To account for the interdependence between observations, we cluster standard errors by manager.

5.2 Results

Table 5 presents the results. As expected, greater “hard” earnings surprises (*SurpDecAbs*) elicit stronger market responses. An increase in negativity on the call, as compared to the

³⁶The turnover sample is substantially broader than the mover sample. Bertrand and Schoar (2003) direct their attention to the movers, given their concern that other turnovers might capture a firm-period effect rather than a manager effect. We believe this to be a lesser concern in our setting, where we define style with respect to words that an individual CEO speaks during earnings conference calls.

prior quarter, also produces stronger responses by both analysts and the market, consistent with our interpretation of “soft” earnings information.

Our main focus is on the effects of *ClarityCEO*. Higher *ClarityCEO* increases absolute abnormal returns and abnormal trading volume, as shown in columns (1) and (2) of Table 5.

Given that we control for industry-fixed effects, *AnDispPre*, *DailyVola*, and *FracInt*, CEO clarity is distinct from general business uncertainty. Firms with higher uncertainty and firms with more intangible assets (which are presumably harder to value than tangible assets) experience weaker earnings responses. By contrast, neither *UncPreCEO* nor *UncResCEO* is significantly associated with stock price or volume responses. Our results hold controlling for *Guidance* and *Words*, which show up with the expected positive sign.

Column (3) takes up analysts’ responses. Again, clear-talking CEOs spark a stronger adjustment. As intuition would suggest, the analysts’ response is stronger when their pre-call uncertainty, as measured by *AnDispPre*, had been high. Again, the effect of CEO clarity is distinct from general uncertainty around firm’s earnings. Somewhat surprisingly, high *UncPreCEO* engenders stronger analyst responses.

How sizable are the effects of *ClarityCEO*? We look first at the coefficient on *SurpDecAbs* in column (1) of Table 5. It shows that a one-decile move in the earnings surprise category (such as from decile 1 to 2 or from -1 to -2) increases short-term *ACAR* by 48 basis points, all else equal. By comparison, for a clear-talking CEO, i.e. one with *ClarityCEO* one standard deviation above the mean, *ACAR* is higher by 9 basis points, or close to one-fifth of the earnings surprise effect. Effects obtained for trading volume and analyst responses are similar in magnitude.

[Table 5 about here]

The baseline results in Table 5 suggest *ClarityCEO* significantly impacts the informativeness of conference calls and the associated market responses.

Including firm-fixed effects – that is, focusing on the sample with CEO turnovers – in Columns (4) to (6) changes little about the results. The economic effects for abnormal returns and analyst responses are somewhat stronger than in the full sample, whereas the effects for abnormal trading volume are somewhat weaker. In sum, we conclude that the effects of *ClarityCEO* are tied to specific CEOs. Persistent firm characteristics, even unobserved ones, are not driving the effect. Though we cannot exclude the presence of some unobserved temporal factor that drives both market responses to earnings and CEO transitions from high to low clarity or vice versa, such a scenario seems highly unlikely.³⁷

Taken together, the findings in this section substantially support Hypothesis 2. Clear-talking CEOs facilitate “building up an understanding” of the company and help market participants respond more efficiently to earnings information.

5.3 Does the clarity of CEOs affect the response to hard or soft information they convey?

The finding that higher *ClarityCEO* sparks a generally stronger response of investors and analysts leads to the next question. What is the source of this effect? Specifically, is it the response to hard information that is affected? Or the response to soft information? Or possibly both? To answer, we focus on *interactions* between *ClarityCEO* and both “hard” (the earnings surprise, *SurpDec*) and “soft” (change in negativity, ΔNeg) earnings information. The set of control variables remains the same, and they are interacted with the earnings surprise and with the change in negativity. For example, the earnings surprise response coefficient is expected to be negatively related to analyst dispersion (Kinney, Burgstahler, and Martin, 2002). Thus, we estimate:

³⁷In Section 6 we show that a range of plausible firm characteristics has only weak predictive power for the difference in Clarity between two successive CEOs.

$$\begin{aligned}
CAR01_{i,t} = & \alpha + \beta_1 \cdot SurpDec_{i,t} + \beta_2 \cdot ClarityCEO_i \cdot SurpDec_{i,t} + \\
& + \beta_3 \cdot \Delta NegCall_{i,t} + \beta_4 \cdot ClarityCEO_i \cdot \Delta NegCall_{i,t} + \beta_5 \cdot ClarityCEO_i + \quad (6) \\
& + \beta_k \cdot Controls_{i,t}^k + \beta_k \cdot Controls_{i,t}^k \cdot [SurpDec_{i,t}, \Delta NegCall_{i,t}] + \epsilon_{i,t}
\end{aligned}$$

If *ClarityCEO* increases the impact on the stock price of both hard and soft information, then both response coefficients, β_2 and β_4 , should be significant. Specifically, we would expect $\beta_2 > 0$, since the effect of *SurpDec* itself is likely to be positive, and $\beta_4 < 0$, since an increase in negativity is likely to decrease returns.

The results in Column (1) of Table 6 confirm these conjectures. The coefficient on *SurpDec* is large and positive; moving to the next higher decile of earnings surprise increases short-term CAR by 1.5 percentage points. Since *ClarityCEO* is standardized, this applies for CEOs with average clarity. If *ClarityCEO* is one standard deviation above the mean, CAR increases by a further 3 basis points for each increment in surprise decile.

Clear talk affects the response to call negativity substantially more than the response to the earnings surprise. For the average CEO, a one-standard deviation increase in ΔNeg reduces CAR by 3.5 percentage points. The drop is larger by 34 basis points, about one tenth, if the CEO is one standard deviation above the mean for *ClarityCEO*. Conversely, CAR increases more given good news, as characterized by a decrease in negativity from the previous call.

Overall, the soft information channel appears to be particularly important - greater CEO clarity makes earnings calls more informative, because listeners get more information from the change in call negativity. This seems reasonable, since a CEO's clarity does not affect the hard numbers (though it may affect their interpretation), while it does directly affect the delivery of soft information.

Importantly, these results obtain independently of the interaction between analyst dispersion and both *SurpDec* and ΔNeg . There is no corresponding effect for the interactions

with *UncPreCEO* and *UncResCEO*. Thus, the price response to information discussed on the call is primarily a function of *ClarityCEO* (which may also govern managerial communication in other settings), rather than the quarter-specific uncertainty.

The results thus far indicate that earnings communicated by a clear-talking CEO are fundamentally more informative. If so, our baseline expectation is that the immediate difference in returns should persist in the post-earnings period. But there are two alternative possibilities: 1. Earnings information from fuzzy CEOs is more difficult to interpret in the short term but investors figure it out over time. If so, a stronger post-earnings drift should follow the weaker immediate response. 2. Investors over-react to clear-talking CEOs initially. If so, fuzzy talk could be a factor that corrects the tendency of managers to be overconfident.

To distinguish among these three competing possibilities, we examine the cumulative abnormal returns between 2 and 60 days following the conference call, CAR260. We repeat estimating Equation 6, but with CAR260 as the dependent variable.

If earnings coming from clear-talking CEOs are fundamentally more informative, then β_2 and β_4 in that regression would be insignificant. If the under-reaction explanation applies, β_2 and β_4 will be significant and respectively negative and positive, indicating less pronounced drift for clear-talking CEOs. If β_2 and β_4 is respectively negative and positive, and large, that would indicate that the initial reaction reverts for clear-talking CEOs. That in turn would suggest that fuzzy talk is a second-best-corrective for overconfidence. Results in column (2) of Table 6 support our baseline expectation; neither interaction term is significant. Thus, the impact of CEOs' clarity on the immediate earnings response is sustained.

Columns (3) and (4) show the same results for in the turnover sample, with firm-fixed effects included. These results confirm that clear-talking CEOs are indeed fundamentally more informative.³⁸

³⁸We also conduct the analysis of Sections 5.2 and 5.3 using CFO clarity. The results, shown in Table IA.2 in the Internet Appendix, are directionally consistent, though noticeably weaker, which suggests that it is CEO clarity that is the key factor supporting market participants' understanding of the firm.

6 Clear talk and firm value

The market finds clear-talking CEOs to be more convincing when communicating earnings news, and presumably also other types of information. Hypothesis 3 argues that in response, investors will assign higher valuations to companies managed by clear-talkers. If this hypothesis is confirmed, additional fundamental questions emerge: First, are clear-talking CEOs better managers in general, delivering superior operating performance, or is the high valuation simply a result of the clear communication style as such? Second, do firms' boards recognize the benefits by rewarding clear-talking CEOs more highly? Third, do boards tend to appoint clear talkers at special times given past firm performance, for example, after poor firm performance?

Any analysis of valuation is fraught with endogeneity concerns, given that many factors (including those unobserved) affect firm value. Thus, we focus on the *change* in a firm's valuation following a CEO turnover. We then relate that change to the differences in *ClarityCEO* between the outgoing and the incoming CEO. While this approach does not completely eliminate endogeneity concerns, it does control for the influence of any unobserved time-invariant firm characteristics. We also explicitly control for changes in plausible observable confounding factors.³⁹ Specifically, across the j turnover events we estimate:

$$\Delta Value_j = \alpha + \beta \cdot \Delta Clarity_{CEO,j} + \beta_k \cdot \Delta Controls_j^k + FF48_j + \epsilon_j \quad (7)$$

To measure $\Delta Value$, we calculate the average of Tobin's Q over each outgoing and incoming CEO's tenure and take the difference: $\Delta Q = \bar{Q}_{NewCEO} - \bar{Q}_{OldCEO}$. We also consider industry-adjusted values by deducting the change in average industry Q over the same time period.

We estimate Equation 7 using weighted least squares (WLS), where the weighting is by

³⁹Finally, in subsequent analysis, we also examine whether past performance explains changes in clarity following a CEO turnover.

the number of quarterly observations used to calculate each average. This approach assigns greater importance to averages that can be computed with greater precision. Otherwise, short-tenured CEOs' values could lead to imprecise estimates of average Q and other variables.⁴⁰

To ensure that CEO clarity does indeed change around the time of the turnover, we require that the interval between the old CEO's last earnings call and the new CEO's first call be no longer than 120 days. We also require that the firm has enough data before and after the turnover to permit calculating *ClarityCEO*, valuation metrics and control variables. The sample starts with the 1,578 CEO turnovers reported in Table 2. After applying our filters, 905 observations remain.

We control for industry fixed effects as well as changes in total assets, ROA and the fraction of intangibles, since all these factors are known to affect valuations. Moreover, we control for changes in (average) negativity as well as in the frequency of uncertainty words in presentations and analysts' questions. In the regressions where the dependent variable is industry-adjusted, we use industry-adjusted explanatory variables as well.⁴¹

The results in Table 7 show, in Column (1), that when a clear-talking CEO is appointed in a turnover, firm value on average increases during his tenure. Figure 5 illustrates this finding.

[Table 7 and Figure 5 about here]

The economic magnitudes are substantial. A one standard deviation (0.29) increase in *ClarityCEO* is associated with an increase in Tobin's Q by 0.081 (0.281·0.29). The median company in the CEO turnover sample has a market capitalization of \$1.5 billion and Q of 1.57. For this company, a one standard deviation clarity-increasing turnover would add \$77

⁴⁰In unreported tests we obtain similar inferences when using OLS and censoring extreme values.

