



Managers' use of humor on public earnings conference calls

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Abstract

Despite the prevalence and importance of humor in interpersonal communication, the disclosure literature is silent on the use of humor in the context of corporate communication. Using a sophisticated machine learning algorithm, we identify managers' successful uses of humor during public earnings conference calls. When managers use humor on an earnings call, stock market returns and analyst forecast revisions following the call are more positive, primarily because of a muted response to negative earnings news. Consistent with managers' successful use of humor being a favorable signal of future firm performance, we find no evidence of a return reversal over the subsequent quarter, and managers' use of humor predicts more favorable news at the subsequent quarter's earnings announcement. Our study provides new evidence on the use of humor in corporate disclosures, and our findings indicate that humor can meaningfully influence the market response to public earnings conference calls.

Keywords Earnings conference calls · Humor · Disclosure · Financial Analysts · Management

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“Of all the communicative strategies that leaders utilize, the use of humor is most promising but least understood.” (Crawford 1994).

1 Introduction

Humor is ubiquitous in interpersonal communication, but the role of humor in corporate disclosures is not well understood. Research indicates that humor is associated with perceptions of competence and status (Bitterly et al. 2017), and a recent survey found that 91 percent of executives believe a sense of humor is important for career advancement (Robert Half 2017). We introduce the construct of humor into the disclosure literature and investigate whether managers’ successful use of humor during public earnings conference calls influences the market response to the calls.

Earnings conference calls represent an important opportunity for senior managers to discuss their company’s performance and for analysts to ask those managers about performance and prospects. In this setting, managers could use humor to signal confidence or to bring positive emotion into an otherwise uneasy discussion of negative company news. We address (i) whether manager, firm, or analyst characteristics are associated with managers’ use of humor on earnings conference calls; (ii) whether and how market participants respond to managers’ use of humor on earnings conference calls; and (iii) whether managers’ use of humor signals future firm performance.

These questions matter because managers have incentives to influence conference call outcomes, and humor is one means of doing so. Humor in the workplace has been studied extensively in organizational behavior (e.g., Avolio et al. 1999; Cooper 2005, 2008; Cooper et al. 2018; Yam et al. 2018), but its effects have not been examined in the context of corporate communication with external stakeholders. Research suggests that humor influences how individuals respond to communication and that managers use humor to influence employees (Avolio et al. 1999; Yam et al. 2018).¹ We extend this research by examining whether managers’ successful use of humor influences external stakeholders, such as analysts and investors. Identifying whether managers’ humor influences analysts or other market participants enriches the understanding of corporate communication. Further, the back-and-forth nature of the exchanges between managers and analysts on earnings conference calls makes this a useful disclosure setting to examine the use of humor as a communication tool.

To answer these questions, we use a sophisticated machine learning algorithm to analyze audio recordings of public earnings conference calls and identify occurrences of laughter in response to the use of humor. Research in psychology and management has examined the use of humor using experimental and survey data (e.g., Bitterly et al. 2017; Masten 1986; Pundt and Herrmann 2015). We use archival data to explore humor as an aspect of conference call dynamics. Our measure of humor relies on the psychology literature, which commonly uses laughter to proxy

¹ The power and importance of humor for managers is taught in a popular MBA elective at Stanford Graduate Business School (Stanford Graduate Business School 2017).

for successful uses of humor (e.g., Berger 1976; Bitterly et al. 2017; Duncan 1982; Scogin and Pollio 1980).

We create a simple algorithm that identifies the speaker responsible for each instance of humor. Specifically, if the laughter occurred between two sentences spoken by the same individual, we assign the use of humor to that individual. If the laughter did not occur between two sentences spoken by the same individual, we manually review the conference call audio files to assign the humor.² For example, on Honeywell's third quarter 2016 earnings call, Steve Tusa, an analyst with JP Morgan, asked: "Who's making the call on the buyback at this stage?" Dave Cote, chairman and CEO, responded: "Well, consistent with our policy over the last 15 years, I try to make all of these decisions with no input from anybody." The machine learning algorithm identified laughter during the sentence spoken by Cote. However, because the laughter did not occur between two sentences spoken by the same person, we manually listened to the audio file and assigned the humor to Cote.³ We identify managers' successful use of humor on 11.9 percent of earnings conference calls, and 54 percent of the unique firms in our sample have a manager who uses humor at least once during our sample period from 2011 to 2016. Our algorithm favors high precision over high recall, so it likely captures a lower bound of successful uses of humor on earnings conference calls.

We begin by examining the determinants of managers' use of humor on conference calls. The results of this indicate that managers are less likely to use humor on a call as the magnitude of negative earnings news becomes larger, suggesting they may feel uncomfortable attempting humor when earnings news is especially disappointing. Managers are also less likely to use humor when the tone of their comments is already positive, consistent with managers, on average, using humor to provide a positive signal on a call on which they are discussing negative news. Finally, managers are more likely to use humor when analysts' overall views of the firm are more positive.

We next consider the outcomes of managers' successful use of humor. We find that the two-day market reaction to the earnings conference call is more positive when managers use humor. When we examine how the response to positive or negative earnings news varies with the use of humor, our results indicate that the main effect of humor is primarily driven by a muted response to negative earnings news. Next we consider analysts' responses, finding that managers' use of humor when disclosing negative earnings news is associated with less negative revisions in analysts' earnings forecasts shortly after the call. Thus our results suggest that managers' use of humor on earnings conference calls mutes market participants' reactions to negative earnings news.

Given that managers' use of humor results in a more positive market reaction immediately after the call, in our next set of tests, we examine whether a subsequent

² We acknowledge that our proxy captures successful uses of humor with error. Laughter could result from something other than humor (e.g., awkward laughter), but our manual review of the conference call audio files suggests we captured intentional and successful attempts at humor. Further, any measurement error due to unidentified instances of humor, awkward laughter, or courtesy laughter is unlikely to relate systematically to our outcome measures.

³ For additional examples of humor in conference calls, refer to Appendix A.

reversal of this positive market reaction occurs. We find no evidence of a reversal in returns in the 30 or 60 trading days following the call. Furthermore, we find that managers' use of humor is positively associated with the firm's earnings surprise in the following quarter, consistent with managers' use of humor predicting favorable earnings news at the subsequent quarter's earnings announcement.

In summary, after controlling for the earnings surprise, the tone of analysts' questions and managers' responses, and other analyst and firm characteristics, we show that humor plays a meaningful role in public earnings conference calls. Further, humor has a significant association with immediate stock market reaction, subsequent analyst behavior, and future firm performance. Taken together, our evidence suggests that humor can soften the disclosure of negative news and signal relatively stronger future firm performance.

In additional analyses, we examine the outcomes of analyst humor on conference calls, after controlling for analyst characteristics, firm characteristics, and analyst-firm fixed effects, which account for the time-invariant characteristics of the relationship between an analyst and both the covered firm and its managers. We find that analysts who use humor successfully are allowed to ask longer questions, receive longer responses, and have more opportunities to interact with management later in the Q&A session than other analysts on the call—collective evidence that humor is associated with immediate benefits on the call.

We acknowledge that an individual's confidence or familiarity with a situation influences that person's propensity to use humor, and we have designed our empirical tests to address alternative explanations for our findings. When we test the outcomes of manager humor, we include firm fixed effects, which remove time-invariant characteristics of each firm and allow us to use each firm as its own control. To the extent that managerial turnover is low within our six-year sample period, these fixed effects also absorb time-invariant characteristics of each firm's managers, such as background or innate sense of humor. Additionally, we include control variables to address the concern that manager humor is driven by managerial ability, familiarity among participants, or the content of the call. Specifically, we control for firm characteristics, including firm performance, the general sentiment of the analysts on the call, and measures of earnings and non-earnings news discussed on the call. In our supplemental tests of analyst humor, we include interactive analyst-firm fixed effects, such that the coefficient estimate on our variable of interest captures the difference between an analyst's outcome on a firm's conference call when the analyst uses humor, relative to the same analyst's outcome on a call with the same firm when not using humor. We also control for time-series variation in analyst characteristics and abilities. Nevertheless, we acknowledge that these measures capture the characteristics of each call with noise.

We make several contributions to the literature. First, we introduce the use of humor on public earnings conference calls and document its determinants and consequences. While an extensive literature in psychology, management, marketing, and philosophy has examined the use of humor (e.g., Alden et al. 1993; Bitterly et al. 2017; Cooper et al. 2018; Martineau 1972; Morreall 1982; Yam et al. 2018), research on the effects of humor is new to the accounting literature. We identify humor as a useful communication tool during earnings conference calls, a disclosure setting that corporate

managers themselves indicate is particularly important (Brown et al. 2019). Research finds that managers use scripting (Lee 2016) and silence (Gow et al. 2021; Hollander et al. 2010) to influence the outcomes of conference call question-and-answer sessions. By showing that managers' successful use of humor softens investors' and analysts' responses to negative firm news and predicts favorable future performance, our findings suggest that humor can be a meaningful feature of managers' disclosures.

Our supplemental analyses contribute to the literature on financial analysts. Numerous studies in accounting examine the behavior of financial analysts and their attempts to curry favor with management (e.g., Chen and Matsumoto 2006; Ke and Yu 2006). We provide the first evidence that analysts' humor helps them gain greater access to managers during earnings conference calls.

2 Background and related research

2.1 Earnings conference calls

Earnings conference calls are a common form of voluntary disclosure. These calls are usually held in conjunction with earnings releases, and they are incrementally informative to market participants (e.g., Bushee et al. 2003; Frankel et al. 1999; Matsumoto et al. 2011). Their informativeness is partially due to the information disclosed during the call; however, the unique nature of conference calls as a live and interactive disclosure event also presents an opportunity for investors and analysts to gather additional information based on verbal and nonverbal cues. Research has examined many aspects of conference calls and their content, including the complexity (Bushee et al. 2018), tone (Call et al. 2021; Jung et al. 2018), and vocal pitch (Mayew and Venkatachalam 2012) of conference call interactions.

Our analyses focus on the use of humor during the conference call Q&A session, where analysts and investors have the opportunity to interact directly with company management. The Q&A portion of the call is typically more informative than the presentation portion, likely due to the participation of informed analysts (Matsumoto et al. 2011; Mayew et al. 2013), and research has found that analysts' questions influence managements' future disclosure decisions (Chapman and Green 2018).

2.2 Humor

The psychology, communications, and management literatures generally define humor as a social phenomenon, whereby a person communicates with the intent of amusing an audience (Bitterly et al. 2017; Cooper 2005, 2008; Meyer 2000; Warren and McGraw 2016). Numerous studies have linked the successful use of humor with perceived competence and success (Decker 1987; Greengross and Miller 2011; Masten 1986). When humor is used effectively, it is followed by various individual benefits, including increased motivation (Avolio et al. 1999) and improved status (Bitterly et al. 2017). Researchers theorize that these benefits occur because of an

increase in positive affect following the humorous event (e.g., Baron 1984; Carnevale and Isen 1986; Cooper 2008).

Research in organizational behavior finds that the benefits of humor also generalize to the workplace. For example, humor can be used to improve social interactions (Martineau 1972) and the quality of relationships at work (Cooper 2008; Cooper et al. 2018). Additionally, workplace humor has been associated with positive emotion in subordinates (Cooper et al. 2018), greater employee engagement (Yam et al. 2018), and higher employee performance (Avolio et al. 1999).

