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What Makes Conference Calls Useful? The Information Content of Managers' Presentations and Analysts' Discussion Sessions

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ABSTRACT: Conference calls held in conjunction with an earnings release have become increasingly common in recent years, yet there is little evidence regarding the reasons that these calls are incrementally informative over the accompanying press release. Using a sample of more than 10,000 conference-call transcripts, we examine the information content of both segments of the call—the presentation and the discussion segment. We find that both segments have incremental information content over the accompanying press release. However, discussion periods are relatively more informative than presentation periods, and this greater information content is positively associated with analyst following. We also find that managers provide increased disclosures during the presentation segment when firm performance is poor, but relatively more information is released during discussion periods in these circumstances. Overall, our results are consistent with the notion that active analyst involvement in conference calls increases the information content of the calls, particularly when firm performance is poor.

Keywords: *conference calls; voluntary disclosure; financial analysts; information content; information environment.*

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I. INTRODUCTION

Over the past decade, conference calls have become an increasingly common form of voluntary disclosure (Bushee et al. 2003). Prior studies suggest that these calls are significant information events to the market (Frankel et al. 1999; Bowen et al. 2002; Kimbrough 2005) and recent proposed changes by the Public Company Accounting Oversight Board (PCAOB) suggest that these calls can also be informative for assessing auditing risk (PCAOB Release 2009-007). However, the reasons conference calls are informative have not been widely investigated. There are at least two reasons that conference calls might be incrementally informative over a press release. First, managers are able to provide information in a less constrained fashion relative to financial statements and written press releases. Second, analysts can play a direct role in uncovering information during the question-and-answer session (hereafter, the "discussion" portion of the call), asking follow-up questions, requesting more detail, and perhaps questioning management's interpretation of events. The purpose of this study is to investigate (1) whether each of these two main components of earnings-related conference calls are incrementally informative to the market and, if both are informative, which segment has greater information content; and (2) whether the information content of each segment is related to firm performance.

During the presentation portion of the call, managers provide their interpretation of the firm's performance during the quarter and provide any additional, voluntary disclosures they wish to communicate. In addition to possibly providing new disclosures during the presentation, managers also provide the information verbally, which is potentially informative to the market because of the information content of verbal cues (Mayew and Venkatachalam 2009). If the ability to disclose information in a less constrained fashion results in greater disclosure, then we would expect the presentation portion of the call to be incrementally informative over the accompanying press release. We would also expect the discussion portion of the call to be incrementally informative if analysts' ability to question management's interpretation of events and/or to elicit additional information from managers is informative to the market. Whether the primary advantage of conference calls comes from expanded disclosures during the presentation or from managers' interaction with analysts is an empirical question.

Our analyses are based on transcripts of more than 10,000 earnings-announcement-related conference calls held during regular trading hours for the period January 2003 to December 2005. Using these transcripts, we compute approximate start and end times for each portion of the call and then use intra-day trading data to calculate absolute returns during each segment. We use this measure as our proxy for information content. However, because absolute returns during the relatively narrow windows associated with each segment of the call are potentially noisy measures of information content, we supplement some of our tests with analyses based on call length (in number of words) as an alternative measure of information content.

We first examine the incremental information content of each segment of the call and find that both the presentation and discussion have incremental information content over the accompanying press release. However, we find statistically greater abnormal absolute returns during the discussion portion of the call relative to the presentation, suggesting that the discussion portion is relatively more informative. Consistent with the explanation that greater analyst involvement is the source of the relatively greater information content of the discussion portion of the call, we find that the informativeness of the discussion session increases with analyst following, while the informativeness of the presentation does not. As a result, the *relative* information content of the discussion session increases in analyst following. To further support our conjecture, we also examine the *length* of the discussion session relative to the presentation and find that the relative length also increases with analyst following.

Although these results support the notion that the primary benefit of conference calls comes from analyst involvement during the discussion session, we recognize that our analyses are tests of association and not tests of causation. Thus, it is inappropriate to characterize our results as providing evidence that analysts are the *cause* of the relatively greater information content during the discussion portion of the call, although the results are consistent with such an interpretation.

We next examine whether the incremental information content of each segment of the call is related to firm performance. On the one hand, disclosure theories generally predict a bias toward the disclosure of good news, with many prior empirical studies finding a positive relation between firm performance and disclosure (Lev and Penman 1990; Lang and Lundholm 1993; Miller 2002; Frankel et al. 1999). However, other studies find that managers are more likely to preempt bad news (Skinner 1994; Soffer et al. 2000), and that they provide greater supplemental disclosures with bad news forecasts (Baginski et al. 2004). Thus, prior research is mixed as to whether managers provide more or less disclosure when performance is poor. Assuming that the information content of the presentation portion of the call is more representative of managers' initial disclosure incentives while the information content of the discussion portion represents disclosures made as a result of analyst questioning, we add to the understanding of managers' disclosure incentives by examining each segment of the conference call separately.

Our results suggest that managers provide greater disclosures during both the presentation and discussion segments when performance is poor. However, we find that the information content of the discussion portion of the call *relative* to the presentation portion of the call is greater when performance is poor, suggesting that although managers provide greater disclosures when the firm has not performed well, the disclosures made at the behest of analysts are more informative in these circumstances. We find similar relations using length in words as an alternative measure of information content.

We find these relations after controlling for potential economic events that might lead to more informative presentations, such as the magnitude of special items, merger and restructuring activities, and the absolute returns over the quarter. We also run our regressions including firm fixed effects, thereby controlling for firm-specific factors that might potentially affect the informativeness of the presentation and discussion portions of the conference call.

Finally, to further substantiate that our evidence on the relation between the information content of presentation and discussion sessions and firm performance are due to real changes in the content of disclosures (as opposed to different market reactions to similar disclosures), we examine the relation between firm performance and the *type* of disclosures made during presentations and discussions. Focusing on two particular dimensions of content, financial (versus nonfinancial) and forward-looking (versus backward-looking), we find that managers provide less financial and more future-oriented disclosures in the presentation when firm performance is poor. Since the typical earnings release focuses on financial, backward-looking information, it is likely that nonfinancial, future-oriented disclosures are incrementally informative to the market. Thus, this result is consistent with our finding that presentations are more informative when firm performance is poor.

Our study contributes to the literature in several ways. It is one of the first studies to separately examine the information content of the two segments of conference calls, adding to the understanding of the benefits of conference calls as a disclosure mechanism. Our evidence suggests the benefit of conference calls is not solely due to managers' ability to verbally provide expanded disclosures in a less structured environment, but is also due to analysts' active involvement in the call, implying that analysts play a role in shaping *public* disclosures made by the firm. These results are also consistent with recent research by Mayew and Venkatachalam (2009) who find that verbal cues during the discussion portion of the call are informative to the market, particularly when analyst scrutiny is high.

Second, our study is one of the first to examine actual conference-call transcripts to examine the amount and type of disclosures made during conference calls and, more specifically, in the two segments of the call.[1] Prior studies have generally only examined the *existence* of conference calls as a measure of firm disclosure (Frankel et al. 1999; Tasker 1998; Bowen et al. 2002) because data on the actual content of calls were not readily available. By using quarter-specific call transcripts, we are able to examine variations in disclosures made by a given firm across time, providing new insights into managers' disclosure decisions. For example, the determinants of the decision to begin hosting conference calls are not necessarily the same as the determinants of the quantity and type of disclosures to provide during a call once the decision to host a call has been made. Thus, while prior studies find that firms that host conference calls are more profitable than those that do not (Frankel et al. 1999), we find that, conditional on hosting a call, firms disclose more information during calls when earnings performance is *poor*. Moreover, while our result is consistent with other research suggesting managers voluntarily provide expanded disclosures in the presence of bad news (Baginski et al. 2004), the fact that we find even greater increases in disclosures during the *discussion* (relative to the presentation) segment of the call suggests that some of the increased disclosures are not completely voluntary. In other words, some disclosures would perhaps not have been made were it not for questioning by analysts.

Our findings are also relevant to recent research by Roychowdhury and Sletten (2011), who find that more of the overall news released during a quarter is concentrated around the earnings announcement in quarters when the overall news is negative. They argue that this concentration is due to the fact that managers have incentives to delay the disclosure of bad news—that is, rather than make preemptive disclosures, managers wait until the earnings announcement to disclose bad news. Our findings suggest that another reason for the greater concentration of news around the earnings announcement may be due to increased disclosures made by managers as a result of analyst inquiries during the discussion portion of the conference call.

In the next section we discuss the prior literature and our hypotheses. We discuss our sample and variable measurement in Section III. Section IV presents our analysis of the information content of the presentation and discussion segments of the call. Section V presents additional analyses on the type of disclosures made during presentations and discussion periods. Section VI concludes.

II. PRIOR LITERATURE AND HYPOTHESIS DEVELOPMENT

Information Content of Presentations and Discussion Periods

A number of prior studies find evidence suggesting that conference calls held in conjunction with an earnings announcement are incrementally informative over the accompanying press release. Frankel et al. (1999) document abnormal trading volume and return volatility during the call period. Bowen et al. (2002) find that analyst forecast accuracy increases after earnings announcements that include conference calls relative to those that do not. Kimbrough (2005) finds that the market under-reacts less to current earnings when conference calls are held in conjunction with an earnings announcement relative to when a call is not hosted.

The reasons that conference calls are incrementally informative could reflect several factors. First, it is possible that managers voluntarily provide new information in the conference call relative

[1] In concurrent work, Frankel et al. (2009) examine the impact of missing analysts' expectations by a penny on the length and tone of conference calls and on the probability of issuing forward-looking guidance. Consistent with our results, they find that firms that miss analyst forecasts have longer conference calls. Our study differs from theirs in that we focus on the relation between information provided in the two segments of the call (presentation and discussion periods) whereas they focus primarily on the relation between missing analysts' expectations and overall call length and tone (both presentations and discussions combined).

to the press release. Frankel et al. (1999, 36) assert that "conference calls, being less formal than written press releases, are subject to a lower standard of legal liability than statements made during press releases." If managers believe this to be true, then they are likely to be willing to provide certain information during the presentation portion of the conference call that they would not be willing to provide in a press release, making the call incrementally more informative.

Second, conference calls are spoken disclosures (versus written), such that it is possible that managers' verbal cues are incrementally informative to call participants. Mayew and Venkatachalam (2009) investigate verbal cues in conference calls and find evidence of a relation between the verbal effect displayed by managers on a call and market returns.

These two reasons suggest that the presentation portion of the conference call will have incremental information content over the accompanying press release. Verbal cues will also potentially impact the informativeness of the discussion portion of the call because of the spontaneous nature of questions and answers.[2] In addition, because of analysts' questions, managers could reveal information that they might not otherwise have disclosed. There are at least two reasons that managers might not initially disclose certain information. First, managers may be unaware that a particular piece of information is important. Second, managers may not initially reveal certain information because they would prefer not to. Disclosure models generally predict that managers will disclose good news and withhold bad news. However, the failure to disclose information will be inferred as bad news, which can lead to an unraveling of the information, unless there are reasons for non-disclosure such as proprietary costs (Verrecchia 1983) or uncertainty about the arrival of information (Dye 1985). If managers fail to disclose certain information in the press release or the presentation portion of the call, then the market may not necessarily be able to infer the lack of disclosure as bad news because it is possible that the manager did not know the market wanted this information. However, if analysts directly ask managers for this information in the discussion portion of the conference call, then this "excuse" for non-disclosure is not viable and the manager will either disclose the information or the market will infer negative information from the unwillingness to disclose (Hollander et al. 2010). In general, prior research is consistent with analysts benefitting from the ability to ask questions (Mayew 2008; Mayew et al. 2009; Libby et al. 2008). For these reasons, we expect the discussion portion of the call to be incrementally informative as well.