⁴¹Note that the industry fixed effects do not result in the same adjustment.

million (or 5.2%) in market value, independent of any other changes, compared to a turnover where clarity does not change.

Column (5) repeats this analysis on an industry-adjusted basis. It is possible that shifts in valuations in an industry coincide with the appointment of a particular type of CEOs. Hypothesis 3 could still hold. Nevertheless, it is interesting to know whether abnormal changes in clarity go hand in hand with abnormal valuation changes. Column (5) confirms that they do - the coefficient on $\Delta ClarityCEO$ is virtually unchanged.

Why would an increase in CEO clarity boost the firm's value? It could be that clear-talking CEOs generally manage companies more effectively. An extreme and widely cited example of this philosophy is reflected in Ray Dalio's "Principles" (Dalio, 2017), which argues that an organization thrives when managers communicate completely honestly regarding the ideas of others. Alternatively, clear communication could enable CEOs to present the same operating performance more favorably to shareholders, resulting in higher valuations.

To test Dalio's Dictum, we examine changes in operating performance, measured by ΔROA , around CEO turnovers. Starting with raw differences in Column (2) of Table 7, we observe no increase in ROA when more clear-talking CEOs replace their fuzzy counterparts. Column (6) confirms that this observation also applies on an industry-adjusted basis. Thus, operating performance does not explain the valuation boost from a clear-talking CEO.

Though clear-talking CEOs offer no gain in operating performance, analysts still issue more favorable recommendations following their appointment. Specifically, we obtain the median analyst recommendation ($MedRec$) for each firm-quarter from IBES and calculate its average value over each CEO's tenure. $MedRec$ is coded from 1 (Strong Buy) to 5 (Strong Sell), such that a *decrease* corresponds to more favorable recommendations. In Columns (3) and (7) we find that when the successor CEO is more of a clear talker (positive $\Delta ClarityCEO$), $MedRec$ decreases, both on a raw and industry-adjusted basis.

In the absence of better operating performance, this latter result suggests analysts respond favorably to clear talk itself, which in turn feeds positively into investor valuations.

Thus, clear talk appears to be an independent source of firm value.

Do firms reward CEOs for clear talk? We compare the (logs of) total compensation of the outgoing and the incoming CEOs.⁴² We find that the difference in compensation is not significantly related to $\Delta ClarityCEO$; see Columns (4) and (8) of Table 7. This suggests either that boards are largely unaware of the value-enhancing effects of clear talk, or do not give it precedence over other factors in appointments and compensation decisions.

One potential challenge for the results so far is that firms may hire CEOs with a certain preference for clarity to fit their present circumstances, in which case the findings on subsequent valuation changes may be due to evolution from those circumstances. Thus, we examine whether $\Delta ClarityCEO$ around CEO turnovers is driven by what happened during the tenure of the former CEO. For example, do firms tend to hire clear-talking CEOs after their valuations have dropped?

[Table 8 about here]

To answer this question, we regress $\Delta ClarityCEO$ on valuation and accounting performance metrics, measured over the old CEO's tenure. Specifically, we look at *changes* in Tobin's Q, ROA and *MedRec* between the first and last year of the old CEO's tenure. Table 8 presents the results for both raw and industry-adjusted variables. Those results show no significant relation between the candidate explanatory variables and $\Delta ClarityCEO$ at a turnover. Moreover, they do not change even when all variables are included jointly in Columns (4) and (8). By contrast, CEO clarity exhibits strong mean reversion from past to new CEO, which further suggests that firms are not seeking CEOs with a particular level of clarity.

These findings also refute the argument that the effect of $\Delta ClarityCEO$ on $\Delta Value$ is an artifact of the cyclicity in firm performance. While we cannot prove definitively that

⁴²The number of observations is somewhat smaller here because we only have compensation data for CEOs in the ExecuComp database.

changes in CEO clarity are exogenous, our results show no obvious way in which boards are selecting CEOs for their clarity. Overall, results in this section suggest that CEOs' clear talk is a significant yet under-recognized source of firm value.

7 Conclusions

This paper shows that CEOs persistently differ in the clarity of their communication. Some, like former Federal Reserve Chairman Ben Bernanke, are clear talkers and thus quite informative. Others, like Alan Greenspan, are fuzzy talkers; their style clouds their message. Investors and analysts find that clear talk tells more. They incorporate earnings news communicated by clear-talking CEOs, especially its soft component, more strongly into both earnings forecasts and stock prices. They also reward companies that switch to clearer CEOs with higher valuations and more favorable recommendations.

Establishing the existence and importance of differences in CEO clarity raises critical questions. How do these differences originate? How influential are early career or childhood experiences, or even genetics? What will be the longer-run consequences if practitioners and scholars, aided by artificial intelligence and machine learning, go beyond word counts and distill the fuller information that managers' speech patterns convey? When the lessons from research feed back to managers, will some of them attempt to change how they speak?⁴³ Future research can hope to provide the answers.

⁴³Cao, Jiang, Yang, and Zhang (2020) provide intriguing initial evidence that firms manage textual sentiment and audio emotion in ways catered to machine readers.

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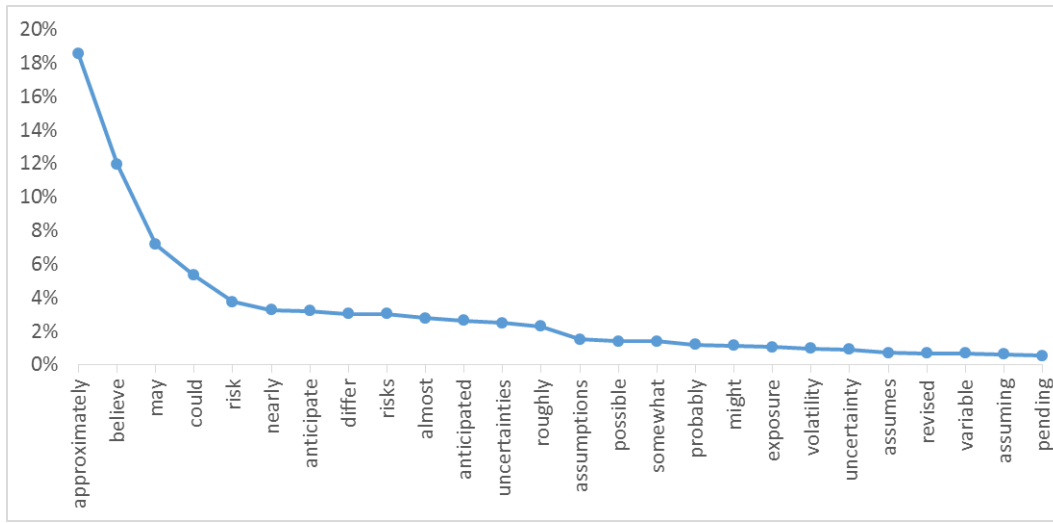
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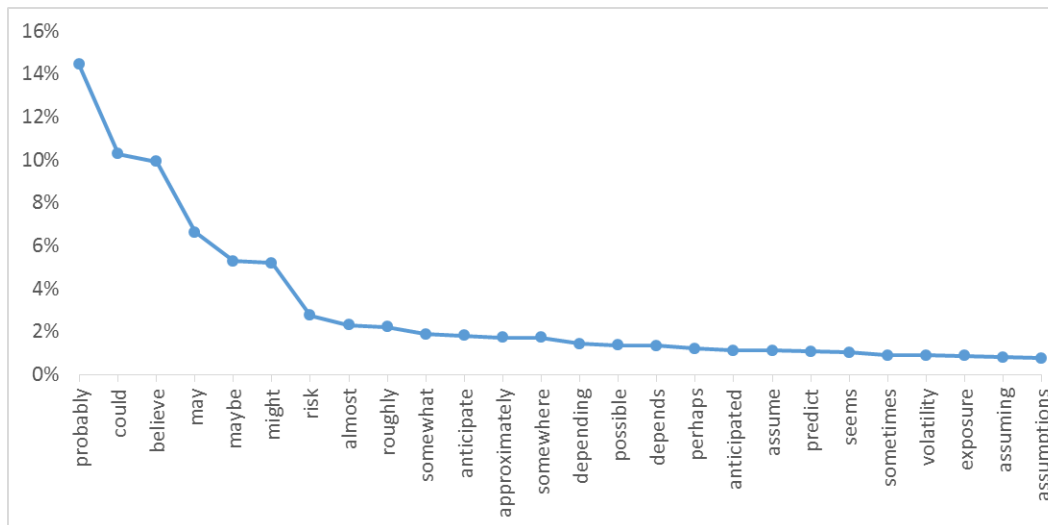
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Figure 1: Top 25 most frequently occurring uncertainty words in presentations and answers