However, the association between humor and positive outcomes nearly always depends on the humor being successful. In fact, when humor fails, it often results in negative outcomes. Bitterly et al. (2017) find that an individual's inappropriate use of humor results in lower perceived competence, which in turn harms the person's status. In the workplace, humor that mocks others is associated with the deterioration of relationships (Pundt and Herrmann 2015) and reduced employee engagement (Yam et al. 2018). Because humor is subjective and its outcomes are uncertain, research has characterized the use of humor as risky (Bitterly et al. 2017) and a double-edged sword (Malone 1980). Uncertainty about how humor will be received within the high-stakes setting of a public earnings conference call likely reduces managers' willingness to attempt to use humor.

Studying humor poses an interesting challenge in archival research because the success or failure of humor is often unobservable. However, by identifying moments of laughter, our setting allows us to introduce a new empirical proxy for the successful use of humor on earnings conference calls. This proxy relies on research that uses observed laughter to measure the successful use of humor (e.g., Berger 1976; Bitterly et al. 2017; Duncan 1982; Scogin and Pollio 1980).

3 Hypothesis development

Conference calls represent an important opportunity for managers to shape the narrative surrounding their company's performance, and they carefully prepare and practice their opening remarks. Although they likely improvise to some degree during the Q&A session, they also script questions they anticipate receiving and rehearse answers before the call (Brown et al. 2019; Lee 2016). We argue that managers' use of humor can send a positive signal to the market and enhance market participants' perceptions of the company. This expectation is grounded in research tying the successful use of humor to higher perceptions of competence and success (Decker 1987; Greengross and Miller 2011; Masten 1986).

For example, humor can inspire investor confidence in managers' ability to lead the company. If managers' successful use of humor can signal positive firm prospects, we expect that investors will respond more favorably to the earnings call when managers successfully use humor. The market incorporates analyst research into expectations of firm performance and price discovery (Gleason and Lee 2003); thus managers have reason to encourage analysts to maintain a positive outlook on their firm. Because the use of humor is associated with an increase in positive affect (e.g., Baron 1984; Carnevale and Isen 1986; Cooper 2008), we expect that using humor

with analysts is one way managers could achieve this goal. Thus we predict that investors and analysts react more favorably when managers successfully use humor on public earnings conference calls.

However, there may be no response to humor if findings on humor do not generalize to the conference call setting or if market participants respond negatively to managers' use of humor. For example, research indicates that managers tend to follow scripts, and this lack of spontaneity is negatively associated with the market reaction to the call (Lee 2016). If managers' successful use of humor appears scripted, then the market may respond negatively to the use of humor. Further, managers could use humor to avoid providing answers to unwanted analyst questions. To the extent that managers use humor as a deflection tool, we would expect the market to respond negatively (see Hollander et al. 2010; Milgrom 1981). Given these opposing arguments, we state our first hypothesis in the null form.

Hypothesis 1a: *Market participants do not react more favorably to earnings conference calls when a manager successfully uses humor on the call.*

Next we examine whether managers' successful use of humor influences the responses of market participants to the earnings news discussed on an earnings conference call. If managers use humor when they discuss positive earnings news, this signal may elicit a more favorable response. Similarly, managers' use of humor when they discuss negative earnings news may reassure the market and soften a negative earnings surprise. Accordingly, we expect that the relation between humor and the responses of investors and analysts will vary with the nature of the earnings news that management is discussing. Of course, investors' and analysts' responses may be based on the earnings news alone, irrespective of managers' use of humor. Thus we state our second hypothesis in the null form.

Hypothesis 1b: *Market participants' reaction to the earnings news discussed on earnings conference calls does not vary with a manager's successful use of humor on the call.*

Our next two hypotheses more directly examine managers' use of humor as a signal of favorable future performance. If managers use humor opportunistically to elicit more favorable short-term returns, then we would expect positive announcement period returns to subsequently reverse. On the other hand, if humor credibly signals future firm performance, then we would not expect a subsequent reversal. We state this hypothesis in the null form.

Hypothesis 2: *A manager's successful use of humor on the call is not associated with future return reversals.*

Relatedly, we expect managers who use humor on earnings calls are, on average, signaling positive expectations about firm performance. If managers use humor when they have private information about the firm's prospects, then we expect humor will be positively associated with the firm's earnings surprise in the following

quarter. On the other hand, if humor is used opportunistically to impact short-term market returns, then there may be no association or perhaps a negative one, between the use of humor and future earnings news. Our final hypothesis is stated as follows:

***Hypothesis 3:** A manager's successful use of humor on the call is not associated with future firm performance.*

4 Sample and data description

4.1 Data

We obtain a sample of 63,560 conference call transcripts from Factiva's Fair Disclosure (FD) Wire between 2011 and 2016. To facilitate the measurement of humor (see Sect. 4.2 below), we require that the transcripts have a corresponding audio file from Earnings Cast, which reduces the size of our sample to 29,100 calls. Finally, we remove 14,760 calls for which we lack data from Compustat, CRSP, or IBES to compute the control variables used in our empirical analyses. Thus our primary tests use 14,340 unique conference calls with sufficient data to identify whether humor was used successfully on the call and to calculate our variables.

4.2 Measurement of humor

We use the audio recordings of public earnings conference calls to measure the successful use of humor. We first use the aeneas package in Python to link sentences in the conference call transcript files to timestamps in the audio files. Using these timestamps, we then create separate audio snippets for each sentence. These audio snippets are typically about seven to 15 seconds long. We then use the laughter-detection package in Python to identify instances of laughter in the audio file snippets. The laughter-detection package is a machine learning algorithm that begins with an open-source model trained on telephone conversations (Gillick 2021; Gillick et al. 2021; Ryokai et al. 2018). We adapt this algorithm to our domain using a training sample of 50 recordings of public earnings conference calls with laughter manually coded by human research assistants. As a result of our domain adaptation procedures, we modify the algorithm to require that instances of laughter last at least one second, and we use a 99 percent probability cutoff. Within the training sample, this results in precision of 100 percent and recall of 40 percent. That is, 100 percent of the instances of laughter identified by the algorithm are true instances of laughter, and the algorithm correctly identifies four in 10 instances of laughter.⁴ Trading off precision and recall is an important decision in any machine learning approach. For our research questions, we chose to accept a lower recall (i.e., greater

⁴ We also performed an out-of-sample test on a random sample of 100 conference call audio files with laughter coded by Mechanical Turk (Mturk) workers and obtained precision of 100 percent and recall of 37 percent.

false negatives) in exchange for much higher precision (i.e., fewer false positives). Because of this trade-off, the frequency of humor captured by our measure is likely to represent a lower bound of humor used successfully by managers and analysts on earnings conference calls.

After merging instances of laughter to the transcripts, we assign the humor to the specific manager or analyst. If the laughter occurred between two sentences spoken by the same individual, we assign the humor to that individual. If the laughter did not occur between two sentences spoken by the same individual, we manually check the use of humor by listening to the call to identify the person responsible for the humorous statement. For examples of the use of humor in our sample of conference calls, please refer to Appendix A.

Our manual review of the audio files supports the use of laughter as a proxy for the intentional and successful use of humor, but we acknowledge that this proxy is likely to contain some measurement error. However, any measurement error due to unidentified instances of humor, awkward laughter, or courtesy laughter is unlikely to relate systematically to our outcome measures.⁵

5 Research design and empirical results

5.1 Descriptive statistics

Table 1 Panel A presents descriptive statistics for our analyses. Managers successfully use humor on 11.9 percent of conference calls (*Humor_Manager*), and, in untabulated statistics, we find that about 54 percent of the unique firms in our sample have a manager who uses humor on at least one earnings call during our 2011–2016 sample period. Because our algorithm favors precision over recall, these statistics likely represent a lower bound on the frequency of successful humor on earnings conference calls. The firms in our sample are relatively large, with an average market value of equity (*MVE*) of \$11.5 billion.

In Fig. 1, we examine the distribution of manager humor on conference calls across the 1,273 unique firms in our sample. Of that total, 225 firms (17.7 percent) have managers who use humor successfully in less than 10 percent of their earnings conference calls in our sample, 204 (16.0 percent) use humor in 10 percent–20 percent of calls, and 256 (20.1 percent) use humor in more than 20 percent of calls. In untabulated descriptive analysis, we find that, among the conference calls we identify with at least one manager successfully using humor, 70.5 percent contain at least one instance of humor by the CEO, 22.1 percent contain at least one instance of humor by the CFO, and 15.1 percent contain at least one instance of humor by another executive (e.g., COO). Managers of about 46 percent of the firms in our sample do not use humor on any earnings calls during our sample period, although

⁵ Jennings et al., (2022) show that measurement error can bias in favor of falsely rejecting a true null hypothesis in the presence of high-dimensional fixed effects. We therefore re-estimate our analyses excluding fixed effects and find that our results are robust to this alternative specification.

Table 1 Descriptive Statistics

Panel A. Descriptive Statistics					
Variable	Mean	Std. Dev	Q1	Median	Q3
$CAR[0, + 1]_{i,q}$	0.002	0.075	-0.036	0.002	0.043
$ChangeForecast_{i,q}$	-0.001	0.005	-0.002	0.000	0.000
$CAR[+ 2, + 30]_{i,q}$	0.006	0.093	-0.044	0.003	0.049
$FutureEarnSurp_{i,q}$	-0.001	0.011	-0.002	0.000	0.001
$Humor_Manager_{i,q}$	0.119	0.323	0.000	0.000	0.000
$Tone_Manager_{i,q}$	0.373	0.207	0.239	0.393	0.528
$MVE_{i,q}$	11,558	20,759	1,159	3,497	11,516
$BTM_{i,q}$	0.418	0.351	0.199	0.353	0.571
$Momentum_{i,q}$	0.000	0.092	-0.048	0.000	0.048
$PosEarnSurp_{i,q}$	0.002	0.004	0.000	0.000	0.002
$ NegEarnSurp_{i,q} $	0.001	0.005	0.000	0.000	0.000
$RetVol_{i,q}$	0.021	0.010	0.013	0.018	0.025
$FourthQuarter_{i,q}$	0.214	0.410	0.000	0.000	0.000
$PosGuidance_{i,q}$	0.024	0.154	0.000	0.000	0.000
$NegGuidance_{i,q}$	0.112	0.316	0.000	0.000	0.000
$Tone_Analyst_{i,q}$	0.300	0.299	0.105	0.310	0.500
$Humor_Analyst_{i,q}$	0.079	0.269	0.000	0.000	0.000
$Humor_AnalystFirst_{i,q}$	0.057	0.232	0.000	0.000	0.000
$LagHumor_Manager_{i,q}$	0.120	0.324	0.000	0.000	0.000
$\#Partic_{i,q}$	8.711	3.864	6.000	8.000	11.000
$AvgRec_{i,q}$	3.690	0.429	3.389	3.700	4.000
$AvgRecHorizon_{i,q}$	1.591	0.617	1.158	1.509	1.942
$AvgFirmExp_{i,q}$	5.636	2.472	3.839	5.431	7.192
$AvgGenExp_{i,q}$	14.671	3.510	12.465	14.764	16.996
$AvgForFreq_{i,q}$	21.191	7.252	16.500	20.154	24.500
$AvgCompanies_{i,q}$	18.113	3.240	16.096	18.000	19.875
$AvgBSize_{i,q}$	54.562	15.178	45.325	55.333	64.302
$AvgIndustries_{i,q}$	4.144	1.759	2.703	4.176	5.500
$AvgAccuracy_{i,q}$	0.091	0.114	0.027	0.054	0.107