Thus, we expect both the presentation and the discussion portions of the call to be incrementally informative over the accompanying press release. In addition, while there are reasons supporting the incremental informativeness of the presentation portion of the call, we expect the discussion session to have greater information content than the presentation segment. Mayew and Venkatachalam (2009) argue that verbal cues are likely to be most prominent during the discussion portion of the call. In addition, prior evidence on the benefits to analysts of participating in conference calls (Mayew 2008; Mayew et al. 2009; Libby et al. 2008) suggests this portion of the call is likely to be more informative than the presentation.

To the extent that analysts' involvement in conference calls leads to more informative discussion sessions, we expect the information content of discussion sessions to increase with analyst following. In addition, because it is likely to be more costly to determine the appropriate disclosures to make when analyst following is greater, managers possibly limit disclosures during the presentation and instead wait to hear analysts' questions during the discussion. Both these factors would result in a positive relation between analyst following and the relative information content of the presentation versus the discussion session.

[2] In fact, the evidence in Mayew and Venkatachalam (2009) is based on an analysis of speech during the discussion portion of the call. However, it is still possible that managers' verbal cues also impact the information content of the presentation portion of the call.

Information Content and Firm Performance

Evidence from prior studies on the relation between firm performance and disclosure is somewhat mixed. Some studies find a positive relation between performance and disclosure (Lev and Penman 1990; Lang and Lundholm 1993; Frankel et al. 1999; Miller 2002).[3] However, other studies find managers are more likely to preempt bad news (Skinner 1994; Soffer et al. 2000). Studies on supplemental disclosures made with earnings forecasts also provide mixed evidence. Baginski et al. (2004) find that managers provide greater supplemental disclosures when forecasting bad news. In contrast, Hutton et al. (2003) find similar levels of qualitative "soft talk" disclosures for good and bad news forecasts, but find greater levels of verifiable forward-looking statements with good news forecasts. The latter finding is consistent with experimental evidence provided in Hirst et al. (2008) that suggests managers have incentives to provide more supplemental disclosures when forecasting *good* news in order to increase the credibility of the forecast.

It is possible that managers provide more disclosures during the presentation portion of the call when firm performance is poor because poor performance cannot persist indefinitely. As a result, market participants will likely demand information about the reasons for the past poor performance (e.g., whether it is transitory) and plans for addressing the poor performance going forward. In other words, uncertainty is higher when performance is poor and managers might seek to alleviate this uncertainty with greater disclosure (we label this the "uncertainty argument"). However, it is also possible that managers have greater incentives to provide expanded disclosures when firm performance is good in order to increase the credibility of the news (we label this the "credibility argument"). Thus, we do not predict a directional relation between firm performance and the information content of the presentation portion of the call.

The above discussion also has implications for the relation between the information content of the discussion portion of the call and firm performance. On the one hand, the uncertainty argument suggests greater disclosure during the discussion session when performance is poor. Because managers likely make more significant changes to their business when performance is poor, analysts will likely need more information from managers in order to appropriately revise their forecasting models. If managers do not know the exact information that analysts need to make these adjustments, then they will not provide this information in the presentation and analysts will likely demand additional disclosures during the discussion period. Alternatively, the credibility argument suggests analysts demand additional disclosures from managers when performance is good in order to assess the credibility of the firm's performance. This latter argument, however, assumes that managers do not *voluntarily* provide these additional disclosures in the presentation portion of the call. As it seems likely that managers would voluntarily provide such disclosures, we conjecture that the uncertainty argument will have greater bearing on the relation between the information content of the discussion and firm performance. Thus, we predict the information content of discussion periods to be greater when firms report poor performance.

The fact that managers may not know the appropriate information to disclose during the presentation when performance is poor also suggests that the information content of the discussion session relative to the presentation will be negatively related to firm performance. That is, when firm performance is poor, the discussion session will be relatively more informative than the presentation. It is also possible that managers know the appropriate disclosures but do not disclose

[3] While prior studies suggest that, on average, firms that host conference calls have better performance, this result does not necessarily imply that a given firm is more likely to host calls in quarters with better performance. More likely, the result is driven by the fact that firms are more likely to adopt a *policy* of hosting calls when performance is better. A firm that has established a policy of hosting conference calls following its earnings announcements would likely find it very costly not to host a call in quarters when earnings performance is poor.

them voluntarily. As discussed previously, disclosure theory suggests that managers have incentives to delay the disclosure of bad news (Verrecchia 1983; Dye 1985) but are less able to credibly avoid these disclosures when directly questioned by analysts. To the extent there are more likely to be additional disclosures that managers fail to disclose during the presentation portion of the call but that analysts uncover during the discussion session, we also expect the relative informativeness of discussion sessions to increase when performance is poor.[4]

III. DATA AND VARIABLE MEASUREMENT

Sample Selection

We begin our sample selection process by identifying announcements of earnings-related conference calls (via Dow Jones Calendar of Corporate Events) held during trading hours (calls beginning after 9:30 a.m. and before 2:30 p.m. EST) by NYSE/NASDAQ firms between January 1, 2003 and December 31, 2005. This process yields 19,043 potential conference calls. We limit our sample to calls held during trading hours because we use intra-day trading data to measure the information content of each segment of the call.[5] We then gather transcripts of calls from Voxant FD wire available through Factiva. We are unable to find transcripts for 5,236 calls, leaving us with a sample of 13,807 conference-call transcripts.[6] We lose 2,581 observations due to missing Trade and Quote (TAQ) data, I/B/E/S analyst forecast data, Compustat data, and/or CRSP data. Finally, because certain of our analyses include firm fixed effects, we eliminate firms with less than four conference calls (1,164 observations). Our final sample comprises 10,062 firm-quarters. Table 1, Panel A details the sample selection process.

Table 1, Panel B presents the sample distribution across calendar quarters. The most observations are in 2004, followed by 2005, and then 2003. The fact that the sample declines in 2005 appears to be due to missing transcripts on Factiva on a few days.[7] Panel C shows the

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[4] The impact of the credibility argument would also result in a negative relation between firm performance and the relative information content of the discussion. If managers seek to enhance the credibility of good firm performance by providing expanded disclosures during the presentation, then the relative information content of the presentation versus the discussion will increase with firm performance (i.e., the information content of the discussion session relative to the presentation will be lower when firm performance is good).

[5] Of the initial sample of 36,074 calls, 39.6 percent of firms always hold calls during trading hours, 35.4 percent always hold calls after trading hours, 14.6 percent switched once during the three-year period either from during to after or vice versa, and 10.4 percent switched more than once. Thus, it appears that the decision to hold calls during or after trading hours tends to be a policy decision that is firm-specific. We compared the four groups of firms on several dimensions including size, analyst following, market-to-book, leverage, performance, and length of presentation and discussion. The only differences that we find are: (1) firms that always hold calls during trading hours are larger and have more leverage than firms that always hold calls after trading hours; (2) firms that hold calls after trading hours have higher market-to-book ratios than firms that switch once. Because there does not appear to be significant differences between the groups, we do not believe that our choice to examine only calls held during trading hours biases our results. However, it may limit the generalizability of our results to the extent that firms that host calls after hours behave differently than firms that host calls during trading hours.

[6] We suspect that the availability of transcripts on Voxant may be related to firm size and analyst coverage. We compare firms with transcripts available on Voxant to those without and indeed find that firms with transcripts are larger (in terms of assets and market capitalization) and more highly followed. This fact does not bias our results but may limit the generalizability of our results to the extent that larger firms behave differently than smaller firms in the way they disclose information, similar to the impact of our choice to limit our sample to calls held during trading hours (see footnote 5).

[7] For 2005, transcripts appear to be missing on April 22, April 26, and July 28. Thus, April and July show a lower number of calls compared to 2004. If we exclude these two months, the number of observations in 2005 is greater than in 2004. The decline in 2005 is not the result of firms hosting fewer conference calls in 2005—the number of conference calls listed on Dow Jones calendar of corporate events shows a continuous increase over the three years (11,046 calls hosted in 2003, 11,880 in 2004 and 13,148 in 2005). We do not believe these missing transcripts introduce any systematic bias into our analysis.

TABLE 1

Sample Selection and Descriptive Data

Panel A: Sample Attrition

Earnings-related conference calls held during trading hours	19,043
Transcripts not available on Voxant FD Wire	(5,236)
Missing data on TAQ or stock price < $1.00	(477)
Missing analyst forecast data on I/B/E/S	(1,753)
Missing Compustat data	(305)
Missing CRSP data	(46)
Less than four conference calls per firm	(1,164)
Final Sample	10,062

Panel B: Sample Distribution across Calendar Quarters

Year		No. of Obs.	% of Obs.
2003	January–March	669	6.65
2003	April–June	618	6.14
2003	July–September	808	8.03
2003	October–December	773	7.68
2004	January–March	898	8.92
2004	April–June	1,013	10.07
2004	July–September	1,001	9.95
2004	October–December	830	8.25
2005	January–March	1,015	10.09
2005	April–June	821	8.16
2005	July–September	771	7.66
2005	October–December	845	8.40
		10,062	100.00

Panel C: Calls per Firm

Calls Per Firm	No. of Firms	Total Calls
4	159	636
5	125	625
6	135	810
7	196	1,372
8	205	1,640
9	198	1,782
10	168	1,680
11	103	1,133
12	32	384
	1,321	10,062

(continued on next page)

TABLE 1 (continued)

Panel D: Distribution of Observations across Industry

NAICS[a] Industry	No. of Obs.	% of Obs.	% of Population[b]
Manufacturing	3,552	35.30	34.11
Finance and Insurance	1,814	18.03	28.09
Information	645	6.41	10.37
Retail Trade	558	5.55	3.96
Mining	488	4.85	3.12
Professional, Scientific, and Technical Services	391	3.89	4.16
Utilities	336	3.34	2.26
Transportation and Warehousing	300	2.98	2.36
Wholesale Retail	295	2.93	2.58
Administrative and Support, Waste Management, and Remediation Services	288	2.86	1.75
Accommodation and Food Services	236	2.34	1.67
Health Care and Social Assistance	213	2.12	1.41
Construction	179	1.78	1.02
Real Estate and Leasing	143	1.42	1.51
Other Services	87	0.86	0.38
Art, Entertainment, and Recreation	73	0.72	0.42
Educational Services	69	0.69	0.31
Agriculture, Forestry, Fishing, and Hunting	13	0.13	0.31
Unclassified Establishments	9	0.09	0.21
Missing NAICS Code	373	3.71	—
	10,062	100.00	100.00

[a] NAICS stands for the North American Industry Classification System.
[b] "% of Population" is the percent of firms on the NYSE and NASDAQ in each NAICS industry classification.

distribution of calls per firm across our sample. We have all 12 conference calls (four per year for three years) for only a small fraction of firms. The reasons for this include missing Compustat, I/B/E/S, CRSP, or TAQ data; missing transcripts on Voxant; calls held outside of trading hours; and no call listed on the Dow Jones Calendar of Corporate Events for a particular quarter (due either to missing data or the initiation/discontinuation of conference calls).[8]

Finally, Table 1, Panel D presents the distribution of our sample across industries, using the North American Industry Classification System (NAICS). We also report the percent of the population of NYSE and NASDAQ firms comprising each industry classification. Our sample

[8] If we had 12 calls for all 1,321 firms in our sample, we should have 15,852 observations. Of the 5,790 quarters missing from our sample, 4 percent are due to missing Compustat, I/B/E/S, CRSP, or TAQ data, 29 percent are due to missing transcripts, 15 percent are due to calls held outside trading hours (see footnote 5), and 52 percent are due to no calls reported on the Dow Jones Calendar of Corporate Events in that quarter. Of the latter group, it appears that 39 percent are due to the initiation or discontinuation of calls (i.e., calls are held either before or after the missing quarter date but not both); whereas 61 percent (1,825 quarters) have calls held both before and after the missing quarter date. We randomly selected 100 of these firms (193 firm-quarters) and searched earnings-announcement-related press releases to find reference to a conference call. In 94 percent of the cases, we were able to find reference to a conference call suggesting that the Dow Jones Calendar of Corporate Events has missing observations and *not* that these firms strategically decided against hosting a call. Thus, it appears that hosting conference calls tends to be a policy choice for the vast majority of firms.

spans a wide range of industries and, in general, reflects the general distribution of industries in the population. The one exception is the Finance and Insurance industry, which comprises only 18 percent of our sample but comprises 28 percent of the population of NYSE/NASDAQ firms.