(a) Presentations



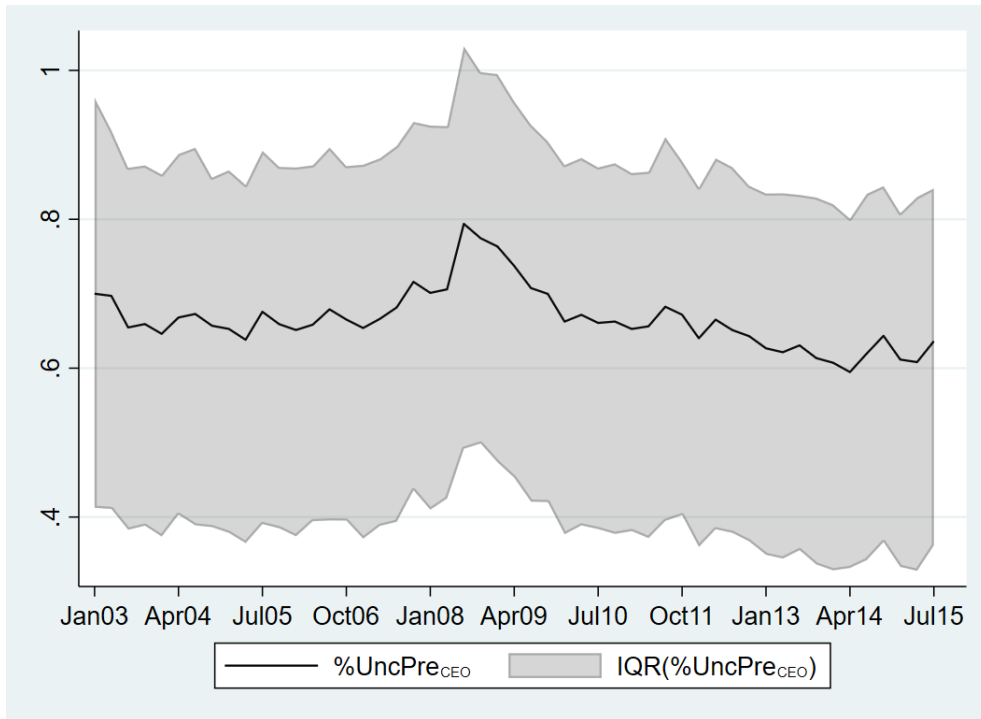
(b) Answers



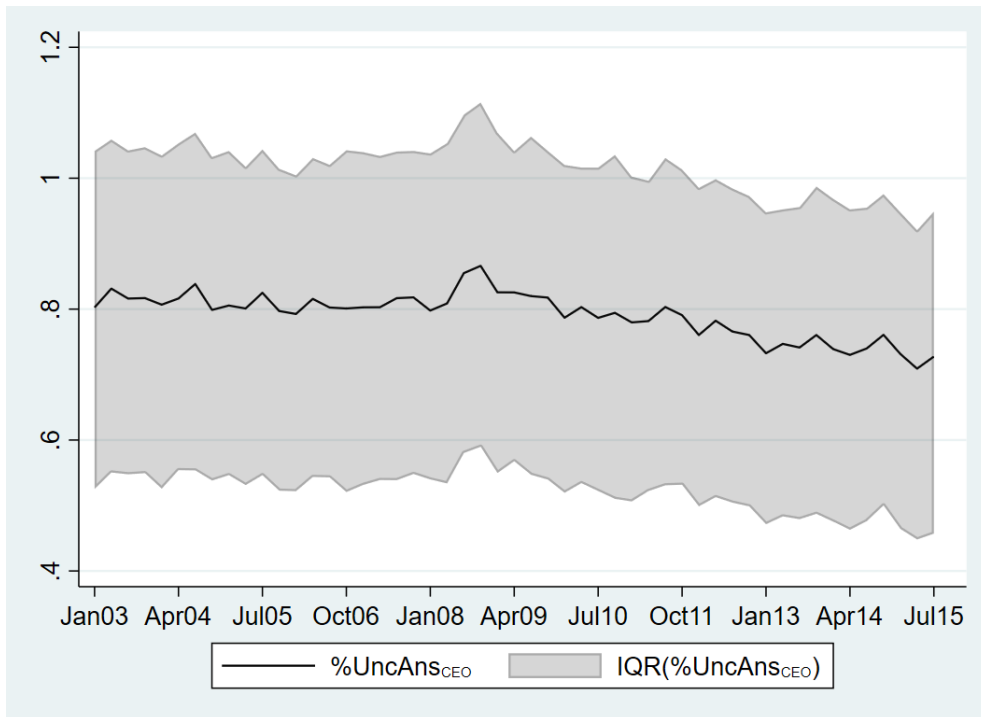
This figure plots the frequencies of the 25 most popular uncertainty words as they occur in conference calls in our sample. Uncertainty words used in presentations are shown in Panel (a) and uncertainty words used in answers are shown in Panel (b). The denominator is the count of all uncertainty words across all conference call presentations or answers, respectively.

Figure 2: Frequency of uncertainty words in CEO presentations and answers over time

(a) CEO presentations



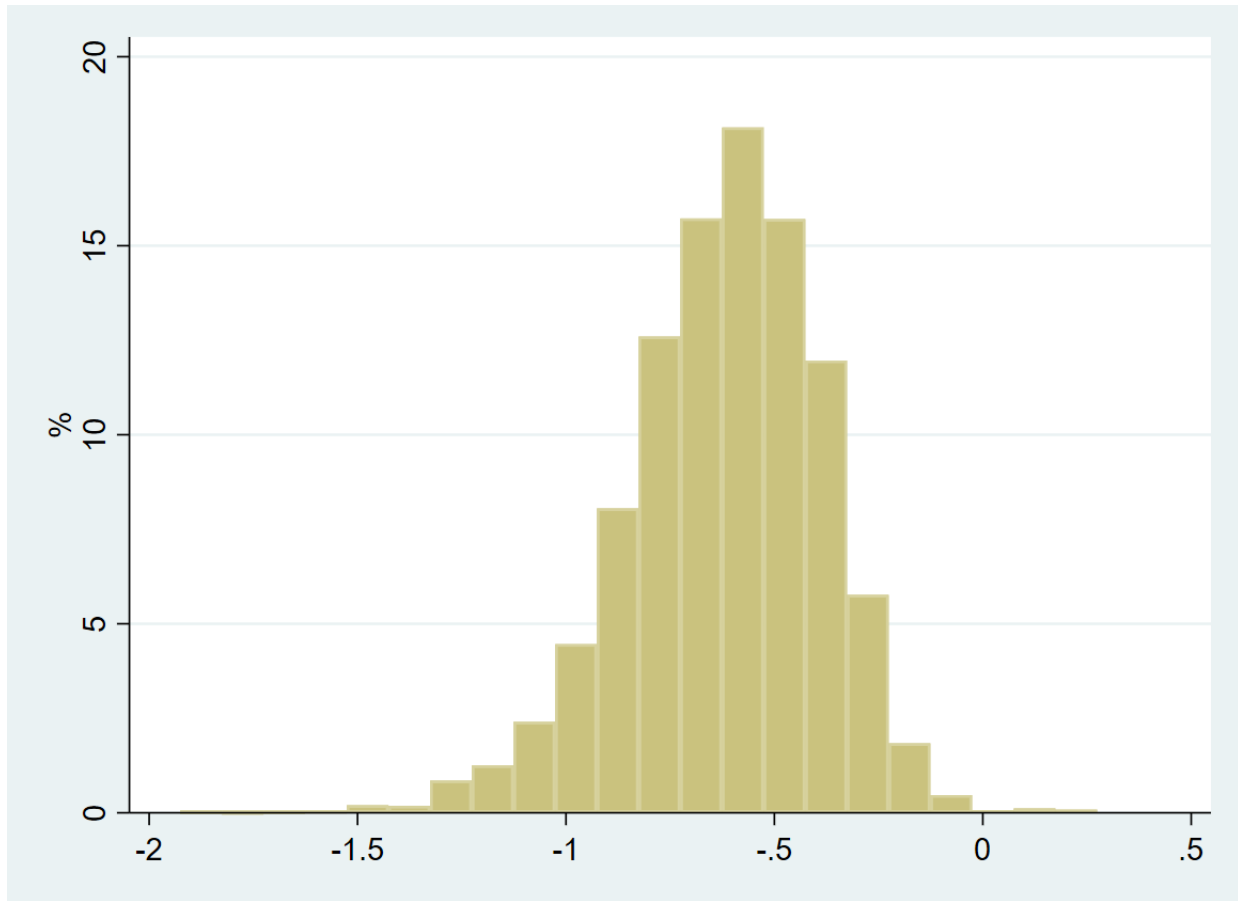
(b) CEO answers



This figure plots the average frequency of uncertainty words in total words used by CEOs in conference call presentations, Panel (a), and answers, Panel (b), in every quarter. The shaded areas correspond to the inter-quartile range of $\%UncPre_{CEO}$ and $\%UncAns_{CEO}$, respectively.

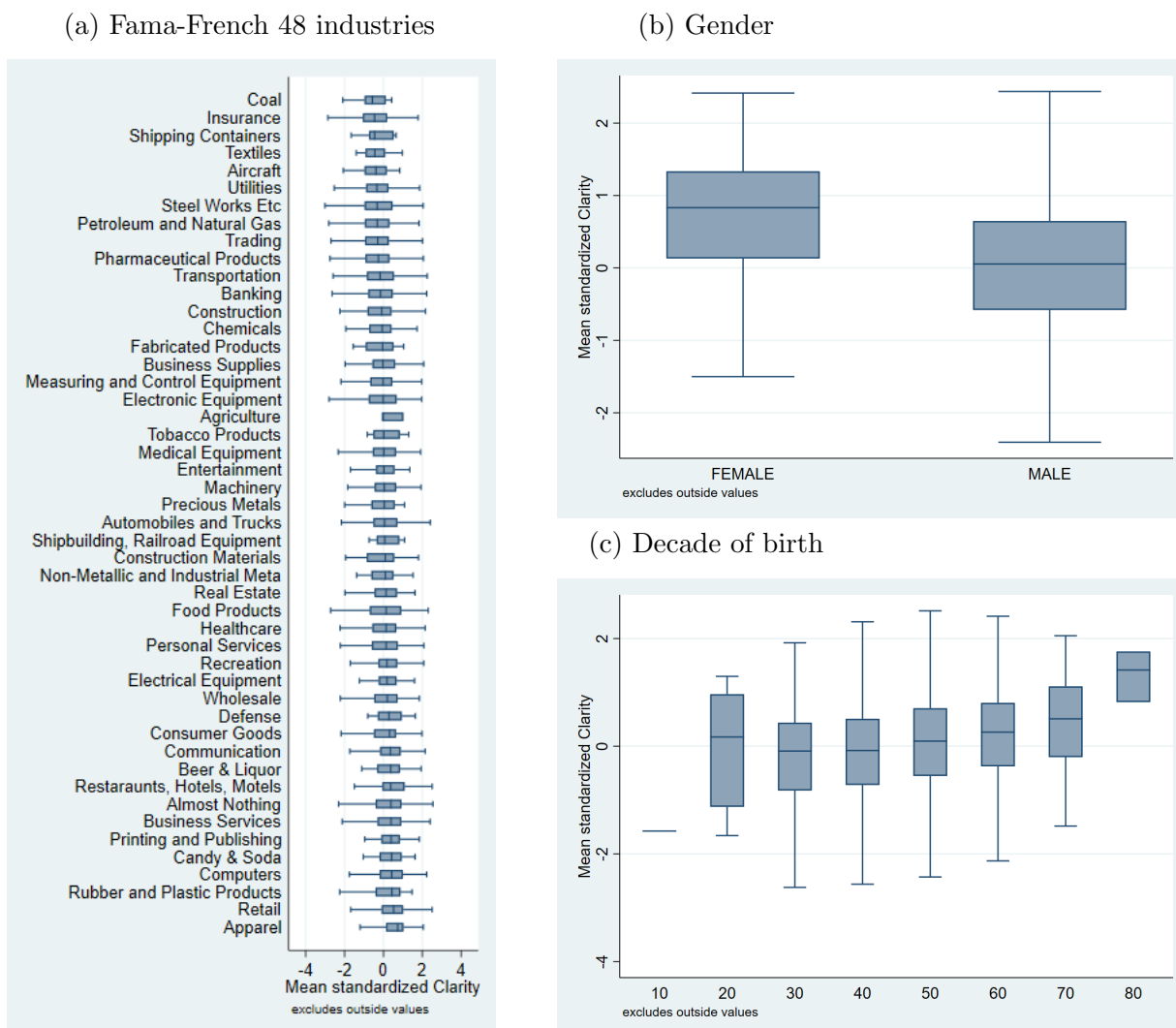
Figure 3: Distribution of CEO clarity

(a) CEOs (N=5,985)



This figure shows the distribution of CEO clarity. CEO clarity is calculated as $-\gamma_i$, where γ_i is the fixed effect of CEO i in the frequency of uncertainty words in answers, estimated according to Equation 4, Section 4.4. In total, 5,985 CEOs are included.