Panel B: Difference in Means for Subsamples Based on $Humor_Manager_{i,q}$

Variable	$Humor_Manager_{i,q} = 1$	$Humor_Manager_{i,q} = 0$	t-stat
$CAR[0, + 1]_{i,q}$	0.011	0.001	5.08***
$ChangeForecast_{i,q}$	-0.0013	-0.0008	4.09***
$CAR[+ 2, + 30]_{i,q}$	0.005	0.006	0.31
$Future EarnSurp_{i,q}$	0.000	-0.001	4.28***
$Tone_Manager_{i,q}$	0.368	0.374	1.06
$MVE_{i,q}$	12,670	11,408	2.35**
$BTM_{i,q}$	0.406	0.420	1.56
$Momentum_{i,q}$	0.007	-0.001	3.19***
$PosEarnSurp_{i,q}$	0.002	0.002	0.33
$ NegEarnSurp_{i,q} $	0.001	0.001	4.05***

Table 1 (continued)

<i>RetVol</i> _{<i>i,q</i>}	0.020	0.021	3.58***
<i>FourthQuarter</i> _{<i>i,q</i>}	0.236	0.211	2.36**
<i>PosGuidance</i> _{<i>i,q</i>}	0.026	0.024	0.61
<i>NegGuidance</i> _{<i>i,q</i>}	0.101	0.114	1.54
<i>Tone_Analyst</i> _{<i>i,q</i>}	0.309	0.299	1.34
<i>Humor_Analyst</i> _{<i>i,q</i>}	0.201	0.062	20.13***
<i>Humor_AnalystFirst</i> _{<i>i,q</i>}	0.088	0.053	5.75***
<i>LagHumor_Manager</i> _{<i>i,q</i>}	0.251	0.102	17.92***
<i>#Partic</i> _{<i>i,q</i>}	9.676	8.581	11.02***
<i>AvgRec</i> _{<i>i,q</i>}	3.720	3.686	3.14***
<i>AvgRecHorizon</i> _{<i>i,q</i>}	1.595	1.590	0.33
<i>AvgFirmExp</i> _{<i>i,q</i>}	5.750	5.621	2.02**
<i>AvgGenExp</i> _{<i>i,q</i>}	14.801	14.654	1.63
<i>AvgForFreq</i> _{<i>i,q</i>}	21.745	21.116	3.35***
<i>AvgCompanies</i> _{<i>i,q</i>}	18.139	18.109	0.36
<i>AvgBSize</i> _{<i>i,q</i>}	55.949	54.376	4.01***
<i>AvgIndustries</i> _{<i>i,q</i>}	4.112	4.148	0.79
<i>AvgAccuracy</i> _{<i>i,q</i>}	0.091	0.091	0.07

Panel A of this table presents the descriptive statistics for the variables used in the firm-level analyses. Panel B presents the difference in means for all variables used in the firm-level analyses based on subsamples of *Humor_Manager*_{*i,q*}. All variables are defined in Appendix B. All continuous variables are winsorized at the first and 99th percentiles. The sample spans 2011 to 2016 and includes 14,340 firm-quarter observations

note that, in an effort to increase the power of our tests, our machine learning algorithm favors precision over recall. Thus our estimate of managers' use of humor is likely understated. Still, the majority of the firms in our sample successfully use humor on at least one earnings call over the course of our sample period.

In Fig. 2, we examine the distribution of managers' successful use of humor by industry. We find that the energy industry has the greatest proportion of managers using humor, followed by the "other" and utilities industries. We find that the energy and utilities industries have the greatest proportion of managers eliciting laughter on the call, suggesting executives in these industries often have an electrifying sense of humor. Within these industries, managers use humor on 15 percent or more of earnings conference calls. The finance industry exhibits the lowest proportion of conference calls with humor by managers, with only 4.6 percent of calls containing humor by a manager.

Table 1 Panel B presents differences in means for firms whose managers successfully use humor on the conference call, compared to firms whose managers do not. As preliminary evidence that managers' humor is associated with an improved market response to conference calls, the two-day cumulative abnormal return (*CAR*[0, +1]) is higher when a manager uses humor, and future earnings surprises (*FutEarnSurp*) are more positive when a manager uses humor. We observe that

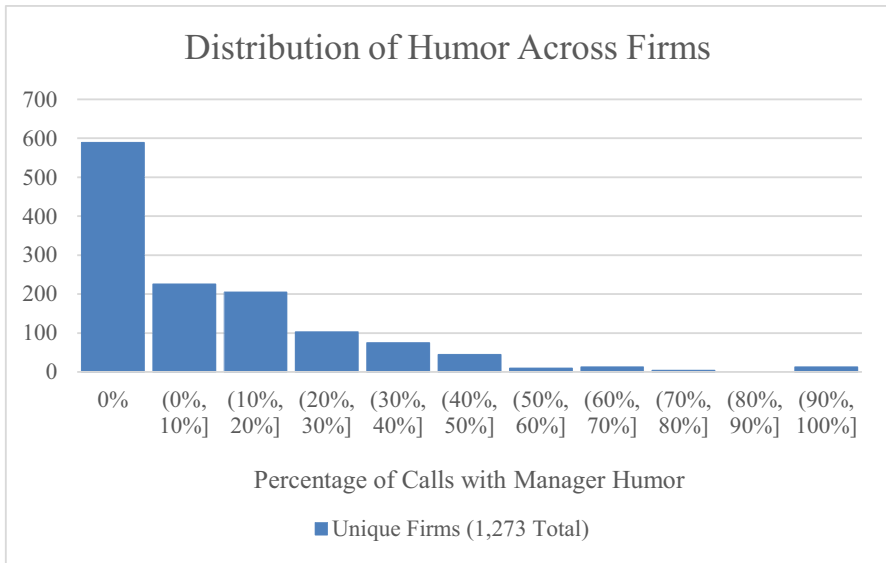


Fig. 1 This figure presents the distribution of humor across firms. The bars represent the number of firms by percentage of firm conference calls with at least one instance of manager humor

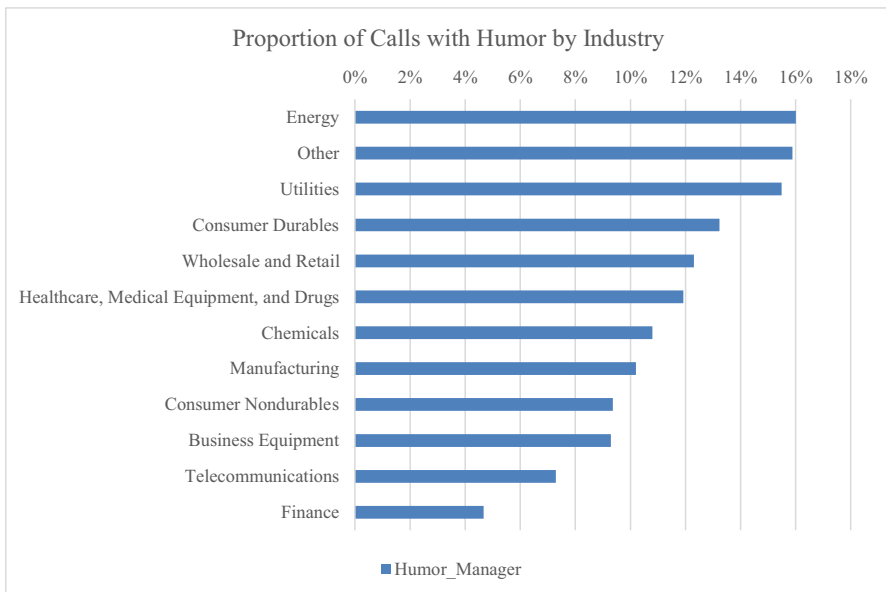


Fig. 2 This figure presents the distribution of humor across Fama-French 12 industries. The bars represent the percentage of conference calls in each industry with at least one instance of manager humor

managers who use humor are employed by larger firms (*MVE*) with more positive stock price momentum (*Momentum*), and that the analysts who cover these firms are also more likely to use humor (*Analyst Humor*). We explore these results below.

5.2 Determinants of manager humor

We model the likelihood that a firm's manager successfully uses humor as a function of conference call characteristics, firm characteristics, and the average characteristics of all analysts on the call:

$$\begin{aligned}
 \Pr(\text{Humor_Manager}_{i,q}) = & \beta_0 + \beta_1 \text{PosEarnSurp}_{i,q} + \beta_2 |\text{NegEarnSurp}_{i,q}| + \beta_3 \text{Tone_Manager}_{i,q} + \beta_4 \text{LagHumor_Manager}_{i,q} \\
 & + \beta_5 \ln(\text{MVE}_{i,q}) + \beta_6 \text{BTM}_{i,q} + \beta_7 \text{Momentum}_{i,q} + \beta_8 \text{RetVol}_{i,q} + \beta_9 \text{FourthQuarter}_{i,q} \\
 & + \beta_{10} \text{PosGuidance}_{i,q} + \beta_{11} \text{NegGuidance}_{i,q} + \beta_{12} \text{Tone_Analyst}_{i,q} + \beta_{13} \text{Humor_AnalystFirst}_{i,q} \\
 & + \beta_{14} \ln(\# \text{Partic}_{i,q}) + \beta_{15} \text{AvgRec}_{i,q} + \beta_{16} \text{AvgRecHorizon}_{i,q} + \beta_{17} \text{AvgFirmExp}_{i,q} \\
 & + \beta_{18} \text{AvgGenExp} + \beta_{19} \text{AvgForFreq}_{i,q} + \beta_{20} \text{AvgCompanies}_{i,q} \\
 & + \beta_{21} \text{AvgBSize}_{i,q} + \beta_{22} \text{AvgIndustries}_{i,q} + \beta_{23} \text{AvgAccuracy}_{i,q} + \varepsilon,
 \end{aligned} \tag{1}$$

where *Humor_Manager* is an indicator variable that captures managers' successful use of humor. To capture the context in which humor is more commonly used, we include measures of earnings surprise (*PosEarnSurp* and $|\text{NegEarnSurp}|$) and tone (*Tone_Manager* and *Tone_Analyst*).⁶ Because managers often bundle earnings forecasts with earnings releases, we also include indicator variables for management's forward-looking earnings guidance released within the three days surrounding the earnings call (*PosGuidance* and *NegGuidance*). The other firm-level variables we employ include market value of equity ($\ln(\text{MVE})$), the firm's book-to-market ratio (*BTM*), momentum (*Momentum*), and return volatility (*RetVol*). We also include variables capturing the characteristics of analysts on the call (Mayew et al. 2013). The "Avg" appendage to the analyst control variable names indicates that the variable is an average measure of the analysts who participate on the earnings conference call. All variables are defined in Appendix B.

Table 2 presents our estimation of the determinants of successful manager humor.⁷ We find that managers are less likely to use humor as the magnitude of negative earnings news increases ($|\text{NegEarnSurp}|$) and when the tone of their responses is more positive (*Tone_Manager*). This suggests that the use of humor may serve as

⁶ We use the absolute value of negative earnings surprises ($|\text{NegEarnSurp}|$), so each measure of firm news captures the magnitude of the positive or negative earnings news.

⁷ While our primary tests utilize a logistic regression model, our results are robust to estimating a linear probability model using OLS.