Measures of Information Content

To measure our dependent variables, we split the transcripts into the presentation and discussion portion of the call by searching for the first occurrence of the word "operator" after the first 1,500 characters of the transcript. We then check whether the transcripts were split appropriately by searching the first 400 characters of the discussion for keywords or phrases that are typically associated with the start of the discussion—for example, "instructions," "question-and-answer," "the floor is now open," and "at this time." For discussion transcripts that did not include any of the keywords, we performed the split manually. In addition, we remove any legal disclaimers at the end of each transcript.

Our primary measure of information content is based on the abnormal absolute returns during each portion of the call. Absolute returns have been used in other studies using intra-day data as a measure of return volatility (Frankel et al. 1999; Lee et al. 1994), and return volatility is a valid measure of information content (Holthausen and Verrecchia 1990).[9] In order to calculate this variable, we first need to determine the start and end times of each call segment. To this end, we use a subsample of 1,263 conference calls made between January and March 2005 for which we have exact start and end times for each segment of the call. We use these times to calculate the number of words spoken per minute during the presentation and discussion segments and use the median (160 and 157 for the presentation and discussion, respectively) to compute the approximate length, in minutes, of the presentation ($\#MIN^{PRES}$) and discussion ($\#MIN^{DISC}$) for our full sample.[10] We then assume that (1) the start of the presentation occurs 116 seconds after the scheduled start time of the conference call, which is the average time spent on the introduction to the conference call based on our subsample, and (2) the beginning of the discussion starts 28 seconds after the end of the presentation, which is the average time spent on instructions by the operator in our subsample.[11] End times are then determined based on the $\#MIN^{PRES}$ and $\#MIN^{DISC}$.

Using these start and end times, we calculate the absolute returns during the presentation ($|RET^{PRES}|$) and the discussion ($|RET^{DISC}|$) using TAQ data. Specifically, $|RET^{PRES}|$ ($|RET^{DISC}|$) is the absolute value of the difference in quote midpoints at the start and end of the presentation (discussion), scaled by the quote midpoint at the start of the presentation (discussion). Then, to

[9] We do not focus on trading volume because disclosures that decrease consensus will increase trading volume (Holthausen and Verrecchia 1990). Thus, if managers provide disclosures that are confusing or ambiguous, then they could potentially increase trading volume (but may not be indicative of greater information content). In addition, prior research suggests that trading volume is exceptionally high for at least several hours (and possibly even days) after the earnings announcement (Lee 1992; Bamber 1987). This fact makes it difficult to disentangle the abnormal trading volume occurring during the presentation/discussion that is the result of information released during the call and the abnormal trading volume related to the earnings release. In contrast, Lee (1992) finds that price adjustments following an earnings announcement occur quickly, generally within the first hour of trading. This makes it less likely that returns during the presentation/discussion are the result of the earnings announcement.

[10] The subsample was gathered for a separate project and represents a random sample of calls made during this time period. We compared this subsample to the overall sample and do not find statistically significant differences between the two in terms of size, analyst following, or any of our performance measures. Thus, we believe the subsample is a representative sample for which to estimate the average words spoken per minute during each segment of the call.

[11] The interquartile range for the delay in the presentation (discussion) is 56 (12) seconds. Starting the computation of returns at the 1st quartile rather than the median would add roughly 28 (6) seconds to the presentation (discussion) return period, which is only 2.5 percent (0.3 percent) of the total time of the presentation (discussion). Thus, we do not believe this assumption significantly affects our results.

control for potential patterns in intra-day trading, we subtract the median absolute return observed during the same time period as the presentation and discussion but on all non-conference call days during the quarter ($|ABRET^{PRES}|$ and $|ABRET^{DISC}|$).[12] The difference in returns, *DIFFRET*, is defined as $|ABRET^{PRES}|$ less $|ABRET^{DISC}|$. Positive values of *DIFFRET* imply that presentations are more informative than discussions, and negative values imply the opposite.

Descriptive Statistics

Table 2, Panel A reports descriptive statistics on the length of conference calls. The average length of the presentation (discussion) is 18 (28) minutes, or 2,928 (4,439) words. The interquartile ranges for $\#MIN^{PRES}$ and $\#MIN^{DISC}$ are 10 and 17 minutes, respectively. Thus, discussion periods tend to be longer and are somewhat more variable in length than presentations. If length is related to information content, then this observation suggests that discussion periods are more informative than presentation periods.

We also provide evidence on within-firm variation in call length by computing the interquartile (IQ) range of $\#MIN^{PRES}$ and $\#MIN^{DISC}$ (IQ^{PRES} and IQ^{DISC}) by firm. We note that the average within-firm *IQ* range for discussion periods (10.5 minutes) is over twice as large as the average *IQ* range for presentation periods (4.7 minutes), indicating significantly greater within-firm variation in discussion period length. This difference is not surprising, as firms have greater control over the length of presentations than over discussion periods. In addition, presentations likely follow a general pattern for a given firm, leading to less variation in presentations.

The mean abnormal absolute return during the presentation ($|ABRET^{PRES}|$) is 0.40 percent, while the mean abnormal absolute return during the discussion ($|ABRET^{DISC}|$) is 0.51 percent.[13] Both t-tests as well as signed rank tests indicate that the presentation and discussion period returns are significantly greater than zero ($p < 0.001$), suggesting that both segments of the call are informative to the market. In addition, the average difference in returns (*DIFFRET*) is −0.11 percent, indicating that, on average, discussion periods have greater absolute abnormal returns than presentation periods. Both t-tests and signed rank tests indicate that this value is significantly different from zero ($p < 0.001$). In addition, in 52 percent of firm quarters *DIFFRET* is negative (untabulated), which is significant using a Chi-square test ($\chi^2 = 57.92$; $p < 0.001$).

These results provide initial evidence that both presentation and discussion sessions are incrementally informative to the market. Although prior research suggests that price adjustments generally occur very quickly following an earnings release (Lee 1992), it is possible that the returns during the presentation and discussion period are abnormally high not because of information revealed during the call, but rather because of a delayed reaction to the earnings announcement. Note, however, that to the extent there is a delayed reaction and this reaction dissipates over time, this possibility biases against finding higher information content in the discussion period relative to

[12] We use quote data rather than trade data to calculate returns to avoid the bid-ask bounce problem. Our calculation is consistent with Lee (1992) who also uses the quote midpoint to calculate returns and subtracts an average return during a similar time interval over non-announcement days. We use the median rather than the mean because we want to control for time-period-specific price movements that occur on a typical day. However, we also test the sensitivity of our results to using the mean return on non-conference call days and we find inferentially similar results.

[13] Frankel et al. (1999) report average abnormal absolute returns during the entire conference call period of 0.46 percent, which is somewhat smaller than the average abnormal return for the entire call period in our sample (0.40 percent + 0.51 percent = 0.91 percent). However, Frankel et al. (1999) use as their control period the 75 minutes ending 15 minutes prior to the conference call under the assumption that the related earnings release occurs prior to that time (the authors hand-collect the time of the related announcement for their sample of 164 conference calls). If we compare our absolute returns, unadjusted for the control period, our returns are similar: 1.34 percent in our sample versus 1.23 percent in their sample.

TABLE 2

Descriptive Statistics on Dependent Variables

Panel A: Descriptive Statistics on Call Length (n = 10,062)

Variable	Mean	1st Percentile	25th Percentile	Median	75th Percentile	99th Percentile	Std. Dev.	IQ Range
$\#MIN^{PRES}$	18.29	3.78	12.79	17.48	22.73	41.18	7.79	9.93
$\#MIN^{DISC}$	28.25	4.47	18.95	27.64	36.20	65.08	13.09	17.25
$LENGTH^{PRES}$	2928.17	605.00	2047.00	2798.00	3638.00	6591.00	1246.72	1591.00
$LENGTH^{DISC}$	4438.53	702.00	2977.00	4342.00	5687.00	10223.00	2055.93	2710.00
IQ^{PRES}	4.65	0.69	2.50	3.93	6.02	15.95	3.32	
IQ^{DISC}	10.46	1.56	6.59	9.50	13.43	26.97	5.42	

Panel B: Descriptive Statistics on Abnormal Absolute Returns (n = 10,062)

Variable	Mean	1st Percentile	25th Percentile	Median	75th Percentile	99th Percentile	Std. Dev.	t-stat p-value	Signed Rank p-value
$\lvert ABRET^{PRES}\rvert$	0.0040	−0.0037	−0.0004	0.0014	0.0054	0.0388	0.0083	0.001	0.001
$\lvert ABRET^{DISC}\rvert$	0.0051	−0.0036	−0.0003	0.0019	0.0067	0.0470	0.0099	0.001	0.001
$DIFFRET$	−0.0011	−0.0401	−0.0041	−0.0002	0.0028	0.0323	0.0113	0.001	0.001

Panel C: Correlation Matrix[a]

Variable	$\lvert ABRET^{PRES}\rvert$	$\lvert ABRET^{DISC}\rvert$	$\lvert RET^{DAYB4}\rvert$	$LENGTH^{PRES}$	$LENGTH^{DISC}$
$\lvert ABRET^{PRES}\rvert$	1.000	**0.193**	**0.163**	**0.105**	**0.058**
$\lvert ABRET^{DISC}\rvert$	**0.245**	1.000	**0.182**	0.001	**0.145**
$\lvert RET^{DAYB4}\rvert$	**0.230**	**0.225**	1.000	−0.012	**0.071**
$LENGTH^{PRES}$	**0.125**	0.003	−0.016	1.000	**0.111**
$LENGTH^{DISC}$	**0.033**	**0.161**	**0.061**	**0.080**	1.000

[a] Spearman correlations shown above the diagonal; Pearson correlations shown below the diagonal. Correlations in bold are significant at less than 0.001, the remaining correlations are not significant at the 10 percent level.