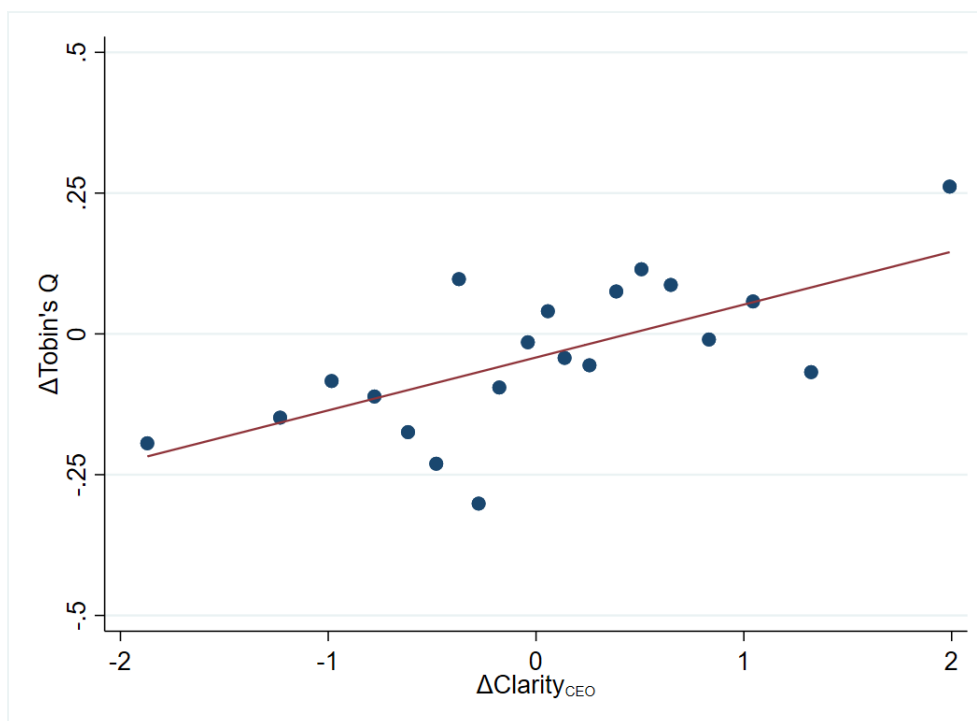
Figure 4: CEO clarity across industries, gender and age cohort



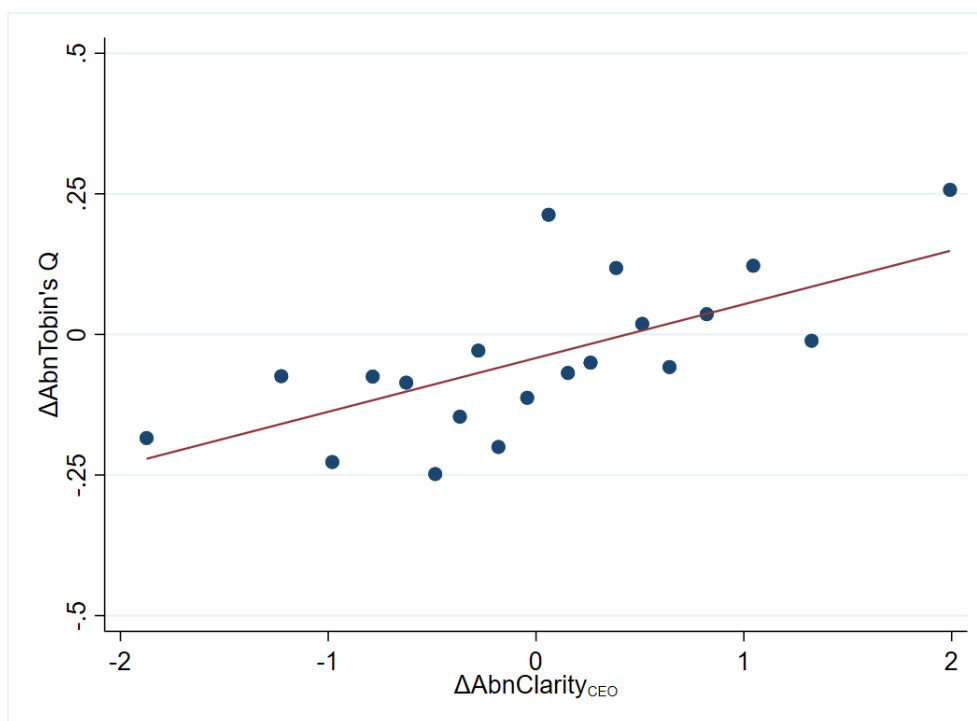
This figure shows the distribution of standardized CEO clarity across the Fama-French 48 industries, Panel (a), gender, Panel (b), and age group, Panel (c). CEO clarity is calculated as $-\gamma_i$, where γ_i is the fixed effect of CEO i in the frequency of uncertainty words in answers, estimated according to Equation 4, Section 4.4. Each box in the graphs shows the interquartile range (25-75) for a given group (industry) with the median highlighted, while the tips of the whiskers are set at 1.5 times the inter-quartile range (values outside these bounds are excluded). Industries in Panel (c) are sorted according to the median CEO clarity, with the least clear shown on top. In total, 5,985 CEOs are included.

Figure 5: Change in firm value after changes in CEO clarity

(a) Raw differences



(b) Industry-adjusted differences



This figure presents a binned scatter plot, plotting the difference in average Tobin's Q between the successor CEO and the predecessor against the difference in CEO clarity in a sample of CEO turnover events, controlling for industry and other variables in Table 7. In Panel (b), we demean all variables within each of the 48 Fama-French industries before calculating differences. Both $\Delta \text{Tobin's Q}$ and $\text{Clarity}_{\text{CEO}}$ are standardized to mean 0 and standard deviation of 1.

Table 1: Summary statistics

	N	mean	stdev	min	p25	p50	p75	max
Panel A: Call-level variables								
N calls	105,399							
N firms / Calls per firm	4,098 /	28.84	16.49	1	14	27	44	58
Outcome variables								
AbnVol	103,359	0.63	0.56	-0.89	0.25	0.61	1.00	2.26
AnResp	98,422	0.25	0.48	0	0.03	0.09	0.25	4.54
ACAR01 (%)	86,289	5.26	4.77	0	1.68	3.82	7.44	24.54
CAR01 (%)	86,289	0.07	7.10	-24.54	-3.66	0.06	3.96	23.04
CAR260 (%)	86,418	0.20	14.62	-51.67	-7.79	0.25	8.30	51.25
Comp (\$ths)	18,173	5,576	7,297	0	1,829	3,656	6,910	377,997
MedRec	105,187	2.39	0.66	1	2	2.5	3	5
ROA	31,511	4.40	19.96	-800.90	2.07	6.57	11.55	127.10
Tobin's Q	105,171	1.95	1.33	0.71	1.11	1.49	2.23	8.22
Speech variables								
AvoidAnsCEO	97,868	0.04	0.01	0	0.03	0.04	0.05	0.31
ComplexCall	105,399	18.68	2.52	11.92	16.95	18.54	20.26	25.72
ConcAnsCEO	97,860	2.85	0.09	1.07	2.80	2.85	2.91	4.10
ConcPreCEO	98,178	2.97	0.09	1.89	2.91	2.97	3.03	4.52
NegCall (%)	105,376	0.92	0.33	0.36	0.69	0.86	1.09	2.08
NumCall	105,376	2.63	0.98	0	1.95	2.52	3.19	5.80
UncAnsCEO (%)	104,137	0.79	0.40	0	0.52	0.75	1.02	2.09
UncCall (%)	105,336	0.85	0.25	0.35	0.67	0.82	1.00	1.59
UncEPR (%)	92,540	1.23	0.55	0	0.88	1.19	1.54	10
UncPreCEO (%)	100,236	0.67	0.39	0	0.39	0.61	0.89	1.95
UncQue (%)	103,079	1.29	0.45	0.22	0.99	1.26	1.56	2.62
VagAnsCEO (%)	103,081	3.67	1.25	0	2.95	3.62	4.34	100
VagPreCEO (%)	99,905	1.28	0.81	0	0.79	1.13	1.58	100
WordsAnsCEO	105,382	1,886	1,261	0	938	1,677	2,605	12,890
WordsCall	105,399	6,278	2,352	0	4,558	6,162	7,855	39,473
WordsPreCEO	104,663	1,363	834	0	811	1,242	1,784	12,107
WordsQue	105,399	1,262	707	0	806	1,211	1,644	36,243
Other variables								
AnDispPre	86,790	0.05	0.07	0	0.02	0.03	0.06	0.43
ln(Assets)	105,394	7.33	1.80	0.65	6.04	7.26	8.50	14.76
DailyVola (%)	105,319	39.96	26.16	1.72	23.32	33.13	48.22	651.70
EPS growth (yoy)	102,200	-0.02	1.77	-8.44	-0.38	0.03	0.31	8.50
FracInt	104,555	0.57	0.55	0	0.13	0.50	0.82	3.21
Guidance	105,399	0.18	0.38	0	0	0	0	1
MarketRet (%)	105,399	2.12	8.38	-32.68	-1.64	2.35	6.44	28.73
StockRet (%)	105,185	2.54	19.85	-56.07	-7.45	2.17	11.63	76.75
SurpDec	105,339	0.88	3.12	-5	-2	2	3	5
Panel B: CEO-level variables								
N CEOs / Calls per CEO	6,056 /	17.57	11.52	5	8	14	24	75
Ability	4,831	0.42	0.37	-0.25	0.02	0.48	0.74	1
BirthYear	3,310	53.75	8.10	19	48	54	59	84
ClarityCEO	5,984	-0.62	0.23	-1.93	-0.76	-0.60	-0.46	0.27
Female	3,334	0.03	0.18	0	0	0	0	1

Summary statistics are presented for the CEO sample, which reflects the data we later use to estimate CEO clarity. The full sample, summarized in Table IA.3 in the Internet Appendix, contains 122,611 conference call transcripts for US public firms from 2003 to 2015, obtained from Thomson Reuters Street Events. To qualify for the CEO sample, the manager must have participated in at least 5 calls during the combined tenure (possibly at more than one firm). Speech characteristics denoted 'Call' are calculated for CEO, CFO and participating analysts combined. Speech characteristics denoted 'CEO' are calculated for CEO speech only. Variables in Panel A are measured quarterly for each firm (except ROA and Comp, measured annually); in Panel B the unit of observation is the CEO. Detailed definitions of all variables are provided in Table A.1 of the Appendix.