Table 2 Likelihood of Managers Successfully Using Humor on Conference Calls

	$Dep\ Var = Pr(Humor_Manager_{a,i,q})$
<i>Intercept</i>	-5.421*** (-5.627)
<i>PosEarnSurp_{i,q}</i>	6.877 (0.808)
$ NegEarnSurp_{i,q} $	-16.470* (-1.895)
<i>Tone_Manager_{i,q}</i>	-0.494*** (-2.793)
<i>LagHumor_Manager_{i,q}</i>	1.000*** (12.588)
$\ln(MVE_{i,q})$	-0.015 (-0.382)
<i>BTM_{i,q}</i>	0.109 (0.951)
<i>Momentum_{i,q}</i>	0.880*** (2.737)
<i>RetVol_{i,q}</i>	-3.981 (-1.072)
<i>FourthQuarter_{i,q}</i>	0.131** (2.114)
<i>PosGuidance_{i,q}</i>	-0.002 (-0.013)
<i>NegGuidance_{i,q}</i>	-0.189* (-1.774)
<i>Tone_Analyst_{i,q}</i>	0.186* (1.763)
<i>Humor_AnalystFirst_{i,q}</i>	0.365*** (3.671)
$\ln(\#Partic_{i,q})$	0.725*** (7.437)
<i>AvgRec_{i,q}</i>	0.245*** (2.901)
<i>AvgRecHorizon_{i,q}</i>	-0.003 (-0.018)
<i>AvgFirmExp_{i,q}</i>	-0.026 (-0.219)
<i>AvgGenExp_{i,q}</i>	0.147 (0.916)
<i>AvgForFreq_{i,q}</i>	0.058 (0.479)
<i>AvgCompanies_{i,q}</i>	0.039 (0.185)

Table 2 (continued)

	<i>Dep Var = Pr(Humor_Manager_{a,i,q})</i>
<i>AvgBSize_{i,q}</i>	0.080 (0.533)
<i>AvgIndustries_{i,q}</i>	0.001 (0.010)
<i>AvgAccuracy_{i,q}</i>	0.140 (0.389)
#OBS	14,340
Area Under ROC	0.6465
Pseudo R ²	0.043

This table includes all firm-quarter observations from 2011 to 2016 with sufficient data to calculate the dependent and independent variables. The dependent variable is an indicator variable equal to 1 if a manager elicits humor during the conference call of firm i in quarter q and equal to 0 otherwise ($Humor_Manager_{i,q}$). Standard errors are clustered by firm. All variables are defined in Appendix B. All continuous variables are winsorized at the 1% and 99% levels. *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively

a substitute for positive tone, and that managers become more hesitant to use humor as earnings news becomes increasingly negative. On the other hand, managers are more likely to use humor when analysts' overall views of the firm ($AvgRec$) are more positive and when the tone of analysts' questions is more positive ($Tone_Analyst$) as well as when there are more analysts on the call ($ln(\#Partic)$). We also find that managers are more likely to use humor during the firm's fourth quarter ($Fourth_Quarter$) than during other quarters.⁸ Finally, the positive and significant coefficient on $LagHumor_Manager$ suggests that managers who have used humor successfully on a conference call are more likely to do so on a subsequent call.⁹

5.3 Outcomes of manager humor

Hypotheses 1a and 1b, stated in null form, predict that market participants will not respond more favorably when managers use humor on public earnings conference calls and that market participants' response to the information discussed during the calls will not vary with managers' use of humor. To examine these hypotheses, we

⁸ In an untabulated test, we find that managers use humor in approximately 13 percent of fourth quarter earnings conference calls, which is significantly greater than their use of humor in 11.5 percent of other quarterly earnings conference calls ($p < 0.05$).

⁹ In an untabulated test, we estimate a model with fully standardized coefficients to capture the relative importance of the determinants in our model. The results of this test indicate that $LagHumor_Manager$, $ln(\#Partic)$, $AvgRec$, $Tone_Manager$, $ln(NegEarnSurpl)$, $Humor_AnalystFirst$, and $Momentum$ are the most significant determinants, followed by $NegGuidance$, $Tone_Analyst$, and $FourthQuarter$.

examine the reactions of both investors and analysts using the firm's earnings surprise, which is arguably the single most important piece of news disclosed at the time of the call. We measure positive and negative news based on the sign and magnitude of the earnings surprise ($PosEarnSurp$ and $|NegEarnSurp|$). Because managers discuss past performance and provide forward-looking information on the call, we also control for the tone of their comments during the call ($Tone_Manager$).

5.3.1 Investor reaction

Our research design for testing investors' response takes the following form:

$$\begin{aligned}
 CAR[0,+1]_{i,q} = & \beta_1 Humor_Manager_{i,q} + \beta_2 PosEarnSurp_{i,q} + \beta_3 |NegEarnSurp_{i,q}| \\
 & + \beta_4 Humor_Manager_{i,q} \times PosEarnSurp_{i,q} + \beta_5 Humor_Manager_{i,q} \times |NegEarnSurp_{i,q}| \\
 & + \beta_6 Tone_Manager_{i,q} + \beta_7 Tone_Analyst_{i,q} + \beta_8 \ln(MVE_{i,q}) + \beta_9 BTM_{i,q} + \beta_{10} Momentum_{i,q} \quad (2) \\
 & + \beta_{11} RetVol_{i,q} + \beta_{12} PosGuidance_{i,q} + \beta_{13} NegGuidance_{i,q} + \beta_{14} Humor_Analyst_{i,q} \\
 & + \beta_{15} LagHumor_Manager_{i,q} + FirmFE + YearQuarterFE + \varepsilon.
 \end{aligned}$$

$CAR[0,+1]$ is the cumulative size-adjusted returns for the two-day $[0,+1]$ window surrounding the conference call. $PosEarnSurp$ and $|NegEarnSurp|$ proxy for the nature of the information discussed on the call. We first estimate the main effect of humor (Hypothesis 1a). Next we include interactions of $Humor_Manager$ with both $PosEarnSurp$ and $|NegEarnSurp|$ (Hypothesis 1b). To address the concern that managers' successful use of humor and stock returns are both driven by positive firm performance, the vector of firm controls includes variables that capture the tone of managers' comments ($Tone_Manager$) and stock return momentum ($Momentum$). We further control for the general sentiment of the call by including the average tone of analysts' questions ($Tone_Analyst$).¹⁰ We also control for the issuance of forward-looking guidance by including variables that indicate whether managers provide positive or negative earnings guidance for the following quarter within the three-day window centered on the earnings conference call date ($PosGuidance$ and $NegGuidance$). All other variables are as defined previously in Appendix B.

Table 3 presents the results of these tests. Column (1) presents the baseline model. Consistent with managers' use of humor serving as a positive signal, our results indicate that the market reacts more positively when managers use humor on the earnings call ($Humor_Manager$). The coefficient on $Humor_Manager$ is 0.007 ($p < 0.01$), which corresponds to a 0.7 percent increase in returns when managers

¹⁰ As an additional control for the general sentiment at the time of the call, we include the tone of the firm's earnings press release, which we retrieve from RavenPack. Our inferences are robust to the inclusion of this additional control variable (untabulated).

Table 3 Stock Market Reaction to Managers' Use of Humor on Conference Calls

	[1]	[2]
$Humor_Manager_{i,q}$	0.007*** (3.545)	0.005** (2.255)
$PosEarnSurp_{i,q}$	3.269*** (10.184)	3.271*** (10.025)
$ NegEarnSurp_{i,q} $	-1.848*** (-7.368)	-1.949*** (-7.703)
$Humor_Manager_{i,q} \times PosEarnSurp_{i,q}$		0.106 (0.131)
$Humor_Manager_{i,q} \times NegEarnSurp_{i,q} $		1.885** (1.964)
$ToneManager_{i,q}$	0.072*** (14.962)	0.072*** (14.951)
$ToneAnalyst_{i,q}$	0.040*** (14.096)	0.040*** (14.064)
$\ln(MVE_{i,q})$	-0.026*** (-8.187)	-0.026*** (-8.187)
$BTM_{i,q}$	0.014** (2.271)	0.014** (2.315)
$Momentum_{i,q}$	-0.047*** (-5.030)	-0.048*** (-5.204)
$RetVol_{i,q}$	0.192 (1.357)	0.178 (1.263)
$PosGuidance_{i,q}$	0.039*** (7.453)	0.039*** (7.480)
$NegGuidance_{i,q}$	-0.035*** (-12.209)	-0.035*** (-12.209)
$Humor_Analyst_{i,q}$	0.007*** (2.998)	0.007*** (3.043)
$LagHumor_Manager_{i,q}$	-0.004* (-1.947)	-0.004* (-1.912)
Firm Fixed Effects	Included	Included
Year-Quarter Fixed Effects	Included	Included
#OBS	14,340	14,340
Adjusted R ²	0.186	0.187

This table includes all firm-quarter observations from 2011 to 2016 with sufficient data to calculate the dependent and independent variables. The dependent variable is equal to the cumulative size-decile adjusted returns for the [0,+1] window surrounding the conference call date of firm i in quarter q ($CAR[0,+1]_{i,q}$). Standard errors are clustered by firm. Firm and year-quarter fixed effects are included (untabulated). All variables are defined in Appendix B. All continuous variables are winsorized at the 1% and 99% levels. *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively

use humor, relative to a mean return of 0.01 percent. This result is consistent with psychology research that suggests the use of humor is associated with higher perceived competence and success (e.g., Decker 1987; Masten 1986). In Column (2), we examine the interaction between managers' use of humor and positive and negative earnings surprise. We observe an insignificant coefficient on *Humor_Manager* × *PosEarnSurp*. However, we find a positive and significant coefficient on the interaction between *Humor_Manager* and $|NegEarnSurp|$, suggesting managers' successful use of humor softens the market response to negative earnings news. The coefficient on $|NegEarnSurp|$ is -1.949 ($p < 0.01$) and the coefficient on the interaction term is 1.885 ($p < 0.05$), suggesting that managers' use of humor mitigates the negative response to a negative earnings surprise.¹¹ Thus Table 3 shows that market participants' respond more favorably to earnings conference calls when managers use humor successfully, rejecting the null Hypothesis 1a. Further, we find that investors' response to negative information in conference calls is softened when managers use humor, rejecting the null Hypothesis 1b.

5.3.2 Analyst responses

Next we examine analysts' responses to managers' successful use of humor on earnings conference calls. To measure these responses, we examine changes in analyst forecast revisions after the call. Our research design takes the following form:

$$\begin{aligned}
 ChgForecast_{i,q} = & \beta_1 Humor_Manager_{i,q} + \beta_2 PosEarnSurp_{i,q} \\
 & + \beta_3 |NegEarnSurp_{i,q}| + \beta_4 Humor_Manager_{i,q} \times PosEarnSurp_{i,q} \\
 & + \beta_5 Humor_Manager_{i,q} \times |NegEarnSurp_{i,q}| \\
 & + \mathfrak{F}FirmControls + FirmFE + YearQuarterFE + \epsilon.
 \end{aligned} \tag{3}$$

ChgForecast is the change in the consensus quarterly earnings forecast for firm *i* in quarter *q* + 1 following the conference call date in quarter *q*. The consensus earnings forecast before (after) the conference call date includes the latest outstanding earnings forecast for the following quarter for all analysts following firm *i* as of one trading day prior to (10 trading days following) the conference call date. To test Hypothesis 1b, we include the same interaction terms as those included in Eq. 2. Our remaining control variables, which follow Eq. (2), are as defined previously in Appendix B.