Variable Definitions:
$\#MIN^{PRES}$, $\#MIN^{DISC}$ = estimated number of minutes of the presentation and discussion, based on the median number of words spoken per minute based on a subsample of 1,263 calls for which we have the exact start and end times of the presentation and discussion;
$LENGTH^{PRES}$, $LENGTH^{DISC}$ = number of words spoken during the presentation and discussion, respectively;
IQ^{PRES}, IQ^{DISC} = firm-specific interquartile ranges of the number of minutes in the presentation and discussion, respectively;
$\lvert RET^{PRES}\rvert$ ($\lvert RET^{DISC}\rvert$) = absolute value of the difference between the quote midpoint at the start of the presentation (discussion) and the quote midpoint at the end of the presentation (discussion), scaled by the quote midpoint at the start of the presentation (discussion);
$\lvert ABRET^{PRES}\rvert$ ($\lvert ABRET^{DISC}\rvert$) = $\lvert RET^{PRES}\rvert$ ($\lvert RET^{DISC}\rvert$) less the median value of all absolute returns measured during the same time period on non-conference call days during the quarter;
$DIFFRET$ = $\lvert ABRET^{PRES}\rvert$ less $\lvert ABRET^{DISC}\rvert$; and
$\lvert RET^{DAYB4}\rvert$ = absolute value of the quote midpoint at the start of the conference call less the quote midpoint at the same time one trading day before the conference call ($MID^{dayprior}$) divided by $MID^{dayprior}$ (from the TAQ database).

the presentation period. Nevertheless, to provide evidence on this possibility, we examine the relation between presentation and discussion period abnormal returns and the absolute returns in the 24 hours prior to the conference call ($\lvert RET^{DAYB4}\rvert$). Since the vast majority of earnings press releases are released shortly before the conference call, this variable should capture the news in the earnings

press release.[14] Specifically, we take the quote midpoint at the start of the conference call (MID^{START}) less the quote midpoint at the same time one trading day before the conference call (MID^{DAYB4}) divided by MID^{DAYB4}.[15] To the extent that delayed reactions are greater when news in the earnings announcement is greater, there should be a positive association between $|RET^{DAYB4}|$ and $|ABRET^{PRES}|$ and $|ABRET^{DISC}|$.

Table 2, Panel C presents a correlation matrix of the information content variables (as well as measures of call length). Spearman (Pearson) correlations are reported above (below) the diagonal. Both $|ABRET^{PRES}|$ and $|ABRET^{DISC}|$ are highly correlated with $|RET^{DAYB4}|$ (r = 0.225 and r = 0.245 for the presentation and discussion, respectively), suggesting the possibility of a delayed reaction to news in the earnings announcement. However, it is also possible that managers provide more disclosures during conference calls when there is more news in the earnings announcement. The fact that the length of the discussion ($LENGTH^{DISC}$) is also highly correlated with $|RET^{DAYB4}|$ suggests this possibility. Nevertheless, it is important that we control for the possibility of delayed reactions when analyzing the information content of the presentation and discussion. In addition, we note that $|ABRET^{PRES}|$ and $|ABRET^{DISC}|$ are highly correlated with each other (r = 0.24), suggesting that returns during the discussion period also may be a delayed reaction to the presentation.[16] Thus, in subsequent tests, we control for the absolute returns during the presentation when analyzing the absolute returns during the discussion.[17]

IV. EMPIRICAL DESIGN AND RESULTS

Information Content of Presentation and Discussion Sessions

Our formal tests of the information content of the presentation and discussion sessions are based on the following regressions:

$$|ABRET^{PRES}| = \beta_0 + \beta_1 |RET^{DAYB4}| + \varepsilon; \tag{1}$$

$$|ABRET^{DISC}| = \beta_0 + \beta_1 |RET^{DAYB4}| + \beta_2 |ABRET^{PRES}| + \varepsilon. \tag{2}$$

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[14] For approximately 98 percent of our sample, the conference call date coincides with the earnings announcement date per Compustat or is one day later. Thus, returns in the 24 hours prior to the call capture the market reaction to the press release in the vast majority of cases.

[15] Note that we do not adjust the returns for the median return on non-conference call days (as we do with $|ABRET^{PRES}|$ and $|ABRET^{DISC}|$) because intra-day trading patterns are not a concern with the variable since it is measured over an entire trading day.

[16] We also examined the correlation between *signed* returns during the earnings release and *signed* returns during the presentation/discussion. To the extent there is a delayed price reaction, one would expect the signed returns to be correlated. The correlation between earnings announcement signed returns and (1) presentation period signed returns and (2) discussion period signed returns are both insignificant. However, we do note a significantly positive correlation between signed returns during the presentation and signed returns during the discussion (r = 0.049), suggesting the possibility of a delayed reaction to the presentation occurring during the discussion.

[17] We also note that the length of the presentation (discussion) is significantly correlated with the information content of the presentation (discussion), indicating that longer presentations/discussions have greater information content. Note, however, that the correlations are far from unity (r = 0.125 and 0.16 for presentations and discussions, respectively), suggesting that these potentially measure different aspects of information content. In subsequent sensitivity tests, we use length as an alternative measure of information content and find similar results. Our results, however, do not speak to whether the information *per words spoken* differs between the presentation and discussion. Such an analysis is problematic because presentations are prepared in advance, whereas discussions are based on spontaneous speech, making it difficult to compare the "efficiency" of words spoken in communicating information.

The intercept (β_0) in each equation represents the average abnormal absolute return during each segment of the call, controlling for the information content of prior news events. In the case of the presentation (Equation (1)), we control for the information content of the earnings announcement press release ($|RET^{DAYB4}|$). In the case of the discussion (Equation (2)), we control for both the information content of the press release as well as the information content of the presentation portion of the call. Because it is possible that the magnitude of returns that occurs during the presentation and discussion segments of the call has a firm-specific component, we calculate standard errors clustered by firm (Petersen 2009).[18] In addition, to ensure our results are not driven by extreme observations, we winsorize all variables at the 1 percent level.

The results of this analysis are presented in Table 3, Panel A. The first (second) set of columns presents the results for the returns during the presentation (discussion). Consistent with our univariate correlations, the coefficient on $|RET^{DAYB4}|$ is positive and statistically significant in both sets of regressions, as is the coefficient on $|ABRET^{PRES}|$ in the regression of discussion period returns. More importantly, the intercepts in both equations are positive and statistically significant, indicating that both the presentation and discussion segments have incremental information content over the accompanying press release and, in the case of the discussion, over information released during the presentation. The value of the intercept indicates that the average abnormal absolute return, after controlling for the information content of prior news events, is roughly 0.2 percent for both the presentation and discussion.[19]

We also examine differences in information content between the two segments by running a regression similar to Equation (1) but with *DIFFRET* as the dependent variable. The results of this analysis are presented in Table 3, Panel B. The coefficient on $|RET^{DAYB4}|$ is negative and significant, but only at the 10 percent level.[20] More importantly, the intercept is negative and statistically significant, consistent with the discussion segment of the call having greater information content than the presentation. The magnitude of the intercept indicates that, on average, abnormal absolute returns during the discussion session are 0.08 percent higher than absolute returns during the presentation. The magnitude of the difference appears small, but represents a 34 percent increase over the average abnormal absolute returns during the presentation (0.08 percent ÷ 0.23 percent).

The fact that the discussion portion of the call is relatively more informative than the presentation suggests that analyst participation is an important part of the incremental informativeness of conference calls. To further investigate the role of analysts in the information content of the presentation and discussion, we calculate the quintile rank (by year) of the number of

[18] For example, sophisticated investors may be more likely to listen to conference calls and trade during the call period, potentially impacting the speed with which information is impounded in price. We do not use two-way clustered standard errors (as suggested by Gow et al. [2010]) because the probability of cross-sectional dependence in our dependent variable is low (i.e., the likelihood of significant overlap in the exact timing of presentation and discussion periods in our sample is low given the narrow windows used to measure the returns).

[19] The fact that average returns in this analysis have roughly equivalent magnitudes might suggest that both segments have roughly the same information content. However, if we exclude presentation returns from our discussion period regression, we find average returns during the discussion of 0.3 percent, which are roughly 30 percent larger in magnitude than presentation period returns. While including presentation returns in the discussion period regression alleviates concerns of delayed price reactions, it also reduces the impact of any discussion period disclosures that are correlated with presentation disclosures.

[20] Note that if there was a delayed reaction to news in the earnings announcement, then one would expect a *positive* (not negative) coefficient on $|RET^{DAYB4}|$ because presentation abnormal returns would be greater than discussion period abnormal returns (since presentations occur before discussions). It is possible that discussion period returns are affected by information in the presentation; however, including $|ABRET^{PRES}|$ in this regression is problematic because $|ABRET^{PRES}|$ is part of the definition of *DIFFRET*. Nevertheless, in untabulated analysis, we include $|ABRET^{PRES}|$ in the regression and continue to find a significantly negative intercept. Not surprisingly, the coefficient on $|ABRET^{PRES}|$ is positive and extremely significant.

TABLE 3

Analysis of the Information Content of Presentation and Discussion Sessions

Panel A: Incremental Information Content of Presentation and Discussion Sessions[a]

		$\lvert ABRET^{PRES} \rvert$			$\lvert ABRET^{DISC} \rvert$		
Variable[c]	**Pred. Sign**	**Coeff.**	**t-stat**	**p-value**	**Coeff.**	**t-stat**	**p-value**
Intercept	+	0.0023	20.99	0.001	0.0021	15.15	0.001
$\lvert RET^{DAYB4} \rvert$	+	0.0481	15.31	0.001	0.0444	12.84	0.001
$\lvert ABRET^{PRES} \rvert$	+				0.2315	13.71	0.001
		n = 10,062, R^2 = 0.055			n = 10,062, R^2 = 0.091		

Panel B: Relative Incremental Information Content of Presentation versus Discussion[a]

		DIFFRET		
Variable[c]	**Pred. Sign**	**Coeff.**	**t-stat**	**p-value**
Intercept	−	−0.0008	−5.41	0.001
$\lvert RET^{DAYB4} \rvert$	?	−0.0082	−1.87	0.062
		n = 10,062, R^2 = 0.003		

Panel C: Effect of Analyst Following on Incremental Information Content[b]

		$\lvert ABRET^{PRES} \rvert$			$\lvert ABRET^{DISC} \rvert$		
Variable[c]	**Pred. Sign**	**Coeff.**	**t-stat**	**p-value**	**Coeff.**	**t-stat**	**p-value**
Intercept	+	0.0023	13.25	0.001	0.0015	8.26	0.001
$\lvert RET^{DAYB4} \rvert$	+	0.0480	15.38	0.001	0.0452	13.14	0.001
$\lvert ABRET^{PRES} \rvert$	+				0.2313	13.67	0.001
R_AF	+	0.0000	0.33	0.628	0.0003	4.24	0.001
		n = 10,062, R^2 = 0.055			n = 10,062, R^2 = 0.094		

Panel D: Effect of Analyst Following on Relative Incremental Information Content[b]

		DIFFRET			*DIFFLENGTH*		
Variable[c]	**Pred. Sign**	**Coeff.**	**t-stat**	**p-value**	**Coeff.**	**t-stat**	**p-value**
Intercept	+	0.0002	−0.76	0.776	−0.4044	−5.66	0.001
$\lvert RET^{DAYB4} \rvert$	?	−0.0091	−2.06	0.039	−5.7267	−7.02	0.001
R_AF	−	−0.0003	−3.79	0.001	−0.4571	−14.02	0.001
		n = 10,062, R^2 = 0.003			n = 10,062, R^2 = 0.090		

[a] Panels A and B present results of regressions of (1) abnormal absolute returns during the presentation ($\lvert ABRET^{PRES} \rvert$) and discussion ($\lvert ABRET^{DISC} \rvert$) and (2) the difference in abnormal returns between the presentation and discussion (*DIFFRET*) on absolute returns during the earnings announcement period ($\lvert RET^{DAYB4} \rvert$) and, in the case of returns during the discussion, on the absolute returns during the presentation. The intercept in each regression represents the mean abnormal absolute returns, controlling for the information content of prior events, during each segment of the call or, in the case of *DIFFRET*, the mean difference in absolute abnormal returns (where positive [negative] values indicate the presentation [discussion] has greater information content). Standard errors are clustered by firm.