Table 2: CEO turnover and the language of earnings conference calls

	Panel (a): Correlation $Corr(Unc_{OldM}, Unc_{NewM})$ Two different CEOs at the same firm (N=1,578)			Panel (b): Correlation $Corr(Unc_{OldF}, Unc_{NewF})$ Same CEO at two different firms (N=68)		
	Control (1)	Turnover firms (2)	Turnover-Control (3)	Control (4)	Movers (5)	Movers-Control (6)
UncEPR	0.74	0.66	-0.09*** (-4.80)	0.82	0.15	-0.67*** (5.68)
UncPreCEO	0.65	0.46	-0.19*** (-7.80)	0.61	0.22	-0.39*** (2.78)
UncAnsCEO	0.70	0.26	-0.44*** (-16.86)	0.69	0.43	-0.26** (2.20)
UncAns-UncPre	0.05** (2.56)	-0.20*** (-6.50)		0.08*** (3.70)	0.21*** (6.60)	

This table examines patterns in the use of uncertainty words around CEO turnover events. Only CEO turnovers with at least five quarters of data available before and after the event are considered. The first step is to calculate \overline{Unc} , the average frequency of uncertainty words, before (*Old*) and after (*New*) each turnover. The final measure reported in the table is the correlation between \overline{Unc}_{Old} and \overline{Unc}_{New} across all turnover cases. High (low) correlation indicates (lack of) a stable pattern in the use of uncertainty words before and after the turnover. The procedure is applied to earnings press releases (*EPR*) as well as earnings conference call presentations (*Pre*) and answers (*Ans*). Two types of turnover are considered. Panel (a) focuses on cases where two different CEOs work in succession at the same firm. *OldM* corresponds to the outgoing manager and *NewM* to the incoming one. Panel (b) provides a complementary analysis by following the same manager (a “mover”) from one firm to another. In this case, the correlation ($Corr(Unc_{OldF}, Unc_{NewF})$) is calculated between the average frequency of uncertainty words at the old and new firm connected by the mover. For each “turnover” firm in Panel (a), 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 *UncPre* and *UncAns* of the CEO during the pre-turnover period. Average frequency of uncertainty words for each control firm is calculated using the same periods that the old and new manager was in charge at the matching turnover firm. Control firms in Panel (b) are matched, based on the same criteria, to the firm at which the “mover” worked after the move. Significance testing of the differences is based on Fisher transformations of the correlation coefficients, according to:

$$z = \frac{F(Corr_1) - F(Corr_2)}{\sqrt{\frac{1}{(N_1-3)} + \frac{1}{(N_2-3)}}}$$

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

Table 3: Estimating the systematic component of uncertainty words in CEO answers

	UncAnsCEO (1)	UncAnsCEO (2)
UncPreCEO	0.096*** (25.99)	0.093*** (24.47)
UncQue	0.047*** (18.02)	0.049*** (18.18)
NegCall		0.046*** (9.18)
SurpDec		0.001* (1.73)
StockRet		-0.000 (-1.59)
EPS growth (yoy)		0.000 (0.14)
MarketRet		-0.038** (-2.52)
Intercept	0.676*** (52.47)	0.633*** (45.06)
Nobs	98,413	95,296
Year f.e.	Yes	Yes
ΔR^2	0.0507	0.0537
F-stat (p-val)	6.320 (<0.001)	6.139 (<0.001)

The dependent variable is the frequency of uncertainty words in CEO answers (*UncAnsCEO*). All regressions include CEO fixed effects. *UncPreCEO* is the frequency of uncertainty words in CEO presentations, which controls for uncertainty in communication resulting from persistent firm characteristics (such as firm culture) and time-varying business conditions. Other explanatory variables include the frequency of uncertainty words in analyst questions (*UncQue*), call negativity (*Neg*) as well as various time-varying firm characteristics. Finally, *MarketRet* controls for the overall business environment at the time of each call. All variables are defined in Table A.1 in the Appendix. ΔR^2 is the incremental explanatory power of the variables included in a given specification, relative to a benchmark with only CEO fixed effects ($R^2=0.31$). The *F*-statistics and the associated p-value capture the joint significance of all CEO-fixed effects. Summary results of additional specifications using fewer/more/different control variables are presented in Table IA.1 in the Appendix. *t*-statistics shown in parentheses are clustered by CEO. Significance levels: * - 10%, ** - 5%, *** - 1%

Table 4: Clarity and other CEO and firm characteristics - cross-sectional regressions

	ClarityCEO (1)	ClarityCEO (2)	ClarityCEO (3)	ClarityCEO (4)	ClarityCEO (5)	ClarityCEO (6)	ClarityCEO (7)
ConcAnsCEO	0.333*** (17.36)			0.290*** (14.90)		0.300*** (12.68)	0.276*** (7.92)
VagAnsCEO		-0.286*** (-17.15)		-0.248*** (-13.68)		-0.231*** (-9.87)	-0.251*** (-7.83)
AvoidAnsCEO			-0.032 (-1.61)	0.103*** (5.35)		0.096*** (3.42)	0.133*** (3.98)
ln(Assets)					0.076*** (4.09)	0.166*** (7.18)	0.258*** (11.68)
FracInt					0.135*** (5.01)	0.120** (2.10)	0.235*** (5.26)
AnDispPre					-0.077*** (-4.49)	-0.031 (-1.57)	-0.025 (-1.07)
DailyVola					-0.000 (-0.00)	0.016 (0.67)	0.038 (1.21)
Ability							-0.008 (-0.53)
BirthYear							0.079*** (3.59)
Female							0.329*** (2.90)
Intercept	-0.009 (-0.74)	0.022* (1.73)	0.001 (0.11)	0.010 (0.78)	-0.005 (-0.35)	-0.002 (-0.51)	0.012 (1.19)
Nobs	5,862	5,947	5,863	5,862	5,903	5,779	2,537
Industry f.e.	No	No	No	No	No	Yes	Yes
R ²	0.077	0.056	0.001	0.114	0.016	0.202	0.249

This table presents results of cross-sectional regressions of CEO clarity on persistent CEO-level (*Ability*) and firm-level characteristics. Columns (1) to (4) focus on characteristics of language, which are conceptually similar to clarity: average frequency of vague words in CEO answers (*VagAnsCEO*), concreteness of CEO answers (*ConcAnsCEO*) and a measure of CEO answer avoidance (*AvoidAnsCEO*). Columns (5) and (6) focus on firm characteristics related to complexity and business uncertainty: size $\ln(\text{Assets})$, fraction of intangibles (from Peters and Taylor, 2017) in total assets, *FracInt*, stock price volatility, *DailyVola*, computed as the standard deviation of daily returns over the previous quarter and the dispersion in earnings forecasts of individual analysts immediately before the call, *AnDispPre*. Column (7) further includes CEO ability, following Demerjian, Lev, and McVay (2012) (*Ability*), year of birth (last two digits, *BirthYear*) and gender, expressed as a binary variable *Female*, which equals 1 if the CEO is a woman and 0 otherwise. All variables (except *Female*) are standardized. See Table A.1 in the Appendix for definitions of all variables. *t* statistics shown in parentheses are based on robust standard errors. Significance levels: * - 10%, ** - 5%, *** - 1%

Table 5: CEO clarity and earnings informativeness

	Full sample			Turnover sample		
	ACAR01 (1)	AbnVol (2)	AnResp (3)	ACAR01 (4)	AbnVol (5)	AnResp (6)
ClarityCEO	0.086*** (2.97)	0.012*** (3.06)	0.005* (1.92)	0.105** (2.55)	0.006 (1.29)	0.007* (1.82)
SurpDecAbs	0.477*** (29.73)	0.045*** (24.69)	0.057*** (36.40)	0.436*** (19.08)	0.051*** (21.96)	0.037*** (19.79)
Δ NegCall	0.123*** (6.17)	0.021*** (9.92)	0.019*** (11.30)	0.147*** (5.39)	0.020*** (6.89)	0.021*** (8.80)
ConcPreCEO	-0.061** (-2.46)	-0.009*** (-2.98)	-0.011*** (-4.93)	-0.086*** (-2.60)	-0.011*** (-3.05)	-0.015*** (-5.08)
ConcAnsCEO	0.014 (0.62)	0.007** (2.25)	0.000 (0.14)	0.005 (0.17)	-0.001 (-0.40)	0.006** (2.29)
VagPreCEO	-0.026 (-1.42)	-0.006** (-2.23)	-0.001 (-0.64)	0.067* (1.90)	0.007* (1.71)	0.007** (2.26)
VagAnsCEO	0.010 (0.47)	0.005* (1.79)	-0.006 (-1.30)	-0.003 (-0.10)	-0.003 (-0.73)	-0.003 (-1.04)
AvoidAnsCEO	0.027 (1.29)	0.006** (2.28)	0.002 (0.87)	0.045 (1.59)	0.005* (1.87)	-0.001 (-0.44)
UncResCEO	0.017 (0.30)	-0.003 (-0.52)	-0.003 (-0.56)	0.009 (0.12)	-0.001 (-0.18)	0.003 (0.52)
UncPreCEO	-0.017 (-0.75)	0.001 (0.56)	0.006*** (3.09)	-0.006 (-0.20)	0.008** (2.26)	0.002 (0.80)
UncQue	-0.017 (-0.86)	0.002 (0.94)	-0.002 (-1.16)	0.027 (1.03)	0.003 (0.89)	-0.001 (-0.59)
Guidance	0.340*** (5.16)	0.075*** (8.71)	0.031*** (5.28)	-0.048 (-0.48)	0.015 (1.42)	0.032*** (3.49)
WordsCall	0.380*** (14.05)	0.092*** (25.43)	0.010*** (4.00)	0.326*** (8.15)	0.074*** (16.69)	0.013*** (3.91)
NumCall	-0.026 (-0.98)	-0.002 (-0.54)	-0.001 (-0.59)	-0.002 (-0.04)	0.021*** (4.80)	0.001 (0.18)
ComplexCall	-0.030 (-1.24)	-0.017*** (-5.97)	0.011*** (5.32)	0.010 (0.32)	-0.009*** (-2.77)	0.012*** (4.38)
AnDispPre	0.058** (2.07)	-0.000 (-0.05)	0.084*** (20.21)	0.024 (0.52)	-0.004 (-0.90)	0.082*** (12.57)
FracInt	-0.257*** (-6.55)	-0.047*** (-9.58)	0.031*** (7.52)	-0.104 (-1.29)	-0.031*** (-3.53)	0.013 (1.48)
DailyVola	0.687*** (18.26)	-0.093*** (-21.54)	0.142*** (28.06)	0.574*** (11.60)	-0.103*** (-16.86)	0.113*** (15.57)
Intercept	3.124*** (26.53)	0.376*** (13.69)	0.147*** (16.41)	3.576*** (18.42)	0.380*** (10.27)	0.298*** (17.32)
N Obs	63,059	73,186	73,553	32,522	36,008	36,073
Firm chars	Yes	Yes	Yes	Yes	Yes	Yes
Year f.e.	Yes	Yes	Yes	Yes	Yes	Yes
Unit f.e.	Industry	Industry	Industry	Firm	Firm	Firm
R ²	0.095	0.078	0.248	0.055	0.072	0.164

This table summarizes results for regressions of three measures of earnings informativeness on CEO clarity and controls. In columns (1) and (4), the dependent variable is the absolute cumulative abnormal return (ACAR) over [0:1] days relative to the call date (*ACAR01*). See Section 5.1 for details on how we deal with conference calls outside trading hours. In columns (2) and (5), the dependent variable is the abnormal trading volume (*AbnVol*). In columns (3) and (6), the dependent variable is *AnResp*, which is the absolute value of the difference between analyst consensus forecast of quarter $t + 1$ earnings measured one day before and three days after the call in quarter t , scaled by the stock price 5 days before the call in quarter t . *ClarityCEO* is the CEO clarity estimated from the language of that person's answers to analyst questions during earnings conference calls, see Section 4.4 for details. *UncRes* represents the residuals from Equation 4, that is deviations from Clarity. In columns (4) through (6), the sample is limited to those firms which experienced a CEO turnover during the sample period. All explanatory variables (except *SurpDec* and *Guidance*) are standardized. See Table A.1 in the Appendix for definitions of all variables. t -statistics shown in parentheses are clustered by manager. Significance levels: * - 10%, ** - 5%, *** - 1%