Table 4 presents the results of these tests. Column (1) presents the baseline model, excluding the interaction terms. We find no evidence to reject Hypothesis 1a, as the main effect of manager humor (*Humor_Manager*) on analysts' earnings forecast revisions following the conference call is insignificant. In Column (2), we test Hypothesis 1b by examining the association between managers' successful use of humor and analysts' response to the firm's earnings surprise. We find evidence of

¹¹ In an untabulated test, we find that the sum of the coefficients on $|NegEarnSurp|$ and *Humor_Manager* × $|NegEarnSurp|$ is not significantly different from zero.

Table 4 Analyst Response to Managers' Use of Humor on Conference Calls

	[1]	[2]
$Humor_Manager_{i,q}$	0.000 (0.577)	-0.000 (-1.421)
$PosEarnSurp_{i,q}$	0.136*** (3.972)	0.131*** (3.538)
$ NegEarnSurp_{i,q} $	-0.225*** (-8.620)	-0.236*** (-9.102)
$Humor_Manager_{i,q} \times PosEarnSurp_{i,q}$		0.058 (0.716)
$Humor_Manager_{i,q} \times NegEarnSurp_{i,q} $		0.187** (2.539)
$ToneManager_{i,q}$	0.002*** (6.396)	0.002*** (6.438)
$ToneAnalyst_{i,q}$	0.001*** (5.357)	0.001*** (5.341)
$\ln(MVE_{i,q})$	0.001*** (3.072)	0.001*** (3.077)
$BTM_{i,q}$	-0.002*** (-2.903)	-0.002*** (-2.835)
$Momentum_{i,q}$	0.004*** (5.987)	0.004*** (5.908)
$RetVol_{i,q}$	-0.012 (-1.096)	-0.013 (-1.211)
$PosGuidance_{i,q}$	0.003*** (7.004)	0.003*** (7.025)
$NegGuidance_{i,q}$	-0.002*** (-11.067)	-0.002*** (-11.064)
$Humor_Analyst_{i,q}$	-0.000 (-0.717)	-0.000 (-0.661)
$LagHumor_Manager_{i,q}$	-0.000 (-0.581)	-0.000 (-0.500)
Firm Fixed Effects	Included	Included
Year-Quarter Fixed Effects	Included	Included
#OBS	14,340	14,340
Adjusted R ²	0.311	0.313

This table includes all firm-quarter observations from 2011 to 2016 with sufficient data to calculate the dependent and independent variables. The dependent variable is equal to the change in analyst forecasts for quarter $q+1$ surrounding the conference call date of firm i in quarter q ($ChgForecast_{i,q}$). Standard errors are clustered by firm. Firm and year-quarter fixed effects are included (untabulated). All variables are defined in Appendix B. All continuous variables are winsorized at the 1% and 99% levels. *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively

Table 5 Managers' Use of Humor on Conference Calls and Future Stock Market Reaction

	[1]	[2]
$Humor_Manager_{i,q}$	0.000 (0.145)	0.001 (0.235)
$PosEarnSurp_{i,q}$	0.246 (0.702)	0.357 (0.977)
$ NegEarnSurp_{i,q} $	-0.097 (-0.217)	-0.152 (-0.342)
$Humor_Manager_{i,q} \times PosEarnSurp_{i,q}$		-0.796 (-0.790)
$Humor_Manager_{i,q} \times NegEarnSurp_{i,q} $		1.163 (1.204)
$ToneManager_{i,q}$	-0.005 (-0.809)	-0.005 (-0.797)
$ToneAnalyst_{i,q}$	0.007** (2.146)	0.007** (2.123)
$\ln(MVE_{i,q})$	-0.041*** (-8.770)	-0.041*** (-8.747)
$BTM_{i,q}$	0.030*** (3.176)	0.030*** (3.189)
$Momentum_{i,q}$	-0.032** (-2.460)	-0.032** (-2.488)
$RetVol_{i,q}$	0.116 (0.538)	0.104 (0.484)
$PosGuidance_{i,q}$	0.007 (1.289)	0.007 (1.286)
$NegGuidance_{i,q}$	0.002 (0.835)	0.002 (0.837)
$Humor_Analyst_{i,q}$	-0.005 (-1.638)	-0.005 (-1.593)
$LagHumor_Manager_{i,q}$	-0.002 (-0.635)	-0.002 (-0.615)
Firm Fixed Effects	Included	Included
Year-Quarter Fixed Effects	Included	Included
#OBS	14,340	14,340
Adjusted R ²	0.070	0.070

This table includes all firm-quarter observations from 2011 to 2016 with sufficient data to calculate the dependent and independent variables. The dependent variable is equal to the cumulative size-decile adjusted returns for the [+2, +30] window surrounding the conference call date of firm i in quarter q ($CAR[+2, +30]_{i,q}$). Standard errors are clustered by firm. Firm and year-quarter fixed effects are included (untabulated). All variables are defined in Appendix B. All continuous variables are winsorized at the 1% and 99% levels. *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively

a muted reaction to negative earnings news when managers use humor. The coefficient on $|NegEarnSurp|$ is -0.236, and the coefficient on the interaction term is 0.187 ($p < 0.05$), suggesting that managers' use of humor mitigates analysts' negative response to negative earnings surprise. In an untabulated test, we find that the sum of these coefficients differs insignificantly from zero. Overall these results provide evidence to reject Hypothesis 1b and suggest that analyst earnings forecast revisions become more favorable when managers use humor in reporting negative news.¹²

5.4 Credibility of managers' humor as a signal

Our next two hypotheses more directly examine managers' use of humor as a signal of future performance. To test these hypotheses, we examine future abnormal returns (Hypothesis 2) and the firm's earnings surprise in the following quarter (Hypothesis 3).

5.4.1 Future returns

Our research design for testing returns reversal (Hypothesis 2) takes the following form:

$$\begin{aligned} CAR[+2, +30]_{i,q} = & \beta_1 Humor_Manager_{i,q} + \beta_2 PosEarnSurp_{i,q} \\ & + \beta_3 |NegEarnSurp_{i,q}| + \beta_4 Humor_Manager_{i,q} \times PosEarnSurp_{i,q} \\ & + \beta_5 Humor_Manager_{i,q} \times |NegEarnSurp_{i,q}| \\ & + \theta FirmControls + FirmFE + YearQuarterFE + \epsilon, \end{aligned} \quad (4)$$

where $CAR[+2, +30]$ is the firm's cumulative size-adjusted returns for the two to 30 trading days following the conference call (Gormley et al. 2022; Milian 2015). To facilitate comparison to our previous analyses, we include the same interaction terms as those in Eqs. (2) and (3). We include firm and year-quarter fixed effects, and we cluster standard errors at the firm level. Our remaining control variables follow Eqs. (2) and (3) and are defined in Appendix B.

The results of Eq. (4) are presented in Table 4. The baseline model is presented in Column (1). We find no evidence that the use of humor is associated with a subsequent reversal in returns, as the coefficient on $Humor_Manager$ does not differ statistically from zero at conventional levels. To assess whether there is a reversal in the returns related to managers' use of humor while disclosing negative earnings news, we include the interactions $Humor_Manager \times PosEarnSurp$ and $Humor_Manager \times |NegEarnSurp|$ in Column (2) of Table 5. Similarly, we find no evidence of an association between these interactions and returns reversal. Collectively, these results do not support the idea that the positive market response to humor reverses over time, and we fail to reject the null Hypothesis 2.¹³

¹² As an additional robustness test, we run a fully interacted model where humor is interacted with each of the independent variables. Using this specification, we continue to find evidence of a muted analyst reaction to negative firm news ($p < 0.05$).

¹³ We re-run these analyses using returns over the two to 60 trading days (i.e., approximately one calendar quarter) following the earnings conference call and similarly find no evidence of returns reversal in this window (untabulated).

Table 6 Managers' Use of Humor on Conference Calls and Future Earnings Surprise

	[1]	[2]
$Humor_Manager_{i,q}$	0.001** (2.076)	-0.000 (-1.067)
$PosEarnSurp_{i,q}$	0.151** (2.009)	0.112 (1.393)
$ NegEarnSurp_{i,q} $	-0.376*** (-5.745)	-0.394*** (-5.906)
$Humor_Manager_{i,q} \times PosEarnSurp_{i,q}$		0.319** (2.090)
$Humor_Manager_{i,q} \times NegEarnSurp_{i,q} $		0.262* (1.771)
$ToneManager_{i,q}$	0.002** (2.028)	0.002** (2.086)
$ToneAnalyst_{i,q}$	0.002*** (4.306)	0.002*** (4.331)
$\ln(MVE_{i,q})$	-0.001 (-0.932)	-0.001 (-0.971)
$BTM_{i,q}$	-0.005*** (-3.552)	-0.005*** (-3.532)
$Momentum_{i,q}$	0.008*** (4.850)	0.007*** (4.750)
$RetVol_{i,q}$	-0.018 (-0.595)	-0.019 (-0.618)
$PosGuidance_{i,q}$	0.004*** (6.341)	0.004*** (6.372)
$NegGuidance_{i,q}$	-0.002*** (-7.947)	-0.002*** (-7.944)
$Humor_Analyst_{i,q}$	-0.000 (-0.612)	-0.000 (-0.657)
$LagHumor_Manager_{i,q}$	-0.000 (-1.546)	-0.000 (-1.483)
Firm Fixed Effects	Included	Included
Year-Quarter Fixed Effects	Included	Included
#OBS	14,087	14,087
Adjusted R ²	0.253	0.255

This table includes all firm-quarter observations from 2011 to 2016 with sufficient data to calculate the dependent and independent variables. The dependent variable is equal to the earnings surprise for firm i in quarter $q+1$ ($FutureEarnSurp_{i,q}$). Standard errors are clustered by firm. Firm and year-quarter fixed effects are included (untabulated). All variables are defined in Appendix B. All continuous variables are winsorized at the 1% and 99% levels. *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively

5.4.2 Future earnings surprise

To test Hypothesis 3, which considers the association between the use of humor and future firm performance, we estimate the following equation:

$$\begin{aligned} \text{FutureEarnSurp}_{i,q} = & \beta_1 \text{Humor_Manager}_{i,q} + \beta_2 \text{PosEarnSurp}_{i,q} + \beta_3 \left| \text{NegEarnSurp}_{i,q} \right| \\ & + \beta_4 \text{Humor_Manager}_{i,q} \times \text{PosEarnSurp}_{i,q} + \beta_5 \text{Humor_Manager}_{i,q} \times \left| \text{NegEarnSurp}_{i,q} \right| \\ & + \text{FirmControls} + \text{FirmFE} + \text{YearQuarterFE} + \varepsilon. \end{aligned} \quad (5)$$

FutureEarnSurp is equal to firm *i*'s actual earnings in quarter *q* + 1 less the analyst consensus estimate of quarter *q* + 1 earnings prior to the quarter *q* earnings announcement date. We measure the quarter *q* + 1 earnings surprise, relative to analysts' expectations going into the quarter *q* earnings conference call, because that expectation represents the context within which managers decide whether to signal their private information about future firm performance. The remaining control variables follow our previous analyses and are defined in Appendix B.

Table 6 presents the results of estimating Eq. (5). In Column (1), which presents the baseline model, we observe a positive and significant coefficient on *Humor_Manager* (0.001, $p < 0.05$). These results indicate that managers' successful use of humor is associated with a more positive earnings surprise in the following quarter, rejecting the null Hypothesis 3. When we include the interactions of humor with our measures of earnings surprise in Column (2), we find evidence that the use of humor is positively associated with future earnings surprise for both positive and negative earnings news in the current quarter.