[b] Panels C and D present results of regressions similar to Panels A and B but including the within-year quintile rank of the firm's analyst following. A positive coefficient on *R_AF* in Panel C indicates greater information content for firms with higher analyst following. A negative coefficient on *R_AF* in Panel D indicates the relative information content of the discussion over the presentation is greater for firms with higher analyst following. In addition, we run similar regressions using the difference in the length (in number of words) of the presentation and discussion sessions (*DIFFLENGTH*). Standard errors are clustered by firm.

[c] See Table 2 for variable definitions.

analysts issuing a forecast for the quarter (*R_AF*) and include this variable in our prior regressions.[21]

The results of these analyses are presented in Table 3, Panels C and D. For presentation returns, the coefficient on *R_AF* is not statistically different from zero, indicating that greater analyst following does not increase the information content of management presentations. In contrast, the abnormal absolute returns during the discussion portion of the call increase as analyst following increases, which is more consistent with the notion that analysts' active involvement in the discussion session is the source of the greater information content of the discussion session (as opposed to a delayed price reaction to the presentation).

Also, as shown in Table 3, Panel D, the difference in returns between the presentation and discussion is negatively related to analyst following. The intercept is no longer statistically significant, indicating that firms in the lowest analyst following quintile have equally informative presentation and discussion sessions. In contrast, the information content of the discussion is 0.14 percent higher than the presentation for firms in the highest analyst following quintile ($(4 \times 0.0003 = 0.0012) + 0.0002 = 0.0014$), a difference that represents a 38 percent increase over the average abnormal returns during the presentation session for firms in this quintile.[22]

As additional evidence that the greater information content of the discussion session (relative to the presentation) is due to analyst involvement, we also examine the difference in the relative length (in words) of each segment. *DIFFLENGTH* is defined as the difference between $LENGTH^{PRES}$ and $LENGTH^{DISC}$. Results are reported in the last set of columns in Table 3, Panel D. As with absolute returns, we find that the coefficient on *R_AF* is significantly negative, indicating that discussion periods are longer relative to presentations when analyst following is higher.[23]

Overall, these results support our conjecture that, while both presentations and discussion sessions have incremental information content over the accompanying earnings press release, discussion sessions tend to provide greater relative information content likely as a result of analysts' active involvement in these question-and-answer sessions.

The Relation between Information Content and Firm Performance

We next examine whether managers' incentives to disclose information varies based on firm performance. We use two accounting and two market-based measures of firm performance. The accounting-based measures are (1) return on assets for the quarter (*ROA*) and (2) an indicator variable equal to 1 if the firm failed to meet analysts' consensus forecasts for the quarter (*MISS*). The market-based measures are (1) market-adjusted returns during the quarter, excluding the earnings announcement (RET^{QTR}) and (2) the returns during the 24 hours prior to the conference call (RET^{DAYB4}). Note that for each set of measures, one captures performance over the entire quarter, while the other captures the unexpected performance at the time of the earnings release. Exact variable definitions are provided in Table 4.

Because we are specifically interested in the impact of performance on the information content of presentations and discussion sessions, it is important to control for potential correlated omitted

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[21] Alternatively, we measured the number of analysts who participate in each conference call held by the firm and find similar results.

[22] The mean of *DIFFRET* for quintiles one to five, respectively, are −0.0002, −0.0009, −0.0013, −0.0013, −0.0014. Thus, the difference in abnormal absolute returns decreases nearly monotonically across the five quintile groups.

[23] Note, however, that the intercept in this regression is negative and significant, indicating that even for the lowest quintile of analyst following, discussions are significantly longer than presentations. In addition, in untabulated analysis we also find that the length of the presentation is positively related to analyst following, in contrast to absolute returns during the presentation, which are unrelated to analyst following. Thus, firms with greater analyst following provide longer presentations but these presentations are not necessarily more informative.

TABLE 4

Firm Performance and the Information Content of Presentations and Discussions

Panel A: Univariate Statistics

Variable	Mean	1st Quartile	Median	3rd Quartile	Std. Deviation
ROA	0.008	0.003	0.010	0.020	0.043
RET^{QTR}	−0.008	−0.102	−0.016	0.075	0.170
RET^{DAYB4}	0.001	−0.020	0.001	0.023	0.051
MISS	0.285	0.000	0.000	1.000	0.451
$\|RET^{QTR}\|$	0.121	0.043	0.090	0.162	0.120
$\|RET^{DAYB4}\|$	0.034	0.009	0.022	0.045	0.038
|FE|	0.005	0.000	0.001	0.003	0.024
|SPITEM|	0.003	0.000	0.000	0.001	0.031
|DISOP|	0.001	0.000	0.000	0.000	0.007
$M\&A^{CC}$	0.193	0.000	0.096	0.295	0.241
$RESTR^{CC}$	0.044	0.000	0.000	0.038	0.106
ΔSALES	0.026	0.001	0.015	0.041	0.066
AF	7.350	3.000	6.000	10.000	5.888
LNA	7.277	6.053	7.190	8.371	1.782

Panel B: Correlation Matrix[a]

Variable	*ROA*	RET^{QTR}	RET^{DAYB4}	*MISS*	$\|RET^{QTR}\|$	$\|RET^{DAYB4}\|$	*|FE|*	*|SPITEM|*	*|DISOP|*	$M\&A^{CC}$	$RESTR^{CC}$	*ΔSALES*	*AF*	*LNA*
ROA	1.00	0.05	0.09	−0.18	−0.03	0.02	−0.05	−0.22	−0.02	−0.01	−0.08	0.24	0.07	0.08
RET^{QTR}	−0.01	1.00	−0.05	−0.07	−0.07	−0.01	−0.04	−0.01	0.01	0.00	−0.01	0.05	0.00	0.07
RET^{DAYB4}	0.03	−0.07	1.00	−0.27	0.00	0.03	0.05	−0.01	0.00	0.01	0.00	0.09	−0.04	−0.01
MISS	−0.08	−0.08	−0.28	1.00	0.01	0.05	0.17	0.03	0.00	0.00	0.01	−0.10	0.02	0.03
$\|RET^{QTR}\|$	−0.01	0.07	0.00	0.00	1.00	0.04	0.04	0.03	0.00	0.01	0.03	−0.02	−0.06	−0.08
$\|RET^{DAYB4}\|$	0.04	−0.02	−0.05	0.07	0.05	1.00	0.12	0.03	0.00	−0.02	0.00	0.01	0.02	0.04
|FE|	−0.04	−0.03	0.00	0.06	0.03	0.04	1.00	0.09	0.08	−0.01	0.04	−0.01	−0.04	−0.03
|SPITEM|	−0.67	0.02	0.00	0.01	0.01	−0.01	0.03	1.00	0.07	0.02	0.15	−0.02	−0.01	−0.01
|DISOP|	0.00	0.03	0.00	0.01	0.02	−0.01	0.02	0.01	1.00	−0.01	0.05	−0.03	−0.01	0.02
$M\&A^{CC}$	0.00	0.01	0.02	0.00	−0.01	−0.02	0.00	0.00	−0.01	1.00	−0.02	0.08	−0.01	0.06

(continued on next page)

TABLE 4 (continued)

Variable	*ROA*	RET^{QTR}	RET^{DAYB4}	*MISS*	$\lvert RET^{QTR}\rvert$	$\lvert RET^{DAYB4}\rvert$	*|FE|*	*|SPITEM|*	*|DISOP|*	$M\&A^{CC}$	$RESTR^{CC}$	*ΔSALES*	*AF*	*LNA*
$RESTR^{CC}$	−0.02	0.00	0.02	0.01	0.02	−0.01	0.05	0.01	0.02	−0.04	1.00	−0.06	−0.03	−0.01
ΔSALES	0.10	0.01	0.06	−0.07	0.01	0.02	0.01	−0.02	−0.01	0.05	−0.03	1.00	0.02	0.10
AF	0.02	−0.02	−0.03	0.02	−0.07	0.02	−0.01	0.01	−0.02	−0.01	−0.02	−0.02	1.00	0.27
LNA	0.02	0.00	−0.02	0.03	−0.06	0.04	−0.01	0.01	0.00	0.07	−0.01	0.04	0.26	1.00

Panel C: Relation between Firm Performance and Abnormal Absolute Returns during the Presentation[b]

		$\lvert ABRET^{PRES}\rvert$		$\lvert ABRET^{PRES}\rvert$		$\lvert ABRET^{PRES}\rvert$		$\lvert ABRET^{PRES}\rvert$		$\lvert ABRET^{PRES}\rvert$		$\lvert ABRET^{PRES}\rvert$	
Variable	**Pred. Sign**	**Coeff.**	**t-stat**	**Coeff.**	**t-stat**	**Coeff.**	**t-stat**	**Coeff.**	**t-stat**	**Coeff.**	**t-stat**	**Coeff.**	**t-stat**
ROA	+/−	−0.0023	−0.73	−0.0019	−0.37					−0.0023	−0.52	−0.0009	−0.19
MISS	+/−	**0.0007**	**4.24**	**0.0005**	**2.69**					*0.0003*	*1.85*	0.0001	0.44
RET^{QTR}	+/−					*−0.0009*	*−1.89*	−0.0006	−1.29	*−0.0008*	*−1.69*	−0.0006	−1.24
RET^{DAYB4}	+/−					**−0.0130**	**−8.50**	**−0.0122**	**−8.02**	**−0.0121**	**−7.55**	**−0.0120**	**−7.55**
$\lvert RET^{QTR}\rvert$	+/−			0.0004	0.54			0.0004	0.56			0.0004	0.56
$\lvert RET^{DAYB4}\rvert$	+/−			**0.0310**	**13.73**			**0.0307**	**13.69**			**0.0307**	**13.64**
|FE|	+/−			**0.0329**	**3.01**			**0.0362**	**3.37**			**0.0353**	**3.24**
|SPITEM|	+/−			*0.0179*	*1.63*			**0.0201**	**1.99**			*0.0193*	*1.76*
|DISOP|	+/−			**0.0658**	**1.99**			**0.0644**	**1.95**			**0.0646**	**1.96**
$M\&A^{CC}$	+/−			0.0201	0.41			0.0287	0.59			0.0283	0.58
$RESTR^{CC}$	+/−			0.0179	0.18			0.0340	0.34			0.0326	0.33
ΔSALES	+/−			−0.0004	−0.19			0.0005	0.21			0.0006	0.28
AF	+/−			0.0001	1.39			0.0001	1.16			0.0001	1.17
LNA	+/−			**0.0019**	**3.88**			**0.0018**	**3.80**			**0.0018**	**3.79**
Q2	+/−	0.0001	0.33	−0.0001	−0.65	0.0000	0.14	−0.0001	−0.78	0.0000	0.21	−0.0001	−0.76
Q3	+/−	−0.0002	−0.79	*−0.0003*	*−1.77*	−0.0002	−1.04	**−0.0004**	**−1.95**	−0.0002	−1.01	**−0.0004**	**−1.93**
Q4	+/−	0.0001	0.50	0.0000	−0.09	0.0000	0.25	−0.0001	−0.35	0.0001	0.27	−0.0001	−0.33
Y04	+/−	**0.0004**	**2.42**	0.0003	1.52	**0.0005**	**2.66**	*0.0003*	*1.76*	**0.0005**	**2.68**	*0.0003*	*1.76*
Y05	+/−	0.0002	1.02	−0.0002	−1.19	0.0002	1.26	−0.0002	−0.94	0.0002	1.24	−0.0002	0.94
Firm Fixed Effects		Included		Included		Included		Included		Included		Included	