Table 6: CEO clarity and the pricing of hard and soft earnings information

	Full sample		Turnover sample	
	CAR01 (1)	CAR260 (2)	CAR01 (3)	CAR260 (4)
SurpDec	1.499*** (12.90)	0.327 (1.32)	1.490*** (9.13)	-0.042 (-0.12)
Δ NegCall	-3.571*** (-3.18)	-3.527 (-1.45)	-3.849** (-2.38)	-1.219 (-0.36)
ClarityCEO	-0.012 (-0.35)	0.099 (1.28)	-0.113** (-1.98)	-0.010 (-0.08)
ClarityCEO \times SurpDec	0.030** (2.42)	0.012 (0.47)	0.027 (1.46)	-0.016 (-0.46)
ClarityCEO \times Δ NegCall	-0.337*** (-3.09)	0.045 (0.19)	-0.372** (-2.32)	0.166 (0.48)
UncResCEO	-0.023 (-0.26)	-0.036 (-0.17)	-0.033 (-0.27)	0.033 (0.12)
UncResCEO \times SurpDec	-0.003 (-0.10)	0.026 (0.39)	-0.053 (-1.35)	0.040 (0.42)
UncResCEO \times Δ NegCall	0.297 (1.03)	-1.139* (-1.72)	-0.125 (-0.33)	-1.441 (-1.59)
UncPreCEO	-0.052* (-1.67)	-0.026 (-0.37)	-0.105** (-2.16)	0.112 (1.00)
UncPreCEO \times SurpDec	-0.003 (-0.26)	-0.002 (-0.08)	-0.014 (-0.83)	-0.000 (-0.01)
UncPreCEO \times Δ NegCall	-0.123 (-1.19)	-0.035 (-0.15)	0.059 (0.40)	-0.017 (-0.05)
AnDispPre	0.304 (0.59)	-1.784 (-1.44)	0.059 (0.07)	1.218 (0.62)
AnDispPre \times SurpDec	-1.021*** (-7.14)	0.516 (1.53)	-1.005*** (-4.76)	0.878** (2.00)
AnDispPre \times Δ NegCall	-0.532 (-0.33)	-7.275* (-1.85)	1.240 (0.56)	-5.750 (-1.05)
N Obs	63,059	63,230	32,522	32,601
Controls (+ int)	Yes	Yes	Yes	Yes
Year f.e.	Yes	Yes	Yes	Yes
Unit f.e.	Industry	Industry	Firm	Firm
R ²	0.134	0.005	0.144	0.022

This table presents regressions of the cumulative abnormal return (CAR) over [0:1] days relative to the call date in columns (1) and (3) as well as cumulative abnormal returns (CAR) over [2:60] days relative to the call date in columns (2) and (4) on the earnings surprise, change in negativity, CEO clarity, and control variables. Columns (1) and (2) use all US public companies from 2003 to 2015. In columns (3) and (4), the sample is limited to those firms which experienced a CEO turnover during the sample period. The effect of uncertainty talk on the pricing of earnings information is modeled as an interaction term of *ClarityCEO* with the earnings surprise (*SurpDec*) and with unexpected negativity (Δ *Neg*). We also defined the same interactions for *UncRes*. *ClarityCEO* is the CEO Clarity estimated from the language of that person's answers to analyst questions during earnings conference calls, see Section 4.4 for details. *UncRes* represents the residuals from Equation 4, that is deviations from CEO clarity. In addition to the variables shown, all regressions control, as indicated at the bottom of the table, for the same controls as Table 5, plus their interactions with *SurpDec*. All explanatory variables (except *SurpDec* and *Guidance*) are standardized. See Table A.1 in the Appendix for definitions of all variables. t-statistics shown in parentheses are based on standard errors clustered by manager. Significance levels: * - 10%, ** - 5%, *** - 1%

Table 7: Changes in CEO clarity and changes in performance around CEO turnover events

	Raw differences				Industry-adjusted differences			
	Δ Tobin's Q	Δ ROA	Δ MedRec	Δ Comp	Δ Tobin'sQ	Δ ROA	Δ MedRec	Δ Comp
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Δ ClarityCEO	0.281** (2.31)	0.196 (0.18)	-0.118* (-1.80)	-0.060 (-0.38)	0.287** (2.38)	0.508 (0.38)	-0.125* (-1.89)	-0.006 (-0.04)
Δ VagAnsCEO	0.003 (0.09)	0.005 (0.02)	0.016 (0.90)	0.010 (0.28)	0.003 (0.09)	-0.055 (-0.15)	0.014 (0.79)	0.034 (0.90)
Δ ConcAnsCEO	-0.181 (-0.50)	-3.532 (-0.95)	0.218 (0.83)	-0.823** (-2.03)	-0.174 (-0.46)	-4.848 (-1.10)	0.240 (0.89)	-0.745 (-1.60)
Δ AvoidAnsCEO	-8.439*** (-2.87)	-6.099 (-0.23)	3.560** (2.13)	-5.534 (-0.86)	-6.773** (-2.29)	12.858 (0.44)	3.558** (2.11)	-5.541 (-0.82)
Δ ROA	0.034*** (4.13)		-0.008*** (-3.93)	0.017*** (3.38)	0.025*** (3.71)		-0.004*** (-2.44)	0.012** (2.48)
Δ ln(Assets)	-0.538*** (-7.55)	1.116* (1.92)	0.059* (1.88)	0.440*** (6.97)	-0.492*** (-7.38)	1.607** (2.24)	0.064** (2.00)	0.367*** (4.54)
Δ FracInt	0.266** (2.19)	-5.611*** (-3.71)	-0.215*** (-3.00)	0.327** (2.16)	0.284** (2.21)	-6.868** (-2.93)	-0.176*** (-2.49)	0.131 (0.83)
Δ UncPreCEO	-0.098 (-0.91)	-0.183** (-2.53)	0.205 (0.18)	0.081 (0.65)	-0.067 (-0.67)	-0.192*** (-2.66)	1.637 (1.13)	0.033 (0.26)
Δ UncQue	0.329*** (3.09)	-0.023 (-0.29)	1.473 (1.25)	-0.025 (-0.19)	0.335*** (3.06)	-0.005 (-0.06)	2.244* (1.71)	-0.002 (-0.02)
Δ NegCall	-0.653*** (-4.73)	0.489*** (6.14)	-6.890*** (-5.84)	-0.573 (-1.34)	-0.624*** (-4.00)	0.488*** (5.69)	-6.236*** (-3.99)	-0.623 (-1.41)
N Obs	905	905	905	658	905	905	905	658
Y-variable ind. adj.	No	No	No	No	Yes	Yes	Yes	Yes
X-variables ind. adj.	No	No	No	No	Yes	Yes	Yes	Yes
Industry f.e.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.277	0.149	0.081	0.029	0.243	0.177	0.063	0.025

This table summarizes results of cross-sectional weighted least squares (WLS) regressions of differences in performance on differences in CEO clarity and other variables around CEO turnover events. Each dependent variable is a difference in the average level of the respective performance measure between the successor CEO and the predecessor. For example, in column (1), the dependent variable, Δ Tobin's Q, is the average Tobin's Q over the tenure of the successor minus average Tobin's Q over the tenure of the predecessor. We employ the combined number of quarterly observations during the successor and predecessor CEO tenure as weights in the WLS regressions. This assigns higher importance to differences that could be computed with greater precision. The other performance measures are, in this order: Return on Assets (ROA); Median analyst Recommendation (MedRec); and the natural logarithm of CEO Total Compensation (Comp). The main explanatory variable of interest is Δ ClarityCEO, which is the difference in clarity between the successor CEO and the predecessor. All other explanatory variables are also computed as differences in averages between the successor CEO and the predecessor. Differences in Columns (1) - (4) are based on raw characteristics, while in Columns (5) - (8) the characteristics (including the explanatory variables) are first industry-adjusted. We require the interval between the last earnings call appearance of the predecessor CEO and the first appearance of the successor to be no longer than 120 days, and we require the firm to have enough data before and after the turnover to calculate CEO Clarity, valuation metrics and control variables. *t* statistics shown in parentheses are based on robust standard errors. Significance levels: * - 10%, ** - 5%, *** - 1%

Table 8: Determinants of changes in CEO clarity around CEO turnover events

	Raw $\Delta\text{ClarityCEO}$				Industry-adjusted $\Delta\text{ClarityCEO}$			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
X-variables in changes from first to last year of predecessor CEO's tenure								
Tobin's Q (chng)	-0.008 (-1.24)			-0.007 (-0.98)	-0.007 (-0.96)			-0.005 (-0.74)
ROA (chng)		-0.000 (-0.65)		-0.000 (-0.15)		-0.000 (-0.26)		-0.000 (-0.03)
MedRec (chng)			0.008 (0.75)	0.006 (0.50)			0.010 (0.92)	0.009 (0.77)
ClarityCEO _{Old}	-0.874*** (-21.79)	-0.874*** (-21.66)	-0.873*** (-21.70)	-0.874*** (-21.71)	-0.870*** (-21.55)	-0.869*** (-21.46)	-0.869*** (-21.51)	-0.870*** (-21.48)
N Obs	913	911	913	911	913	911	913	911
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
X-variables ind. adj.	No	No	No	No	Yes	Yes	Yes	Yes
Industry f.e.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.435	0.434	0.434	0.434	0.433	0.432	0.433	0.432

This table presents the results of cross-sectional weighted least squares (WLS) regressions of difference in CEO clarity ($\Delta\text{ClarityCEO}$) around CEO turnover events on trends in performance during the predecessor CEO's tenure. The dependent variable in all regressions, $\Delta\text{ClarityCEO}$, is the difference in clarity between the successor CEO and the predecessor. The performance variables *Tobin's Q*, *ROA* and *MedRec* are calculated as changes from the first to the last year of the predecessor CEO's tenure. *ClarityCEO_{Old}* and other control variables (the same as in Table 7) are expressed as average levels during the whole tenure of the predecessor CEO. We employ the number of quarterly observations during the tenure of the predecessor CEO as weights in the WLS regressions. This assigns higher importance to variables that could be computed with greater precision. Columns (1) - (4) are based on raw characteristics, while in Columns (5) - (8) the characteristics (including the explanatory variables) are first industry-adjusted. We require the interval between the last earnings call appearance of the predecessor CEO and the first appearance of the successor to be no longer than 120 days, and we require the firm to have enough data before and after the turnover to calculate CEO style of uncertainty talk, valuation metrics and control variables. *t* statistics shown in parentheses are based on robust standard errors. Significance levels: : * - 10%, ** - 5%, *** - 1%

A Appendix

Table A.1: Definitions of variables (sorted alphabetically within group)