Taken together, the results of Eqs. (4) and (5) suggest that managers' use of humor credibly signals future firm performance. We observe no subsequent reversal of the positive returns to humor, and humor is positively associated with the subsequent quarter's earnings surprise. These results suggest managers' use of humor credibly signals future firm performance.

6 Additional analyses

Our primary tests focus on managers' use of humor on earnings conference calls. In additional analyses, we consider the outcomes of analysts' use of humor. In our research setting, analysts may use humor as an ingratiation behavior, which Cooper (2005) suggests is common for workplace humor. Both the popular media and the accounting literature characterize analysts as having powerful incentives to curry favor with management (Armstrong 2015; Chen and Matsumoto 2006; Ke and Yu 2006). Analysts likely behave this way to maintain a positive relationship with management, as analysts cite private communication with management as a more useful input to their research than public information (Brown et al. 2015) and analysts' buy-side clients report that access to management is among the most useful services sell-side analysts provide (Brown et al. 2016). We investigate

whether an analyst's use of humor influences that person's interactions with managers on earnings conference calls.

To conduct these analyses, we use all unique analyst-call observations and employ a fuzzy matching algorithm and manual verification to match the last name and the first letter of the first name (e.g., J. Harris) of each analyst to the IBES recommendation file. Our matching procedures result in a sample of 11,721 unique conference calls with 75,989 analyst-conference-call observations with available IBES identifiers. Approximately 20 percent of the analysts in our sample use humor at least once during our sample period, and 33 percent of the analysts who use humor do so on multiple conference calls.

We expect that analysts who use humor will be able to ask more questions and receive longer responses from management, and we measure these interactions in multiple ways. First, we capture the word count of the analyst's comments, relative to the word count of other analysts on the same call (*AbnWC_Analyst*). We also measure the number of words managers use to respond to a given analyst, relative to the number of words in managements' responses to other analysts on the same call, to capture additional engagement with the analyst (*AbnWC_Manager*). Acknowledging that our measures based on word counts could relate mechanically to the use of humor, we also capture the number of follow-up questions asked by the analyst, relative to the number of follow-ups asked by other call participants (*AbnFollowUp*). We consider a question to be a follow-up question only if it comes after a different analyst asks a question during the call. Finally, we count the number of "switches" (the number of times the speaker on the conference call switches between the analyst and management during a given exchange) and measure abnormal switches, relative to other analyst-manager exchanges on the same call (*Abn#Switches*).

We estimate the following model:

$$\begin{aligned} Outcome_{a,i,q} = & \beta_1 Humor_Analyst_{a,i,q} + \Psi AnalystControls + \mathfrak{F} FirmControls \\ & + \zeta CC_Controls + AnalystFirmFE + YearQuarterFE + \varepsilon, \end{aligned} \quad (6)$$

where *Outcome* is one of the four outcome variables described above, *Humor_Analyst* is an indicator variable that captures analyst use of humor, Ψ is a vector of analyst-level controls, \mathfrak{F} is a vector of firm-level controls, and ζ is a vector of conference call-level controls. The analyst-level variables are computed relative to other analysts on the same call, essentially transforming the analysis into a within-call design.¹⁴ All variables are defined in Appendix B. We include analyst-firm fixed effects to absorb time-invariant characteristics of the relationship between the analyst and the covered firm. This design absorbs variation within an analyst-firm pair that is fixed over the sample period, effectively allowing the analyst-firm pair to serve as its own control. That is, the coefficient on *Humor_Analyst* captures the difference in analyst *a*'s outcome (e.g., *AbnFollowUp*) when that analyst uses humor

¹⁴ Following Clement and Tse (2003, 2005), we calculate these abnormal variables as the raw value minus the minimum value across all other analysts following firm *i* in quarter *q*, with this difference scaled by the range in the values across all other analysts following firm *i* in quarter *q*.

Table 7 Outcomes for Analysts' Successful Use of Humor during Conference Calls

	<i>AbnWCAnalyst_{a,i,q}</i>	<i>AbnFollowUp_{a,i,q}</i>	<i>Abn#Switches_{a,i,q}</i>	<i>AbnWCManager_{a,i,q}</i>	<i>LeadAnalystPartic_{a,i,q}</i>
<i>Humor_Analyst_{a,i,q}</i>	0.062*** (3.204)	0.035*** (2.767)	0.195*** (7.377)	0.043* (1.954)	0.010 (0.498)
<i>AbnRec_{a,i,q}</i>	0.011 (1.503)	0.009** (2.459)	0.009 (1.056)	0.031*** (3.886)	0.053*** (7.392)
<i>AbnToneAnalyst_{a,i,q}</i>	-0.015*** (-3.476)	0.001 (0.276)	-0.001 (-0.137)	0.006 (1.153)	0.000 (0.030)
<i>AbnFirmExp_{a,i,q}</i>	-0.013 (-0.562)	-0.015 (-1.303)	-0.010 (-0.349)	-0.020 (-0.775)	-0.019 (-1.015)
<i>AbnGenExp_{a,i,q}</i>	0.031 (0.972)	0.025 (1.404)	0.061* (1.782)	-0.030 (-0.830)	0.018 (0.732)
<i>AbnForFreq_{a,i,q}</i>	0.034*** (4.167)	0.007 (1.622)	0.035*** (3.669)	0.022** (2.329)	-0.002 (-0.274)
<i>AbnCompanies_{a,i,q}</i>	0.006 (0.502)	-0.004 (-0.661)	0.003 (0.179)	0.022 (1.637)	-0.024** (-2.040)
<i>AbnBSize_{a,i,q}</i>	0.032* (1.834)	0.001 (0.151)	0.016 (0.848)	0.052*** (2.890)	-0.002 (-0.117)
<i>AbnIndustries_{a,i,q}</i>	0.016 (1.456)	0.005 (0.882)	0.019 (1.438)	0.001 (0.054)	-0.010 (-0.837)
<i>AbnAccuracy_{a,i,q}</i>	0.001 (0.123)	-0.000 (-0.140)	-0.003 (-0.501)	-0.002 (-0.365)	0.003 (0.639)
<i>Abn#Calls_{a,i,q}</i>	-0.007* (-1.774)	-0.006*** (-2.850)	-0.015*** (-3.110)	-0.014*** (-3.044)	0.004 (0.902)
<i>AbnRecHorizon_{a,i,q}</i>	0.000 (0.073)	0.002 (0.583)	-0.004 (-0.688)	0.008 (1.326)	-0.027*** (-4.583)
<i>LagPartic_Analyst_{a,i,q}</i>	0.016***	0.000	0.013***	0.003	-0.094***

Table 7 (continued)

	<i>AbnWCAnalyst_{a,i,q}</i>	<i>AbnFollowUp_{a,i,q}</i>	<i>Abn#Switches_{a,i,q}</i>	<i>AbnWCManager_{a,i,q}</i>	<i>LeadAnalystPartic_{a,i,q}</i>
<i>LagHumor_Analyst_{a,i,q}</i>	(3.793)	(0.101)	(2.578)	(0.633)	(-19.221)
	-0.025	-0.006	-0.002	-0.021	0.031*
	(-1.346)	(-0.745)	(-0.090)	(-1.059)	(1.754)
<i>ln(#Partic_{i,q})</i>	0.048***	0.056***	-0.031**	-0.001	0.045***
	(3.383)	(8.086)	(-2.010)	(-0.092)	(3.581)
<i>ln(WC&A_{i,q})</i>	-0.139***	-0.033***	-0.088***	-0.093***	-0.028**
	(-10.819)	(-4.721)	(-6.066)	(-6.415)	(-2.273)
<i>ln(MVE_{i,q})</i>	-0.010	-0.000	-0.004	-0.010	0.027***
	(-1.015)	(-0.088)	(-0.331)	(-1.004)	(2.831)
<i>BTM_{i,q}</i>	0.011	0.001	0.002	0.005	-0.048**
	(0.536)	(0.107)	(0.083)	(0.235)	(-2.315)
<i>EarnSurp_{i,q}</i>	0.051	-0.014	-0.132	-0.535	-0.417
	(0.090)	(-0.053)	(-0.213)	(-0.895)	(-0.795)
<i>ln(AnalystFoll_{i,q})</i>	0.002	-0.002	0.005	0.004	-0.005
	(0.324)	(-0.600)	(0.873)	(0.741)	(-0.922)
Analyst-Firm Fixed Effects	Included	Included	Included	Included	Included
Year-Quarter Fixed Effects	Included	Included	Included	Included	Included
#OBS	75,989	75,989	75,989	75,989	75,989
Adjusted R ²	0.372	0.117	0.205	0.168	0.210

This table includes all analyst-firm-quarter observations from 2011 to 2016 with sufficient data to calculate the dependent and independent variables. The dependent variables in Columns 1 to 5 are the abnormal word count of analyst *a*'s questions during the conference call of firm *i* in quarter *q* (*AbnWCAnalyst_{a,i,q}*), the abnormal follow up of analyst *a* during the conference call of firm *i* in quarter *q* (*AbnFollowUp_{a,i,q}*), the abnormal number of switches for analyst *a* during the conference call of firm *i* in quarter *q* (*Abn#Switches_{a,i,q}*), the abnormal word count of managers' responses to questions asked by analyst *a* during the conference call of firm *i* in quarter *q* (*AbnWCManager_{a,i,q}*), and an indicator variable equal to 1 if analyst *a* asks a question during the next conference call for firm *i* following quarter *q* (*LeadAnalystPartic_{a,i,q}*), respectively. Standard errors are clustered by analyst-firm. Analyst-firm and year-quarter fixed effects are included (untabulated). All variables are defined in Appendix B. All continuous variables are winsorized at the 1% and 99% levels. *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively.

with firm i compared to analyst a 's outcome when not using humor with firm i . We also include year-quarter fixed effects to address time-series variation across our sample.¹⁵

Table 7 presents the results of these analyses. In Column (1), *AbnWC_Analyst* is the dependent variable. The coefficient on *Humor_Analyst* is 0.062 and is significant at the 1 percent level, suggesting that analysts' use of humor on conference calls is associated with an increase in the length of their questions from the median to the 57th percentile of the *AbnWC_Analyst* variable. In Column (2), we also find that analysts who use humor ask more follow-up questions than other analysts on the call (*AbnFollowUp*). The coefficient on *Humor_Analyst* is 0.035, which represents 0.171 standard deviations of the *AbnFollowUp* variable. In Column (3), we find that analysts have more exchanges with managers (*Abn#Switches*) when they use humor. The coefficient on *Humor_Analyst* is 0.195, which corresponds to an increase from the median to the 65th percentile of the *Abn#Switches* variable. Also consistent with our expectations, we find that analysts who use humor receive longer responses from management (*AbnWC_Manager*). The coefficient on *Humor_Analyst* in Column (4) is equal to 0.043, which is 0.089 standard deviations of the *AbnWC_Manager* variable. This result supports the notion that analysts who use humor not only receive more time to speak on the call but also elicit longer responses from management, which the literature has shown to benefit the analyst asking the question (Mayew et al. 2013). Taken together, these findings provide strong evidence that managers are more engaged with analysts who use humor on earnings conference calls.

7 Robustness tests

In our primary analyses, we retain all conference calls with sufficient data to calculate the dependent and independent variables in our analyses, and we employ fixed-effect structures, which allow us to use the firm as its own control. Noting that the use of humor is not constant across managers, we re-run our primary analyses using subsamples of firms whose managers use humor at least once in our sample period.