(continued on next page)

TABLE 4 (continued)

Panel D: Relation between Firm Performance and Abnormal Absolute Returns during the Discussion[c]

		$\|ABRET^{DISC}\|$		$\|ABRET^{DISC}\|$		$\|ABRET^{DISC}\|$		$\|ABRET^{DISC}\|$		$\|ABRET^{DISC}\|$		$\|ABRET^{DISC}\|$	
Variable	**Pred. Sign**	**Coeff.**	**t-stat**	**Coeff.**	**t-stat**	**Coeff.**	**t-stat**	**Coeff.**	**t-stat**	**Coeff.**	**t-stat**	**Coeff.**	**t-stat**
ROA	−	0.0023	0.43	−0.0015	−0.25					0.0035	0.65	−0.0002	−0.04
MISS	+	**0.0008**	**4.07**	**0.0007**	**3.34**					*0.0003*	*1.51*	0.0002	0.78
RET^{QTR}	−					**−0.0017**	**−3.06**	**−0.0016**	**−2.86**	**−0.0017**	**−2.91**	**−0.0016**	**−2.77**
RET^{DAYB4}	−					**−0.0160**	**−8.75**	**−0.0161**	**−8.85**	**−0.0153**	**−7.98**	**−0.0157**	**−8.25**
$\|RET^{QTR}\|$	+/−			**0.0022**	**2.43**			**0.0022**	**2.49**			**0.0022**	**2.49**
$\|RET^{DAYB4}\|$	+/−			**0.0295**	**10.81**			**0.0295**	**10.86**			**0.0294**	**10.80**
|FE|	+/−			0.0093	0.71			0.0138	1.07			0.0122	0.93
|SPITEM|	+/−			0.0124	0.94			0.0154	1.27			0.0151	1.15
|DISOP|	+/−			0.0364	0.92			0.0359	0.91			0.0362	0.92
$M\&A^{CC}$	+/−			−0.0003	−0.52			−0.0002	−0.32			−0.0002	−0.32
$RESTR^{CC}$	+/−			*−0.0022*	*−1.84*			*−0.0020*	*−1.67*			*−0.0020*	*−1.68*
ΔSALES	+/−			**0.0069**	**2.52**			**0.0081**	**3.06**			**0.0083**	**3.03**
AF	+/−			0.0000	−0.86			−0.0001	−1.17			−0.0001	−1.17
LNA	+/−			**0.0016**	**2.71**			**0.0015**	**2.58**			**0.0015**	**2.57**
Q2	+/−	**0.0007**	**3.09**	**0.0004**	**2.52**	**0.0007**	**2.94**	**0.0005**	**2.35**	**0.0007**	**2.94**	**0.0005**	**2.36**
Q3	+/−	**0.0005**	**2.20**	*0.0004*	*1.78*	*0.0004*	*1.93*	0.0004	1.52	*0.0004*	*1.90*	0.0004	1.53
Q4	+/−	0.0003	1.30	0.0003	1.31	0.0002	0.95	0.0002	0.89	0.0002	0.96	0.0002	0.91
Y04	+/−	*0.0004*	*1.73*	0.0003	1.39	**0.0005**	**2.23**	*0.0004*	*1.89*	**0.0005**	**2.18**	*0.0004*	*1.87*
Y05	+/−	**0.0005**	**2.10**	0.0002	0.92	**0.0006**	**2.59**	0.0004	1.40	**0.0005**	**2.48**	0.0003	1.37
$\|ABRET^{PRES}\|$	+	**0.1832**	**14.37**	**0.1594**	**12.44**	**0.1750**	**13.73**	**0.1508**	**11.77**	**0.1747**	**13.71**	**0.1508**	**11.77**
Firm Fixed Effects		Included		Included		Included		Included		Included		Included	

Panel E: Relation between Firm Performance and Relative Information Content of Presentation versus Discussion[d]

		DIFFRET		*DIFFRET*		*DIFFRET*		*DIFFRET*		*DIFFRET*		*DIFFRET*	
Variable	**Pred. Sign**	**Coeff.**	**t-stat**	**Coeff.**	**t-stat**	**Coeff.**	**t-stat**	**Coeff.**	**t-stat**	**Coeff.**	**t-stat**	**Coeff.**	**t-stat**
ROA	+	−0.0050	−0.77	−0.0001	−0.01					−0.0054	−0.83	−0.0006	−0.08
MISS	−	−0.0002	−0.96	−0.0003	−1.18					0.0000	−0.19	−0.0001	−0.38

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TABLE 4 (continued)

Variable	Pred. Sign	*DIFFRET* Coeff.	t-stat	*DIFFRET* Coeff.	t-stat	*DIFFRET* Coeff.	t-stat	*DIFFRET* Coeff.	t-stat	*DIFFRET* Coeff.	t-stat	*DIFFRET* Coeff.	t-stat
RET^{QTR}	+					*0.0010*	*1.44*	*0.0011*	*1.58*	*0.0010*	*1.42*	*0.0011*	*1.54*
RET^{DAYB4}	+					**0.0053**	**2.38**	**0.0058**	**2.60**	**0.0053**	**2.28**	**0.0055**	**2.38**
$\|RET^{QTR}\|$	+/−			*−0.0018*	*−1.68*			*−0.0018*	*−1.71*			*−0.0018*	*−1.71*
$\|RET^{DAYB4}\|$	+/−			−0.0035	−1.06			−0.0034	−1.03			−0.0033	−1.00
$\|FE\|$	+/−			0.0183	1.15			0.0169	1.07			0.0178	1.11
$\|SPITEM\|$	+/−			0.0026	0.16			0.0017	0.11			0.0012	0.08
$\|DISOP\|$	+/−			0.0189	0.39			0.0188	0.39			0.0186	0.39
$M\&A^{CC}$	+/−			0.0475	0.67			0.0427	0.60			0.0429	0.60
$RESTR^{CC}$	+/−			0.2369	1.61			0.2288	1.55			0.2295	1.56
$\Delta SALES$	+/−			**−0.0072**	**−2.17**			**−0.0077**	**−2.37**			**−0.0077**	**−2.31**
AF	+/−			0.0001	1.50			*0.0001*	*1.63*			*0.0001*	*1.63*
LNA	+/−			0.0000	0.01			0.0001	0.09			0.0001	0.09
Q2	+/−	**−0.0007**	**−2.36**	**−0.0007**	**−2.43**	**−0.0007**	**−2.34**	**−0.0007**	**−2.37**	**−0.0006**	**−2.30**	**−0.0007**	**−2.37**
Q3	+/−	**−0.0006**	**−2.26**	**−0.0007**	**−2.47**	**−0.0006**	**−2.18**	**−0.0007**	**−2.37**	**−0.0006**	**−2.14**	**−0.0007**	**−2.37**
Q4	+/−	−0.0002	0.79	−0.0003	−1.12	−0.0002	−0.64	−0.0003	−0.93	−0.0002	−0.64	−0.0003	−0.93
Y04	+/−	0.0000	−0.06	−0.0001	−0.26	−0.0001	−0.32	−0.0001	−0.52	−0.0001	−0.26	−0.0001	−0.51
Y05	+/−	−0.0003	−1.15	−0.0004	−1.44	−0.0004	−1.41	*−0.0005*	*−1.68*	−0.0004	−1.34	*−0.0005*	*−1.67*
Firm Fixed Effects		Included		Included		Included		Included		Included		Included	

Panel F: Relation between Firm Performance and Length of Presentation and Discussion[e]

Variable	*LENGTH*^{PRES} Pred.	Coeff.	t-stat	*LENGTH*^{DISC} Pred.	Coeff.	t-stat	*DIFFLENGTH* Pred.	Coeff.	t-stat
ROA	+/−	0.3438	0.75	−	0.5740	0.59	+	−0.2302	−0.21
MISS	+/−	**0.0377**	**2.24**	+	**0.0682**	**1.92**	−	−0.0305	−0.76
RET^{QTR}	+/−	**−0.1761**	**−4.01**	−	**−0.4832**	**−5.23**	+	**0.3071**	**2.95**
RET^{DAYB4}	+/−	**−0.3781**	**−2.57**	−	**−2.0982**	**−6.78**	+	**1.7202**	**4.95**
$\|RET^{QTR}\|$	+/−	−0.0374	−0.55	+/−	0.2227	1.55	+/−	−0.2602	−1.61
$\|RET^{DAYB4}\|$	+/−	**0.4544**	**2.18**	+/−	**3.7947**	**8.65**	+/−	**−3.3403**	**−6.77**
$\|FE\|$	+/−	*1.8705*	*1.85*	+/−	2.5488	1.20	+/−	−0.6783	−0.28

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TABLE 4 (continued)

	$LENGTH^{PRES}$			$LENGTH^{DISC}$			$DIFFLENGTH$		
Variable	**Pred.**	**Coeff.**	**t-stat**	**Pred.**	**Coeff.**	**t-stat**	**Pred.**	**Coeff.**	**t-stat**
|SPITEM|	+/−	**5.0412**	**4.96**	+/−	0.1351	0.06	+/−	**4.9061**	**2.04**
|DISOP|	+/−	−2.3761	−0.78	+/−	−2.1618	−0.34	+/−	−0.2143	0.39
$M\&A^{CC}$	+/−	7.1223	1.58	+/−	*−17.5129*	*−1.85*	+/−	**24.6351**	**2.31**
$RESTR^{CC}$	+/−	**26.8808**	**2.89**	+/−	−9.8172	−0.50	+/−	*36.6980*	*1.67*
ΔSALES	+/−	−0.1316	−0.62	+/−	0.3730	0.84	+/−	−0.5046	−1.01
AF	+/−	−0.0011	−0.25	+/−	**0.1119**	**12.22**	+/−	**−0.1130**	**−10.97**
LNA	+/−	**0.1390**	**3.15**	+/−	**0.2392**	**2.57**	+/−	−0.1002	−0.96
Q2	+/−	**0.1201**	**6.80**	+/−	**0.0951**	**2.56**	+/−	0.0250	0.60
Q3	+/−	**0.1434**	**7.95**	+/−	**0.0777**	**2.05**	+/−	0.0657	1.54
Q4	+/−	**0.3854**	**21.32**	+/−	**0.1288**	**3.38**	+/−	**0.2567**	**6.00**
Y04	+/−	**0.0995**	**5.88**	+/−	0.0323	0.91	+/−	*0.0672*	*1.68*
Y05	+/−	**0.0533**	**2.76**	+/−	*0.0782*	*1.90*	+/−	−0.0249	−0.54
Firm Fixed Effects		Included			Included			Included	

[a] Spearman correlations shown above the diagonal; Pearson correlations shown below the diagonal. For purposes of this table, we subtract the firm-mean from each variable (because subsequent analyses are based on firm fixed effect models).

[b] $|ABRET^{PRES}|$ is the abnormal absolute returns during the presentation portion of the conference call as described in Table 2. *Q2*, *Q3*, and *Q4* are indicator variables equal to 1 if the conference call relates to fiscal quarter 2, 3, and 4, respectively. *Y04* and *Y05* are indicator variables equal to 1 if the conference call is held in 2004 and 2005, respectively. Bolded (italicized) values are significant at the 5 percent (10 percent) level, using a two-tailed test.