Panel A: Call-level variables	
Outcome variables	
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
AnResp	Absolute value of the difference between analyst consensus forecast of quarter $t + 1$ earnings measured one day before and three days after the call in quarter t , scaled by the stock price 5 days before the call in quarter t
(A)CAR01	(Absolute) Cumulative Abnormal Return over [0:1] days relative to the call, in %. Abnormal stock returns are computed following Daniel, Grinblatt, Titman, and Wermers (1997) (DGTW); see Section 5.1 for details
CAR260	Cumulative Abnormal Return over [2:60] days relative to the call, in %. Abnormal stock returns are computed following Daniel, Grinblatt, Titman, and Wermers (1997) (DGTW); see Section 5.1 for details.
Comp	Total compensation of the CEO in thousand USD, according to ExecuComp, measured annually
MedRec	Median value of all recommendations issued by analysts covering the company. Recommendations are coded from 1 (Strong Buy) to 5 (Strong Sell) and reported by IBES.
ROA	Return on assets (in percent), that is, net income divided by total assets, multiplied by 100, measured annually
Tobin's Q	The ratio of the market value of assets to their book value
Speech variables	
AvoidAnsCEO	A measure of CEO answer avoidance computed according to Barth, Mansouri, and Woebeking (2020)
ComplexCall	The average number of words per sentence spoken by the CEO, CFO and analysts attending the call
ConcPre(Ans)CEO	The average concreteness of all words spoken by the CEO during the presentation part (when answering questions from analysts) on the call, based on concreteness scores for 40,000 British lemmas compiled by Brysbaert, Warriner, and Kuperman (2014)
NegCall (Δ NegCall)	The (change from previous quarter in the) percentage of negative words in all words spoken by the CEO, CFO and analysts attending the call
NumCall	The number of numbers per 100 words mentioned by the CEO, CFO and analysts attending the call
UncEPR	The percentage of uncertainty words in the earnings press release
UncPre(Ans)CEO	The percentage of uncertainty words in all words spoken by the CEO during the presentation part (when answering questions from analysts) on the call
UncQue	The percentage of uncertainty words in questions from analysts
UncResCEO	Residual uncertainty of manager's answers. Estimates as the residual from Equation 4, Section 4.4. Standardized to mean of 0 and standard deviation of 1
VagPre(Ans)CEO	The percentage of vague words in all words spoken by the CEO during the presentation part (when answering questions from analysts) on the call, based on the Hiller, Fisher, and Kaess (1969) dictionary of vague words
WordsCall	Total number of words spoken by the CEO, CFO and analysts attending the call
WordsPre(Ans)CEO	Total number of words spoken by the CEO during the presentation part (when answering questions from analysts) on the call
WordsQue	Total number of words in questions from analysts

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

Other variables	
AnDispPre	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 (in USD mln)
DailyVola	Stock volatility in quarter t computed from daily returns, in % annualized
EPS growth	The fraction by which earnings in a quarter exceed earnings in the same quarter in the prior year
FracInt	The ratio of firm's intangible capital, defined as in Peters and Taylor (2017), to total assets
Guidance	A binary indicator equal to one if a company provided earnings guidance for a given quarter, and zero otherwise
MarketRet	The 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
StockRet	Stock return (in %) 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 $t - 1$, divided by the stock price 5 days after the earnings announcement for quarter $t - 1$, multiplied by 100
SurpDec(Abs)	(Absolute value of) Deciles of percentage earnings surprise, which is itself 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. Specifically, SurpDec is obtained by grouping firms into five equally sized bins of positive surprise (numbered from 5 to 1, from largest positive to smallest positive surprise), then 0 for zero surprises, and then five equally sized bins of negative surprise from -1 (for the smallest negative surprises) through -5 (for the largest negative surprises).

Panel B: CEO-level variables

Ability	CEO ability according to Demerjian, Lev, and McVay (2012)
BirthYear	The last two digits of the CEO's birth year (according to ExecuComp)
ClarityCEO	CEO's clarity based on the language in earnings conference calls, calculated as the negative of γ_i , where γ_i is the fixed effect of CEO i in the frequency of uncertainty words in answers, estimated according to Equation 4, Section 4.4. Standardized to mean of 0 and standard deviation of 1
Female	Gender indicator, equal to 1 if the CEO is female (according to ExecuComp) and 0 otherwise

IA Internet Appendix

IA.1 Further comments on the methodology of estimating style

In many empirical studies, style is made evident by the importance of a manager fixed effect in variables related to a firm’s policies. The main challenge to such analyses lies in separating manager style from the effects of a firm’s organization or “culture”, since both the manager and the firm are observed simultaneously. The identification strategy spearheaded by Bertrand and Schoar (2003) relies on managers who transition from one firm to another. In such cases, firm-fixed effects can be included when regressing those variables style is expected to influence on manager-fixed effects. The continued significance of manager-fixed effects indicates that the outcome variable includes a component unique to a given manager, who carries it over when moving across firms. It shows that personal style matters even on top of unobserved firm heterogeneity. Bertrand and Schoar (2003) show more broadly that such a component can be identified for various measures of investment and financial policy, firm performance, and merger and acquisition activity. Their findings have spurred broad further inquiries using the same methodology. In the context of earnings calls, Davis, Ge, Matsumoto, and Zhang (2015) find their tone to contain a significant manager-specific component. Adams, Keloharju, and Knüpfer (2018) extract the CEO-firm policy fixed effects from a sample of movers and correlate them with personal characteristics such as cognitive and noncognitive abilities. Other These include, e.g., accounting practices (Ge, Matsumoto, and Zhang, 2011), tax avoidance (Dyreng, Hanlon, and Maydew, 2010), and the provision, intensity and accuracy of earnings guidance (Bamber, Jiang, and Wang, 2010; Brochet, Faurel, and McVay, 2011; Yang, 2012).

Fee, Hadlock, and Pierce (2013) argue that endogenous factors are likely to simultaneously produce both a manager transition and a shift in company policies. In support of their argument, they find no evidence of significant changes in asset growth, capital expenditure or leverage given turnover events that are exogenous to firm performance, such as deaths, health issues and retirements. However, 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 highlights the difficulties of identifying manager style from observables, which are also affected by other important stakeholders.

Our analysis contributes methodologically and substantively to this literature. We argue that the structure of conference calls provides not just one, but two, variables to measure the same linguistic features. To illustrate, in Figure IA.1 we plot $UncAns_{MGR}$ (Y-axis) against $UncPre_{MGR}$ (X-axis) for all CEOs and CFOs of S&P500 firms who attended at least 5 calls (and so MGR is either CEO or CFO).

There is considerable variation along both dimensions but certain clusters can be discerned. Focusing on CEOs in Panel (a), the triangles, indicating Van Honeycutt of Computer Sciences Corp (CSC), lie almost completely above the stars, which represent Gary Butler of Automatic Data Processing (AUD), both technology companies. By contrast, the stars and triangles appear quite well aligned along the X-axis. Taken together, this means that Van Honeycutt consistently uses *more* uncertain words when answering analyst questions than Gary Butler, despite the fact that these two CEOs employ a *similar* number of uncertain words in the presentation parts of their conference calls. Such similarity might be expected in the case of two companies in the same industry. Applying a Wilcoxon rank sum test, we can confirm that Van Honeycutt's *UncAns* is significantly higher than Gary Butler's, while there is no significant difference in *UncPre*.

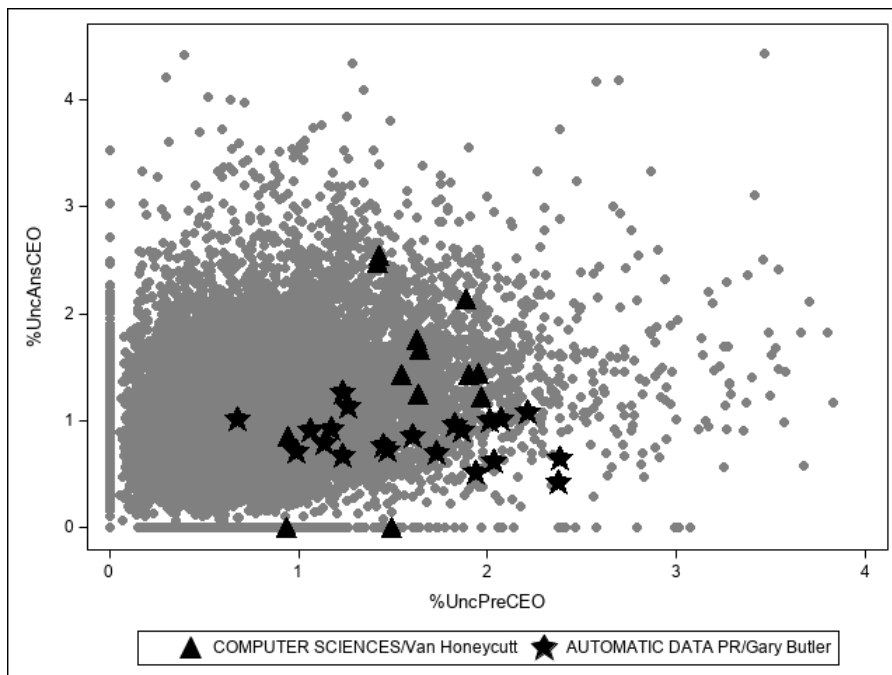
Similar insights emerge from Panel (b), where we highlight CFOs of two healthcare companies. Again, *UncPre* lies in a similar range for both but one CFO (David Elkins of Becton Dickinson) delivers consistently clearer answers than the other (Edward Stiften of Express Scripts Holdings). Here too, the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

Finally, it is interesting to observe that the points we highlight in Panel (a) are more dispersed along the X-axis and lie almost completely to the right of those in Panel (b). To the extent that technology companies typically face greater uncertainties, hence greater earnings fluctuations, than companies in the healthcare sector, this suggests that *UncPre* captures both systematic differences *across* firms as well as time-variation in business conditions *within* firms.

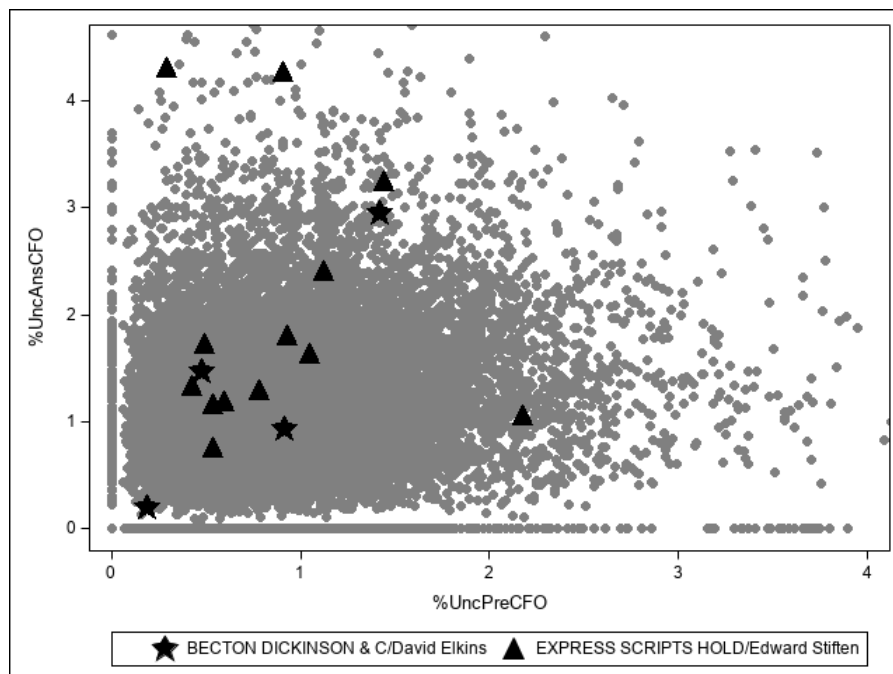
These examples illustrate that the language of answers is far from a mere reflection of the presentation part. They suggest that treating the two independently may provide additional insights. Our study explicitly contrasts the (relatively) extemporaneous answers part of the call with the (relatively) scripted presentation to separate manager clarity from company uncertainty. Thus, we are able to move beyond the narrow sample of movers and extract style for a much greater number of CEOs.