Table 8 presents the results of our firm-level tests, excluding firms whose managers never use humor in our sample period. This reduces our sample to 9,536 observations (9,389 observations for tests of future earnings surprise) across 643 unique firms. Table 8 Panel A presents results for our tests of market participants' response to managers' use of humor. Our results are unchanged using the reduced subsample. Table 8 Panel B presents results for our tests of the credibility of manager humor as a signal. We continue to find no evidence of subsequent returns reversal, and our results in this subsample

¹⁵ To control for time-invariant analyst characteristics (e.g., analyst personality or natural communication skills), we rerun Eq. (6) using analyst fixed effects, instead of analyst-firm fixed effects. We also rerun Eq. (6) without any fixed effects. Our inferences are unchanged.

Table 8 Managers' Use of Humor on Conference Calls—Excluding Managers Who Never Use Humor

Panel A: Market Participants' Response to Humor				
	<i>CAR</i> [0, + 1]	<i>CAR</i> [0, + 1]	<i>ChgForecast</i>	<i>ChgForecast</i>
<i>Humor_Manager</i> _{<i>i,q</i>}	0.007*** (3.679)	0.005** (2.503)	0.000 (0.864)	-0.000 (-1.641)
<i>PosEarnSurp</i> _{<i>i,q</i>}	3.481*** (8.453)	3.519*** (8.402)	0.090** (2.061)	0.068 (1.384)
$ NegEarnSurp_{i,q} $	-1.586*** (-5.033)	-1.746*** (-5.389)	-0.190*** (-5.657)	-0.205*** (-6.112)
<i>Humor_Manager</i> _{<i>i,q</i>} × <i>PosEarnSurp</i> _{<i>i,q</i>}		-0.037 (-0.045)		0.114 (1.341)
<i>Humor_Manager</i> _{<i>i,q</i>} × $ NegEarnSurp_{i,q} $		1.755* (1.842)		0.157** (2.109)
Controls	Included	Included	Included	Included
Firm Fixed Effects	Included	Included	Included	Included
Year-Quarter Fixed Effects	Included	Included	Included	Included
#OBS	9,536	9,536	9,536	9,536
Adjusted R ²	0.168	0.169	0.277	0.281
Panel B: Managers' Use of Humor as a Signal				
	<i>CAR</i> [+ 2, + 30]	<i>CAR</i> [+ 2, + 30]	<i>Future EarnSurp</i>	<i>Future EarnSurp</i>
<i>Humor_Manager</i> _{<i>i,q</i>}	0.001 (0.331)	0.001 (0.486)	0.001** (2.306)	-0.000 (-1.195)
<i>PosEarnSurp</i> _{<i>i,q</i>}	0.355 (0.789)	0.543 (1.114)	0.112 (1.163)	0.032 (0.303)
$ NegEarnSurp_{i,q} $	0.552 (1.028)	0.483 (0.909)	-0.351*** (-4.465)	-0.376*** (-4.651)
<i>Humor_Manager</i> _{<i>i,q</i>} × <i>PosEarnSurp</i> _{<i>i,q</i>}		-0.805 (-0.782)		0.383** (2.378)
<i>Humor_Manager</i> _{<i>i,q</i>} × $ NegEarnSurp_{i,q} $		0.830 (0.870)		0.231 (1.551)
Controls	Included	Included	Included	Included
Firm Fixed Effects	Included	Included	Included	Included
Year-Quarter Fixed Effects	Included	Included	Included	Included
#OBS	9,536	9,536	9,389	9,389
Adjusted R ²	0.054	0.055	0.208	0.213

This table includes all firm-quarter observations from 2011 to 2016 with sufficient data to calculate the dependent and independent variables. Standard errors are clustered by firm. Firm and year-quarter fixed effects are included (untabulated). All variables are defined in Appendix B. All continuous variables are winsorized at the 1% and 99% levels. *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively

also indicate that managers' use of humor remains positively associated with future earnings surprise. However, in Column (4) of Panel B, the coefficient on $\text{Humor_Manager} \times |\text{NegEarnSurp}|$ is not statistically significant. Thus, in the reduced subsample, we find evidence of a positive association between humor and future firm performance only when managers use humor to disclose positive earnings news.

8 Conclusion

Building on a vast literature in social sciences on the benefits of humor in communication, this study investigates whether the successful use of humor is associated with the outcomes of public earnings conference calls. We find that managers are less likely to use humor on a call as the magnitude of negative earnings news grows and when the tone of their comments is already positive. Managers are more likely to use humor when there are more analysts participating on the call and when analysts' overall views of the firm are more positive.

We find that managers' successful use of humor influences the outcomes of conference calls. Specifically, we find that investors respond more positively to the call when managers use humor and that humor mutes the market reaction to negative earnings news disclosed at the time of the call. Additionally, we find that analysts' forecast revisions are more favorable if managers use humor when discussing negative earnings news. We find no evidence of a reversal in the positive returns to the use of humor, and managers' use of humor is positively associated with future earnings surprise. Our results suggest that managers' use of humor can positively signal future firm performance and that investors and analysts respond accordingly. These findings are robust to firm fixed effects, which effectively allow us to use the managers of each firm as their own control sample. We control for multiple proxies for the information content of the call. Further, we address the concern of omitted variables by including control variables for managerial ability, firm performance and growth prospects, and the average sentiment of participants on the call.

Collectively, our evidence suggests that the use of humor is associated with more favorable responses to earnings conference calls, and that managers' use of humor credibly signals future firm performance. In additional supplemental analyses, we find that analysts who use humor successfully garner favor with management during a conference call: they speak more on the call and receive longer responses from management. Our study provides new insights into the outcomes of managers' and analysts' interactions on earnings conference calls. By identifying humor as an important communication tool that affects conference call outcomes, this study enriches the understanding of corporate disclosure and its economic effects.

Appendix A

Examples of Conference Call Humor.

Chipotle Mexican Grill Q2 2011 (July 19, 2011)

Montgomery Moran – co-chief executive officer, secretary, and director

Our sales have gotten so much better. But when sales increase that much, sometimes we just don't keep pace with the sort of techniques that we're capable of in throughput to keep up with the greater sales. We see that we are ... we see our capabilities in what some of our best stores do. And we still have restaurants ... In fact, I just saw a record the other day came in from a restaurant that achieved 350 transactions in one hour.

John Hartung – chief financial officer and principal accounting officer

That's [Sharon's] restaurant. It's very notable.

Montgomery Moran

Yes. So, well if you're finding that one to be slow, Sharon, I don't have much for you. [laughter].

Cimarex Energy First Quarter 2013 (May 7, 2013)

Brian Gamble, analyst, Simmons & Company International

Hey, everybody. I wanted to focus on the production side for a minute, I think Paul had alluded to it, the continued wide, I guess, train-sized gap you've got for a low-end and high-end production Is it safe to assume –.

Paul Korus – chief financial officer and senior vice president

That was a truck. That wasn't a train; it was a truck. [laughter].

Brian Gamble

I'm sorry, Paul, I didn't mean to put words in your mouth. We will call it a truck-sized hole.

Arista Networks Inc. Second Quarter 2016 (August 4, 2016)

Steve Milunovich – analyst, UBS

Regarding switching Cisco's reported fairly strong data center orders last quarter, Juniper's released the QFX10000 spine switch, are you seeing any change in the competitive environment or pricing as a result of this?

Jayshree Ullal – president, chief executive officer, and director

The short answer, Steve, is no.

Steve Milunovich

What is the long answer?

Jayshree Ullal

No, twice. [laughter] No, kidding aside, I think I've always said this, Steve, and I'll reiterate that our competitive landscape has always been extremely strong and dynamic.

Appendix B. Variable Definitions

Variable	Definition
Firm Variables:	
$AnalystFoll_{i,q}$	The number of analysts providing an earnings per share for firm i in quarter q
$AvgAccuracy_{i,q}$	The mean of $Accuracy_{a,i,q}$ for all analysts participating in the conference call of firm i in quarter q
$AvgBSize_{i,q}$	The mean of $BSize_{a,i,q}$ for all analysts participating in the conference call of firm i in quarter q
$AvgCompanies_{i,q}$	The mean of $Companies_{a,i,q}$ for all analysts participating in the conference call of firm i in quarter q
$AvgRec_{i,q}$	The mean of $Rec_{a,i,q}$ for all analysts participating in the conference call of firm i in quarter q
$AvgFirmExp_{i,q}$	The mean of $FirmExp_{a,i,q}$ for all analysts participating in the conference call of firm i in quarter q
$AvgForFreq_{i,q}$	The mean of $ForFreq_{a,i,q}$ for all analysts participating in the conference call of firm i in quarter q
$AvgGenExp_{i,q}$	The mean of $GenExp_{a,i,q}$ for all analysts participating in the conference call of firm i in quarter q
$AvgIndustries_{i,q}$	The mean of $Industries_{a,i,q}$ for all analysts participating in the conference call of firm i in quarter q
$AvgRecHorizon_{i,q}$	The mean of $RecHorizon_{a,i,q}$ for all analysts participating in the conference call of firm i in quarter q
$BTM_{i,q}$	The book-to-market ratio of firm i in quarter q , calculated as the book value of common equity divided by the market value of equity ($MVE_{i,q}$) as of the fiscal quarter-end of firm i in quarter q
$CAR[0, +1]_{i,q}$	The cumulative abnormal size-decile adjusted return for firm i during the $[0, +1]$ trading day window surrounding firm i 's conference call in quarter q
$CAR[+2, +30]_{i,q}$	The cumulative abnormal size-decile adjusted return for firm i during the $[+2, +30]$ trading day window following firm i 's conference call in quarter q
$ChgForecast_{i,q}$	The change in the consensus analyst forecast of firm i 's earnings per share in quarter $q + 1$. The consensus forecast before (after) the conference call includes the latest forecasts of all analysts following firm i as of 1 trading day prior to (10 trading days following) the conference call date
$EarnSurp_{i,q}$	The earnings surprise for firm i in quarter q , calculated as the actual IBES earnings per share for firm i in quarter q less the mean consensus IBES analyst estimate of earnings per share for firm i in quarter q , with this difference scaled by the stock price for firm i two days prior to the conference call date in quarter q
$FourthQuarter_{i,q}$	An indicator variable equal to 1 if the conference call of firm i in quarter q is the firm's fourth quarter and equal to 0 otherwise