[c] $|ABRET^{DISC}|$ is the abnormal absolute returns during the discussion portion of the conference call as described in Table 2. Bolded (italicized) values are significant at the 5 percent (10 percent) level using a one-tailed (two-tailed) test for variables with (without) directional predictions.

[d] *DIFFRET* is the abnormal absolute returns during the presentation less the abnormal absolute returns during the discussion as described in Table 2. Bolded (italicized) values are significant at the 5 percent (10 percent) level using a one-tailed (two-tailed) test for variables with (without) directional predictions.

[e] $LENGTH^{PRES}$ ($LENGTH^{DISC}$) is the length of the presentation (discussion) in words (divided to facilitate reporting of coefficients) as described in Table 2. *DIFFLENGTH* is the length of the presentation less the length of the discussion. Bolded (italicized) values are significant at the 5 percent (10 percent) level using a one-tailed (two-tailed) test for variables with (without) directional predictions.

Variable Definitions:

ROA = earnings before extraordinary items (Compustat quarterly item 8) divided by ending total assets (Compustat quarterly item 44);

RET^{QTR} = market-adjusted returns cumulated from day −92 to day −2 relative to the conference call date;

RET^{DAYB4} = quote midpoint at the start of the conference call (MID^{start}) less the quote midpoint at the same time one trading day before the conference call ($MID^{dayprior}$) divided by $MID^{dayprior}$ (from the TAQ database);

MISS = indicator variable that is equal to 1 if actual EPS for the quarter (per I/B/E/S unsplit-adjusted actuals file) is less than the mean consensus forecasted EPS for the quarter (per I/B/E/S unsplit-adjusted summary file) and 0 otherwise;

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TABLE 4 (continued)

$|FE|$ = absolute value of actual EPS (from I/B/E/S unsplit-adjusted actuals file) less the last mean consensus forecast prior to the earnings announcement (from I/B/E/S unsplit-adjusted summary file) scaled by the stock price at the end of quarter (Compustat quarterly item 14);
$|SPITEM|$ = absolute value of special items (Compustat quarterly item 32) divided by ending total assets (Compustat quarterly item 44);
$|DISCOP|$ = absolute value of discontinued operations (Compustat quarterly item 33) divided by ending total assets (Compustat quarterly item 44);
$M\&A^{CC}$ = number of merger and acquisition related words (acquisition, acquisitions, acquisition's, M and D, merged, merger, merging, preacquisition, synergies, synergy, and takeover) in the conference call divided by the total number of words in the conference call × 100;
$RESTRUCT^{CC}$ = number of restructuring related words (layoffs, restructure, restructured, restructuring, restructurings, severance) in the conference call divided by the total number of words in the conference call × 100;
$\Delta SALES$ = current quarter sales (Compustat quarterly item 2) less sales in the same quarter one year earlier, scaled by total assets (Compustat quarterly item 44);
AF = number of analysts who issued an EPS forecast for the current quarter (from I/B/E/S summary file); and
LNA = log of total assets (Compustat quarterly item 44).

factors. Thus, we include several control variables to capture unexpected economic events that occur during the quarter because when significant events occur, we expect managers to make expanded disclosures during the presentation and discussion sessions, leading to greater information content. The variables used are as follows:

- $|RET^{QTR}|$ = the absolute value of returns during the quarter;
- $|RET^{DAYB4}|$ = the absolute value of returns during the 24 hours prior to the call;
- $|FE|$ = the absolute value of the forecast error;
- $|SI|$ = the absolute value of special items;
- $|DISOP|$ = the absolute value of discontinued operations;
- $M\&A^{PRES}$ = the proportion of merger-and-acquisition-related words in the presentation ($\times$ 100); and
- $RESTR^{PRES}$ = the proportion of restructuring-related words in the presentation ($\times$ 100).

We include $|RET^{DAYB4}|$ in this analysis as a proxy for unexpected economic events but, as discussed previously, it is also possible that the information content of the presentation and discussion are affected by news in the press release, irrespective of any additional disclosures made during the call (i.e., because of delayed price reactions).

In addition, we include firm indicator variables to control for firm-specific differences in the informativeness of presentations and discussion periods. As discussed previously, it is possible that firms differ in the extent to which investors participate and trade during the conference call. Moreover, we are primarily interested in how manager and analyst behavior changes across time with changes in firm performance. By running our tests using firm fixed effects, we are explaining *within-firm* variation in the information content of presentations and discussion periods, an area previously unexplored in the literature.[24]

Finally, while we include firm fixed effects in our model (which controls for *static* firm-specific characteristics), doing so does not eliminate the impact of firm-specific characteristics that could possibly change over our three-year sample period.[25] Because prior research has shown some such characteristics to be related to disclosure, we include three additional control variables:

- $\Delta SALES$ = quarterly growth in sales scaled by total assets (a proxy for growth);
- AF = number of analysts who issued an EPS forecast for the current quarter (a proxy for analyst following);[26] and
- LNA = log of total assets (a proxy for firm size).

Table 4, Panel A provides univariate statistics on these variables. The mean ROA for the sample is less than 1 percent. The mean return over the prior quarter is -0.8 percent, and returns in

[24] In addition, in sensitivity analysis, we also examine length of the presentation and discussion session as an alternative proxy for information content. Controlling for firm effects is perhaps more important in this setting because firms likely vary in the way they disclose information, which likely affects the length of each segment of the call. We note, however, that in controlling for firm fixed effects rather than manager-specific effects we are presuming that disclosure policy is set by the firm and is not manager-specific. To the extent manager-specific idiosyncratic "styles" impact disclosure policies at the firm level, the power of our tests will be reduced in the event of management turnover. However, we do not believe this will bias our tests unless firms systematically hire managers with predispositions toward greater disclosure in quarters when firm performance is poor. Even if this is the case, this fact is not contrary to our hypothesis that a firm will increase disclosure when performance is poor. It simply suggests that the mechanism by which they accomplish this goal is by hiring managers with a particular disclosure "style."

[25] A firm-fixed model likely reduces the impact of these variables significantly because the cross-sectional variation in these variables is far greater than the within-firm variation.

[26] Using the quintile rank of analyst following rather than the number of analysts following results in inferentially similar results.

the 24 hours prior to the call are, on average, close to zero (0.1 percent). However, the majority of firms met or exceeded analysts' expectations; only 28.5 percent missed expectations.

Table 4, Panel B presents a correlation matrix of our explanatory and control variables, after subtracting the within-firm mean from each variable (Spearman correlations reported above the diagonal and Pearson correlations reported below the diagonal). Not surprisingly, the four performance variables are correlated with each other, particularly *ROA* and *MISS* (r = −0.18) and *MISS* and RET^{DAYB4} (r = −0.27). *ROA* is also negatively correlated with |*SPITEM*|, indicating that the larger magnitude exclusions tend to be negative (or income-decreasing) in nature.

We test our hypotheses based on the following regressions:

$$\begin{aligned}|ABRET^{PRES}| = {} & \beta_0 + \beta_1 ROA + \beta_2 MISS + \beta_3 RET^{QTR} + \beta_4 RET^{DAYB4} + \beta_5 |RET^{QTR}| \\ & + \beta_6 |RET^{DAYB4}| + \beta_7 |FE| + \beta_8 |SPITEM| + \beta_9 |DISOP| + \beta_{10} M\&A^{CC} \\ & + \beta_{11} RESTR^{CC} + \beta_{12} \Delta SALES + \beta_{13} AF + \beta_{14} LNA + \beta_{15} Q2 + \beta_{16} Q3 \\ & + \beta_{17} Q4 + \beta_{18} Y04 + \beta_{19} Y05 + \varepsilon; \end{aligned} \tag{3}$$

$$\begin{aligned}|ABRET^{DISC}| = {} & \beta_0 + \beta_1 ROA + \beta_2 MISS + \beta_3 RET^{QTR} + \beta_4 RET^{DAYB4} + \beta_5 |RET^{QTR}| \\ & + \beta_6 |RET^{DAYB4}| + \beta_7 |FE| + \beta_8 |SPITEM| + \beta_9 |DISOP| + \beta_{10} M\&A^{CC} \\ & + \beta_{11} RESTR^{CC} + \beta_{12} \Delta SALES + \beta_{13} AF + \beta_{14} LNA + \beta_{15} Q2 + \beta_{16} Q3 \\ & + \beta_{17} Q4 + \beta_{18} Y04 + \beta_{19} Y05 + \beta_{20} |ABRET^{PRES}| + \varepsilon. \end{aligned} \tag{4}$$

If, consistent with the uncertainty explanation, managers provide more disclosures when firm performance is poor, then we would expect negative coefficients on *ROA*, RET^{QTR}, and RET^{DAYB4} in Equation (3) and a positive coefficient on *MISS*. If managers provide more disclosures when performance is good, consistent with the credibility argument, then we would expect the opposite signs. We also expect analysts to elicit greater disclosures during the discussion session when performance is poor, suggesting negative (positive) signs on *ROA*, RET^{QTR}, and RET^{DAYB4} (*MISS*) in Equation (4). We include fiscal quarter indicator variables (*Q2*, *Q3*, and *Q4*) to control for differences across quarters in the informativeness of calls and year indicator variables (*Y04* and *Y05*) to control for time-period-specific effects that might impact the absolute returns during conference calls. We also winsorize the top and bottom 1 percent of all variables to reduce the impact of outliers. As discussed previously, we run the above model including firm fixed effects.[27]

Because our accounting- and market-based performance variables are highly correlated, we first run our regressions separately for our accounting- and market-based performance variables. We also report results with and without control variables (except for the firm, year, and quarter indicator variables). Results for presentation returns are reported in Table 4, Panel C. Performance appears to be negatively related to the information content of the presentation, consistent with poor performance increasing uncertainty and managers attempting to alleviate that uncertainty with increased disclosures. In particular, measures of unexpected performance at the earnings announcement (RET^{DAYB4} and *MISS*) are negative and statistically significant when included

[27] Because we have multiple observations for the same firm and market reactions to conference calls potentially have a firm-specific component, there is the potential for biased standard errors. However, according to Petersen (2009), ordinary least squares with firm fixed effects results in unbiased standard errors as long as the firm effect is static. Since we have at most three years of data for each firm (and often less), we believe any firm effect is likely to be largely static. We nevertheless test the sensitivity of our results to clustering standard errors by firm. The results are similar to those reported in the study, although t-statistics are generally lower. Specifically, those t-statistics that are significant at the 5 percent level or better continue to be; however, the coefficient on $|RET^{QTR}|$ in the regressions on the difference in returns (*DIFFRET*) is no longer significant at the 10 percent level.

separately; however, only the coefficient on RET^{DAYB4} is negative and significant when both sets of measures are included simultaneously.

Results for discussion period returns are provided in Table 4, Panel D. Discussion periods also appear to be more informative when market performance is poor. Using only our accounting-based measures of performance, the coefficient on *MISS* is positive and statistically significant. When using only the market-based measures, both the coefficients on RET^{QTR} and RET^{DAYB4} are significantly negative. Including both sets of performance measures simultaneously, the coefficient on *MISS* is no longer significant, but both market-based measures continue to be significantly negative. Overall, the results are consistent with the conjecture that, when firm performance is poor, managers fail to provide adequate disclosures during the presentation, leading to discussion sessions that uncover additional information.