Figure IA.1: Distribution of the frequency of uncertain words in manager presentations and answers among S&P500 firms

(a) CEOs (N=1,087; NCalls=24,518)



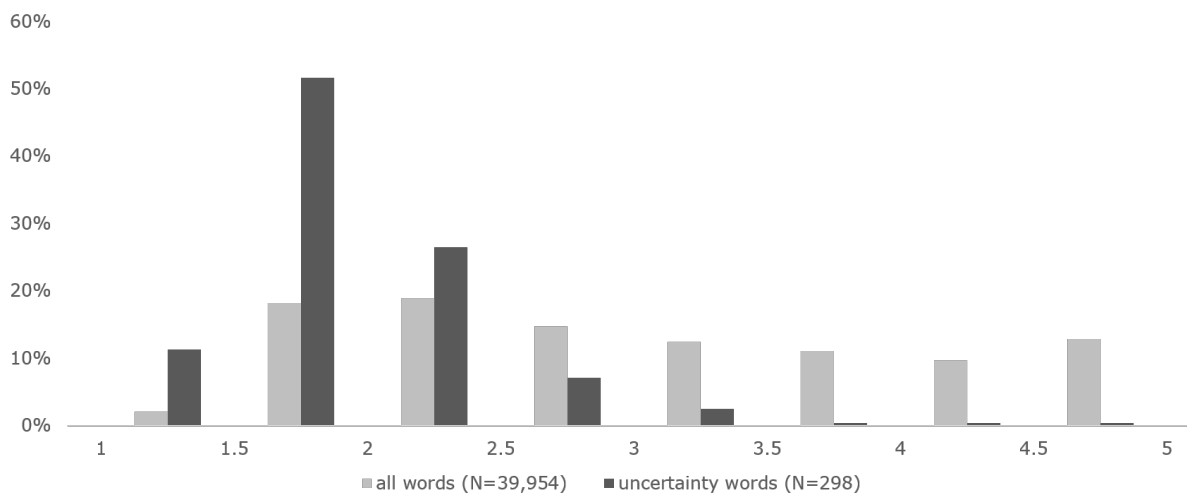
(b) CFOs (N=1,215; NCalls=26,308)



This figure plots $UncAns_{MGR}$ against $UncPre_{MGR}$ for all CEOs, in Panel (a), and CFOs, in Panel (b), of S&P500 firms, who have attended at least 5 calls between 2003 and 2015. In total, 24,518 calls involving 1,087 distinct CEOs and 26,308 calls involving 1,215 distinct CFOs are depicted.

IA.2 Further empirical results

Figure IA.2: Uncertainty vs. Concreteness



This figure shows the proportion of all words considered in Brysbaert, Warriner, and Kuperman (2014) as well as uncertainty words that fall within specific concreteness rating intervals. The concreteness rating is based on surveys of English speakers and ranges from 1 (most abstract) to 5 (most concrete).

Table IA.1: Comparison of different CEO style estimation approaches

	Correlation with baseline
(0) only CEO fixed effects	0.99
(1) UncPreCEO	0.99
(2) UncPreCEO + Firm chars	0.99
(3) Baseline (Eq. 4)	1
(4) Baseline + UncPreCFO + UncAnsCFO	0.96
(5) Baseline + UncPreCFO + UncAnsCFO + UncEPR	0.95
(6) Baseline + UncPreCFO + UncAnsCFO + UncEPR + AnDispPre	0.91
(7) Baseline + UncPreCFO + UncAnsCFO + UncEPR + AnDispPre + Δ UncPreCEO	0.90

In this table we compare the individual CEO fixed effects obtained under various specifications, including the baseline specification from Eq. 4. The dependent variable in each specification is *UncAnsCEO*, the frequency of uncertain words used by the CEO when answering questions from analysts. The first column lists control variables used in each specification. Specification (0) is equivalent to taking the average of *UncAns* for each CEO. Δ UncPreCEO is the change in the frequency of uncertain words in CEO presentations from the previous quarter to the current one. The second column presents correlations between fixed effects obtained from the baseline specification (3) and each of the alternative specifications.

Table IA.2: CFO clarity, earnings informativeness and the pricing of hard and soft earnings information

	Full sample					Turnover sample				
	ACAR01	AbnVol	AnalyResp	CAR01	CAR260	ACAR01	AbnVol	AnalyResp	CAR01	CAR260
SurpDecAbs	0.482*** (29.46)	0.047*** (25.18)	0.055*** (35.87)	1.454*** (11.93)	0.434* (1.68)	0.441*** (19.97)	0.052*** (22.56)	0.033*** (18.48)	1.329*** (7.45)	0.345 (0.94)
SurpDec				-5.019*** (-4.22)	-4.629* (-1.81)				-3.533** (-2.13)	-3.403 (-0.99)
Δ Neg	0.106*** (5.17)	0.018*** (8.57)	0.021*** (11.75)	0.051 (0.05)	0.022 (0.28)	0.104*** (3.88)	0.017*** (5.94)	0.021*** (8.82)	0.009 (0.009)	-0.124 (-0.124)
ClarityCFO	0.066** (2.28)	0.009** (2.25)	-0.003 (-1.07)	(1.36)	(0.28)	0.085** (2.14)	0.012** (2.42)	0.004 (1.04)	(0.16)	(-0.90)
ClarityCFO \times SurpDec				-0.013 (-1.01)	0.057** (2.21)				-0.013 (-0.58)	0.015 (0.40)
ClarityCFO \times Δ Neg				-0.211* (-1.80)	-0.110 (-0.43)				-0.162 (-1.00)	0.111 (0.31)
UncResCFO	-0.009 (-0.27)	0.000 (0.06)	0.002 (0.54)	0.127** (2.31)	-0.016 (-0.14)	0.023 (0.49)	-0.006 (-1.22)	-0.001 (-0.18)	0.142* (1.85)	0.221 (1.40)
UncResCFO \times SurpDec				-0.006 (-0.34)	-0.022 (-0.53)				-0.015 (-0.55)	-0.021 (-0.34)
UncResCFO \times Δ Neg				0.071 (0.37)	-0.191 (-0.45)				0.291 (1.09)	-0.383 (-0.68)
UncPreCFO	0.001 (0.02)	0.009*** (2.64)	-0.001 (-0.63)	-0.080** (-2.36)	-0.023 (-0.32)	0.051 (1.29)	0.013*** (3.33)	-0.002 (-0.76)	0.026 (0.45)	-0.128 (-0.96)
UncPreCFO \times SurpDec				-0.011 (-0.95)	0.006 (0.23)				-0.020 (-1.15)	0.054 (1.43)
UncPreCFO \times Δ Neg				0.061 (0.53)	-0.022 (-0.08)				0.063 (0.38)	0.263 (0.77)
AnDispPre	0.027 (0.97)	0.003 (0.96)	0.083*** (19.50)	0.281 (0.56)	-1.673 (-1.38)	-0.002 (-0.05)	-0.004 (-1.04)	0.087*** (14.01)	1.593* (1.78)	1.250 (0.62)
AnDispPre \times SurpDec				-1.098*** (-7.48)	0.598* (1.74)				-1.285*** (-5.84)	0.177 (0.36)
AnDispPre \times Δ Neg				-0.325 (-0.20)	-3.991 (-1.10)				0.647 (0.27)	-0.152 (-0.03)
N Obs	58,713	67,866	68,188	58,713	58,958	31,637	34,555	34,637	31,637	31,772
Controls (+ int)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year f.e.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Unit f.e.	Industry	Industry	Industry	Industry	Industry	Firm	Firm	Firm	Firm	Firm
R ²	0.097	0.077	0.250	0.136	0.005	0.050	0.074	0.161	0.142	0.025

Table IA.3: Summary statistics of the full sample

	N	mean	stdev	min	p25	p50	p75	max	
N calls	122,611								
N firms / Calls per firm	5,095 /	23.98	17.99	1	7	20	40	58	
N CEOs / Calls per CEO	9,859 /	11.59	11.78	1	3	7	17	75	
Outcome variables									
AbnVol	119,889	0.62	0.57	-0.89	0.23	0.60	0.99	2.26	
AnResp	113,313	0.26	0.49	0	0.03	0.09	0.26	4.54	
ACAR01(%)	99,252	5.22	4.77	0	1.64	3.76	7.39	24.54	
CAR01 (%)	99,252	0.02	7.07	-24.54	-3.66	0.04	3.86	23.04	
CAR260 (%)	99,251	0.17	14.78	-51.67	-7.86	0.25	8.37	51.25	
Comp (\$ths)	19,058	5,577	7,272	0	1,803	3,638	6,924	377,997	
MedRec	122,245	2.39	0.66	1	2	2.5	3	5	
ROA	37,693	3.51	22.44	-800.90	1.81	6.35	11.37	164.70	
Tobin's Q	122,250	1.95	1.34	0.71	1.10	1.48	2.24	8.22	
Speech variables									
AvoidAnsCEO	107,880	0.04	0.01	0	0.03	0.04	0.05	0.43	
ComplexCall	122,611	18.57	2.63	11.92	16.83	18.47	20.21	25.72	
ConcAnsCEO	107,871	2.85	0.09	1.07	2.80	2.85	2.91	4.10	
ConcPreCEO	108,419	2.97	0.09	1.89	2.91	2.97	3.03	4.52	
NegCall (%)	122,241	0.93	0.34	0.36	0.69	0.87	1.11	2.08	
NumCall	122,241	2.60	1.03	0	1.91	2.50	3.19	5.80	
UncAnsCEO (%)	113,097	0.79	0.41	0	0.52	0.75	1.02	2.09	
UncCall (%)	122,130	0.84	0.25	0.35	0.66	0.82	1.00	1.59	
UncEPR (%)	104,822	1.23	0.55	0	0.87	1.18	1.54	25	
UncPreCEO (%)	108,805	0.67	0.39	0	0.39	0.61	0.88	1.95	
UncQue (%)	119,285	1.28	0.45	0.22	0.98	1.26	1.56	2.62	
VagAnsCEO (%)	111,907	3.66	1.26	0	2.93	3.61	4.33	100	
VagPreCEO (%)	108,417	1.28	0.81	0	0.79	1.13	1.58	100	
WordsAnsCEO	114,649	1,852	1,258	0	906	1,640	2,565	12,890	
WordsCall	122,611	6,047	2,487	0	4,280	5,962	7,725	39,473	
WordsPreCEO	113,853	1,354	834	0	803	1,233	1,773	12,107	
WordsQue	122,611	1,274	832	0	783	1,200	1,644	36,243	
Other variables									
AnDispPre	99,341	0.05	0.07	0	0.02	0.03	0.06	0.43	
ln(Assets)	122,606	7.35	1.88	0.65	6.00	7.27	8.57	14.76	
DailyVola	122,371	40.46	27.14	1.72	23.33	33.34	48.89	773.30	
EPS growth (yoy)	118,172	-0.03	1.78	-8.44	-0.39	0.03	0.31	8.50	
FracInt	121,312	0.57	0.56	0	0.12	0.50	0.81	3.21	
Guidance	122,611	0.18	0.38	0	0	0	0	1	
MarketRet (%)	122,611	1.92	8.38	-32.68	-1.89	2.21	6.44	28.73	
StockRet (%)	122,269	2.19	20.18	-56.07	-7.82	1.96	11.39	76.75	
SurpDec	122,232	0.85	3.16	-5	-2	2	4	5	