Variable	Definition
$FutureEarnSurp_{i,q}$	The earnings surprise for firm i in quarter $q + 1$, calculated as the actual IBES earnings per share for firm i in quarter $q + 1$ less the mean consensus IBES analyst estimate of earnings per share for firm i in quarter $q + 1$ prior to the quarter q earnings announcement date, with this difference scaled by the stock price for firm i two days prior to the conference call date in quarter $q + 1$
$Humor_AnalystFirst_{i,q}$	An indicator variable equal to 1 if an analyst elicits laughter during the conference call of firm i in quarter q before a manager elicits laughter during the conference call and equal to 0 otherwise
$Humor_Analyst_{i,q}$	An indicator variable equal to 1 if an analyst elicits laughter during the conference call of firm i in quarter q and equal to 0 otherwise
$Humor_Manager_{i,q}$	An indicator variable equal to 1 if a manager elicits laughter during the conference call of firm i in quarter q and equal to 0 otherwise
$LagHumor_Analyst_{i,q}$	An indicator variable equal to 1 if an analyst elicits laughter during the previous conference call of firm i prior to quarter q and equal to 0 otherwise
$LagHumor_Manager_{i,q}$	An indicator variable equal to 1 if a manager elicits laughter during the previous conference call of firm i prior to quarter q and equal to 0 otherwise
$Momentum_{i,q}$	The cumulative abnormal size-decile adjusted return for firm i during the [-30,-2] trading window prior to firm i 's conference call in quarter q
$MVE_{i,q}$	The market value of equity of firm i in quarter q , calculated as the number of shares outstanding multiplied by the stock price as of the fiscal quarter-end of firm i in quarter q
$ NegEarnSurp_{i,q} $	The absolute value of $EarnSurp_{i,q}$ if $EarnSurp_{i,q}$ is less than 0 and equal to 0 otherwise
$NegGuidance_{i,q}$	An indicator variable equal to 1 if firm i releases guidance below analyst consensus for quarter $q + 1$ during the [-1, + 1] window surrounding firm i 's conference call in quarter q and equal to 0 otherwise
$\#Partic_{i,q}$	The number of analysts who ask questions during the conference call of firm i in quarter q
$PosEarnSurp_{i,q}$	The absolute value of $EarnSurp_{i,q}$ if $EarnSurp_{i,q}$ is greater than or equal to 0 and equal to 0 otherwise
$PosGuidance_{i,q}$	An indicator variable equal to 1 if firm i releases guidance above analyst consensus for quarter $q + 1$ during the [-1, + 1] window surrounding firm i 's conference call in quarter q and equal to 0 otherwise
$RetVol_{i,q}$	Daily return volatility for firm i in the three months prior to firm i 's conference call in quarter q
$Tone_Analyst_{i,q}$	The tone of analyst statements during firm i 's conference call in quarter q . Tone is calculated as the total number of positive words less the total number of negative words scaled by the sum of the number of positive words and negative words using a modified version of the Loughran and McDonald (2011) dictionary, which excludes the words "question" and "questions" from the negative lists
$Tone_Manager_{i,q}$	The tone of manager statements during firm i 's entire conference call in quarter q . Tone is calculated as the total number of positive words less the total number of negative words scaled by the sum of the number of positive words and negative words using a modified version of the Loughran and McDonald (2011) dictionary, which excludes the words "question" and "questions" from the negative lists

Variable	Definition
$WCQ\&A_{i,q}$	The number of words spoken during the question-and-answer session of the conference call of firm i in quarter q
Analyst Variables:	
$\#Calls_{a,i,q}$	Analyst a 's participation on other firms' conference calls, calculated as the number of conference calls for any firm in the 12 months prior to the conference call date for firm i in quarter q in which analyst a asks a question
$\#Switches_{a,i,q}$	Number of analyst-manager switches during managers' interactions with analyst a during firm i 's conference call in quarter q , where an analyst-manager switch is counted for each time the speaker on the conference call switches between a manager and the analyst during a given exchange
$Abn\#Calls_{a,i,q}$	Abnormal participation of analyst a on other firms' conference calls, calculated as $\#Calls_{a,i,q}$ less the smallest $\#Calls_{a,i,q}$ for all analysts participating on the conference call of firm i in quarter q , with this difference scaled by the range in $\#Calls_{a,i,q}$ for all analysts participating on the conference call of firm i in quarter q
$Abn\#Switches_{a,i,q}$	Abnormal number of analyst-manager switches, calculated as $\#Switches_{a,i,q}$ for analyst a minus the smallest $\#Switches_{a,i,q}$ for all analysts participating on the conference call of firm i in quarter q , with this difference scaled by the range in $\#Switches_{a,i,q}$ for all analysts participating on the conference call of firm i in quarter q
$AbnBSize_{a,i,q}$	Abnormal brokerage size of analyst a in quarter q , calculated as $BSize_{a,i,q}$ for analyst a minus the smallest $BSize_{a,i,q}$ for any analyst following firm i in quarter q , with this difference scaled by the range in $BSize_{a,i,q}$ for all analysts following firm i in quarter q
$AbnCompanies_{a,i,q}$	Abnormal number of companies covered by analyst a in quarter q , calculated as $Companies_{a,i,q}$ for analyst a minus the smallest $Companies_{a,i,q}$ for any analyst following firm i in quarter q , with this difference scaled by the range in $Companies_{a,i,q}$ for all analysts following firm i in quarter q
$AbnFirmExp_{a,i,q}$	Abnormal firm experience for analyst a following firm i in quarter q , calculated as $FirmExp_{a,i,q}$ for analyst a minus the smallest $FirmExp_{a,i,q}$ for any analyst following firm i in quarter q , with this difference scaled by the range in $FirmExp_{a,i,q}$ for all analysts following firm i in quarter q
$AbnFollowUp_{a,i,q}$	Abnormal follow up, calculated as $FollowUp_{a,i,q}$ for analyst a minus the mean of $FollowUp_{a,i,q}$ for all other analysts participating on the conference call of firm i in quarter q
$AbnForFreq_{a,i,q}$	Abnormal forecasting frequency of analyst a in quarter q , calculated as $ForFreq_{a,i,q}$ for analyst a minus the smallest $ForFreq_{a,i,q}$ for any analyst following firm i in quarter q , with this difference scaled by the range in $ForFreq_{a,i,q}$ for all analysts following firm i in quarter q
$AbnGenExp_{a,i,q}$	Abnormal general experience for analyst a following firm i in quarter q , calculated as $GenExp_{a,i,q}$ for analyst a minus the smallest $GenExp_{a,i,q}$ for any analyst following firm i in quarter q , with this difference scaled by the range in $GenExp_{a,i,q}$ for all analysts following firm i in quarter q
$AbnIndustries_{a,i,q}$	Abnormal industry coverage of analyst a in quarter q , calculated as $Industries_{a,i,q}$ for analyst a minus the smallest $Industries_{a,i,q}$ for any analyst following firm i in quarter q , with this difference scaled by the range in $Industries_{a,i,q}$ for all analysts following firm i in quarter q

Variable	Definition
$AbnRec_{a,i,q}$	Abnormal recommendation level of analyst a in quarter q , calculated as $Rec_{a,i,q}$ for analyst a minus the smallest $Rec_{a,i,q}$ for any analyst following firm i in quarter q , with this difference scaled by the range in $Rec_{a,i,q}$ for all analysts following firm i in quarter q
$AbnRecHorizon_{a,i,q}$	Abnormal horizon of analyst a 's outstanding recommendation for firm i in quarter q , calculated as $RecHorizon_{a,i,q}$ for analyst a minus the smallest $RecHorizon_{a,i,q}$ for any analyst following firm i in quarter q , with this difference scaled by the range in $RecHorizon_{a,i,q}$ for all analysts following firm i in quarter q
$AbnTone_Analyst_{a,i,q}$	The abnormal tone of analyst a during firm i 's conference call in quarter q , calculated as the tone of analyst a during the conference call of firm i in quarter q less the tone of all other analysts during the conference call of firm i in quarter q . Tone is calculated as the total number of positive words less the total number of negative words scaled by the sum of the number of positive words and negative words using a modified version of the Loughran and McDonald (2011) dictionary, which excludes the words "question" and "questions" from the negative lists
$AbnWC_Analyst_{a,i,q}$	Abnormal word count of analyst a during firm i 's conference call in quarter q , calculated as $WC_Analyst_{a,i,q}$ for analyst a minus the smallest $WC_Analyst_{a,i,q}$ for all analysts participating in the conference call of firm i in quarter q , with this difference scaled by the range in $WC_Analyst_{a,i,q}$ for all analysts participating in the conference call of firm i in quarter q
$AbnWC_Manager_{a,i,q}$	Abnormal word count of managers' responses to questions asked by a during firm i 's conference call in quarter q , calculated as $AbnWC_Manager_{a,i,q}$ for analyst a minus the smallest $AbnWC_Manager_{a,i,q}$ for all analysts participating in the conference call of firm i in quarter q , with this difference scaled by the range in $AbnWC_Manager_{a,i,q}$ for all analysts participating in the conference call of firm i in quarter q
$Accuracy_{a,i,q}$	The abnormal absolute forecast accuracy of analyst a 's EPS forecast for firm i in quarter q . Abnormal absolute forecast accuracy is calculated as the largest forecast error by any analyst following firm i in quarter q minus the absolute forecast error by analyst a for firm i in quarter q , with this difference scaled by the range in the absolute forecast errors for all analysts following firm i in quarter q
$BSize_{a,i,q}$	The brokerage size of analyst a in quarter q , calculated as the total number of analysts employed by the brokerage of analyst a in 12 months prior to the conference call for firm i in quarter q
$Companies_{a,i,q}$	The total number of firms covered by analyst a in the 12 months prior to the conference call for firm i in quarter q
$FirmExp_{a,i,q}$	The firm experience of analyst a following firm i in quarter q , calculated as the difference between the conference call date for firm i in quarter q and the date of the first forecast issued by analyst a for firm i , divided by 365
$FollowUp_{a,i,q}$	An indicator equal to 1 if analyst a asks a follow-up question on the conference call of firm i in quarter q and equal to 0 otherwise. Follow-up questions are defined as questions asked by an analyst after a different analyst is permitted to ask a question during the conference call
$ForFreq_{a,i,q}$	The forecasting frequency of analyst a in quarter q , calculated as the total number of quarterly earnings per share forecasts issued by analyst a for any firm in the 12 months prior to the conference call date for firm i in quarter q

Variable	Definition
$GenExp_{a,i,q}$	The general experience of analyst a following firm i in quarter q , calculated as the difference between the conference call date for firm i in quarter q and the date of the first forecast issued by analyst a for any firm, divided by 365
$Humor_Analyst_{a,i,q}$	An indicator variable equal to 1 if analyst a elicits laughter during the conference call of firm i in quarter q and equal to 0 otherwise
$Industries_{a,i,q}$	The total number of two-digit SIC industries covered by analyst a in the 12 months prior to the conference call for firm i in quarter q
$LagHumor_Analyst_{a,i,q}$	An indicator variable equal to 1 if analyst a elicits laughter during the previous conference call of firm i in quarter q and equal to 0 otherwise
$LagPartic_Analyst_{a,i,q}$	An indicator variable equal to 1 if analyst a asks a question on the previous conference call of firm i prior to quarter q and equal to 0 otherwise
$LeadPartic_Analyst_{a,i,q}$	An indicator variable equal to 1 if analyst a asks a question on the next conference call of firm i following quarter q and equal to 0 otherwise
$Rec_{a,i,q}$	Recommendation level of analyst a 's outstanding stock recommendation for firm i in quarter q equal to 5 for strong buy, 4 for buy, 3 for hold, 2 for sell, and 1 for strong sell
$RecHorizon_{a,i,q}$	The horizon of analyst a 's outstanding recommendation for firm i in quarter q , calculated as the difference between the conference call date for firm i in quarter q minus the date of analyst a 's outstanding recommendation as of the conference call date for firm i in quarter q , with this difference scaled by 365
$Tone_Analyst_{a,i,q}$	The tone of analyst a during firm i 's conference call in quarter q . Tone is calculated as the total number of positive words less the total number of negative words scaled by the sum of the number of positive and negative words using a modified version of the Loughran and McDonald (2011) dictionary, which excludes the words "question" and "questions" from the negative lists
$WC_Analyst_{a,i,q}$	Word count of analyst a during firm i 's conference call in quarter q excluding words from sentences preceding laughter elicited by analyst a during the conference call
$WC_Manager_{a,i,q}$	Word count of managers' responses to questions asked by analyst a during firm i 's conference call in quarter q

Data Availability All data used in this study are available in the databases referenced in the text.

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