Similar to our prior findings, we find that the greater the information content of the earnings release ($|RET^{DAYB4}|$), the greater the information content of both the presentation and discussion. The information content of the discussion is also greater when following more informative presentations ($|ABRET^{PRES}|$). The coefficient on $|FE|$ in the presentation regression and the coefficient on $|RET^{QTR}|$ in the discussion regression are both significantly positive, also consistent with unexpected economic events leading to greater disclosure. There also appears to be fiscal quarter differences, with second and third fiscal quarters having more informative discussions. Finally, larger firms tend to have more informative presentations and discussions, and growth firms tend to have more informative discussions.[28]

While the prior results suggest that managers provide expanded but insufficient disclosures when firm performance is poor, we conduct a more direct test of this hypothesis by running the same regression as in Equation (3), but with *DIFFRET* as the dependent variable. Recall that positive values of *DIFFRET* indicate relatively more informative presentations and negative values indicate relatively more informative discussion sessions. Thus, if discussion sessions are relatively more informative than presentations when firm performance is bad (as we predict), then we would expect positive coefficients on *ROA*, RET^{QTR}, RET^{DAYB4}, and a negative coefficient on *MISS*. As before, we winsorize the top and bottom 1 percent of the variables to reduce the impact of outliers and run our regressions including firm fixed effects.

Results are reported in Table 4, Panel E. We find some evidence consistent with our prediction. The coefficient on RET^{DAYB4} is positive and significant, indicating that when returns associated with the earnings announcement are worse, the abnormal absolute returns of the discussion session tend to be greater than the abnormal absolute returns of the presentation. The coefficient on RET^{QTR} is also positive but only marginally significant (at the 10 percent level, one-tailed). However, we do not find that accounting-based performance measures are associated with the relative informativeness of the discussion versus the presentation.

We also do not find much evidence that unexpected economic events impact the relative information content of the discussion session versus the presentation. The coefficient on $|RET^{QTR}|$ is only marginally significant. We also do not find any difference in relative information content for larger firms. Larger firms have both more informative presentations and discussions, but the difference in information content is not related to firm size. We do, however, find that second and third fiscal quarters have relatively more informative discussions.

Overall, the above results suggest that, while managers provide expanded disclosures when firm performance is poor, additional information is revealed during the discussion session with analysts in these situations. This conclusion, however, depends on whether absolute returns during

[28] Note that analyst following is not significant in either regression, unlike the results in Table 3. This is due to the fact that the analysis in Table 4 includes firm fixed effects and the variation in analyst following across time for a given firm is limited.

the relatively narrow presentation and discussion period windows are good proxies for information content. As additional corroboration for our conclusions, we also examine the length of the presentation and discussion (in words) as an alternative proxy for information content. Specifically, we replace $|ABRET^{PRES}|$, $|ABRET^{DISC}|$, and *DIFFRET* with $LENGTH^{PRES}$, $LENGTH^{DISC}$, and *DIFFLENGTH*, respectively, in our regressions.

These results are reported in Table 4, Panel F. We report only the results of the model including all performance and control variables, although the pattern of results is similar to those reported using returns. Consistent with our results using absolute returns as the proxy for information content, we find that poor firm performance is associated with longer presentations and discussions. In addition, the difference in length between the presentation and discussion increases with firm performance. This result is consistent with our prior conclusion that, when performance is poor, discussions are relatively more informative than presentations.

In summary, analysis of both absolute returns and length in words suggest that more information is released when firm performance is poor but, relatively speaking, the discussion session has greater information content in these situations.

V. ADDITIONAL ANALYSIS: CALL CONTENT AND FIRM PERFORMANCE

We conduct a final set of analyses to provide further evidence that the documented relation between information content and performance is due to real differences in the content of information disclosed. Specifically, we examine two dimensions of the content of presentations and discussions—financial (versus nonfinancial) and forward-looking (versus backward-looking)—and correlate these content measures with firm performance.[29] The typical earnings press release contains an analysis of the prior quarter's financial performance and, therefore, provides primarily backward-looking, financial information. Thus, the greater information content of the presentation/discussion periods in periods of poor performance is likely due to increased disclosure of nonfinancial, forward-looking information. However, this prediction assumes that the analysis of last quarter's performance that is provided in the earnings release is sufficient for the market. If not, it is possible that managers will be forced to expand on this analysis, resulting in greater backward-looking, financial information, particularly during the discussion session with analysts. Survey evidence in Graham et al. (2005) is consistent with this prediction. Managers interviewed indicate that when the firm meets analysts' expectations, conference calls can be devoted to discussing future prospects. However, when firms miss expectations, the conference call shifts to discussing the reason the firm missed the consensus estimate. Given the competing possibilities and the descriptive nature of this analysis, we do not provide directional hypotheses.

Our measures of content are based on word counts of financially oriented and future-oriented words during each segment of the call. We develop a customized word list of financially oriented words based on an analysis of commonly used words in conference calls.[30] Appendix A presents the list of financially oriented words used in this analysis. Our forward-looking word list is based partially on the dictionary of future-oriented words used in LIWC (Linguistic Inquiry and Word Count). However, because the software was designed to analyze texts in a general context, the list is

[29] While there are obviously many dimensions one could examine, we believe these are two of the more significant ones. However, because of the way the data are computed, we are unable to cross the two attributes—that is, we cannot measure the extent of financial backward-looking information versus financial forward-looking information.

[30] Commonly used linguistic analysis tools such as Diction, LIWC, and General Inquirer do not have dictionaries for financially oriented words, thereby necessitating the creation of a custom word list. To create our list we first randomly selected 900 conference calls and identified all words occurring more than 10 times. From these 7,892 words, we identify words that we consider financial in nature.

quite short and very general (primarily "shall" and "will").[31] Thus, we augment the LIWC dictionary with other words that are often used in a business context to signify a discussion of the future (despite the fact that the words are technically present tense verbs; e.g., expects, anticipates, intends).[32] Appendix B presents the complete list of future-oriented words used in this analysis. Using these two word lists we compute the percent of financially oriented and future-oriented words in each segment of the call as a percent of the total words in each segment ($\%FIN^{PRES}$, $\%FIN^{DISC}$, $\%FUTURE^{PRES}$, $\%FUTURE^{PRES}$).[33]

To examine whether managers provide more or less financially or future-oriented disclosures when firm performance is poor, we estimate regressions similar to Equation (3), except using our *%FIN* and *%FUTURE* variables as dependent measures. We again winsorize the top and bottom 1 percent of all variables and include firm fixed effects in our analysis. If managers focus their disclosures on nonfinancial, future-oriented activities when firm performance is poor, then the coefficients on *ROA*, RET^{QTR}, and RET^{DAYB4} will be positive in the *%FIN* regressions and negative in the *%FUTURE* regressions, while the coefficient on *MISS* will be negative in the *%FIN* regressions and positive in the *%FUTURE* regressions. In contrast, if analysts actually prefer backward-looking, financially oriented disclosures when performance is poor, then we would expect opposite signs on these variables, particularly in analyses of the discussion sessions.

Table 5 reports the results of these regressions. The first set of columns present results from analyzing the percent of financially oriented words in the presentation and discussion. We find evidence that managers provide more financially oriented disclosures when firm performance is good. The coefficient on *ROA* is significantly positive, while the coefficient on *MISS* is significantly negative. Thus, better accounting performance for the quarter is associated with more financially oriented disclosures in the presentation. However, we do not find a positive association between firm performance and financially oriented disclosures during the *discussion* portion of the call. In fact, the coefficient on RET^{DAYB4} is negative and marginally significant ($p = 0.07$, two-tailed), suggesting *more* financially oriented disclosures during the discussion session when firms report negative news at the earnings announcement. This result is consistent with survey results reported in Graham et al. (2005), which indicate managers' perceptions that, when firms miss market expectations, conference call discussions focus on explaining that poor performance.

The next set of columns in Table 5 presents results of our analyses on future-oriented disclosures. We find that managers provide more future-oriented disclosures when firm performance is poor. The coefficients on *ROA* and RET^{DAYB4} are negative and highly significant (all p's < 0.001), while the coefficient on RET^{QTR} is negative and marginally significant ($p <$

[31] The LIWC software (also used in Li 2008) is available at http://www.liwc.net. We thank Professor James Pennebaker (The University of Texas at Austin), one of the developers of LIWC, for sharing the word lists for future-orientation used in LIWC. Based on discussions with Professor Pennebaker, only a handful of verbs in the English language signal future tense; thus, the relatively short list included in the LIWC dictionary.

[32] Earnings press releases often include a disclaimer about forward-looking statements that includes a list of words that management believes signify such statements. Examining a random sample of press releases, we identify a list of words used in such disclaimers and augment the list of words used by LIWC. Recent studies such as Loughran and McDonald (2009) and Henry and Leone (2009) argue that word lists created for other disciplines often misclassify and/or omit common business terms; thus, customized lists perform better in business contexts.

[33] On average, a higher percentage of words spoken during the presentation (3.9 percent) are financially oriented than during the discussion (1.7 percent), and in 97.2 percent of firm-quarters the presentation has more financially oriented words than the related discussion session. In contrast, presentation periods have somewhat lower levels of forward-looking disclosures (means of 2.1 percent and 2.4 percent for presentation and discussion, respectively). While the difference is small in magnitude (−0.004), in 72.2 percent of firm-quarters the discussion session has more future-oriented words than the presentation, which is highly significant using a Chi-square test. The fact that presentations contain a much higher percent of financially oriented words is perhaps not surprising because presentations generally contain a recap of the firm's performance during the quarter and much of this discussion is financially oriented in nature.

TABLE 5

Analysis of Presentation and Discussion Content

	Financial Orientation[a]				Future Orientation[b]			
	$\%FIN^{PRES}$		$\%FIN^{DISC}$		$\%FUTURE^{PRES}$		$\%FUTURE^{DISC}$	
Variable[c]	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat
ROA	**0.0157**	**3.32**	0.0028	0.79	**−0.0076**	**−2.61**	**−0.0063**	**−1.95**
RET^{QTR}	0.0007	1.50	−0.0001	−0.31	*−0.0005*	*−1.81*	0.0002	−0.77
RET^{DAYB4}	0.0010	0.64	*−0.0020*	*−1.81*	**−0.0031**	**−3.31**	−0.0007	−0.70
MISS	**−0.0004**	**−2.19**	0.0000	0.04	0.0010	0.97	0.0000	−0.23
$\|RET^{QTR}\|$	−0.0006	−0.89	0.0008	1.50	**0.0012**	**2.76**	−0.0003	−0.56
$\|RET^{DAYB4}\|$	−0.0018	−0.85	0.0011	0.71	**0.0026**	**1.95**	**−0.0033**	**−2.27**
|FE|	*0.0182*	*1.75*	**0.0164**	**2.11**	*−0.0106*	*−1.66*	0.0045	0.64
|SPITEM|	**0.0361**	**3.44**	*0.0139*	*1.78*	−0.0040	−0.62	−0.0011	−0.15
|DISOP|	**0.0696**	**2.21**	**0.0559**	**2.38**	−0.0049	−0.25	−0.0322	−1.50
$M\&A^{CC}$	0.0201	0.43	**0.0734**	**2.12**	0.0038	0.13	**0.1317**	**4.17**
$RESTR^{CC}$	**0.5390**	**5.62**	**0.3034**	**4.24**	**0.1697**	**2.89**	**0.2060**	**3.15**
ΔSALES	0.0045	0.21	0.0021	1.30	−0.0008	−0.59	−0.0003	−0.21
AF	**−0.0001**	**−2.15**	**−0.0001**	**−4.28**	0.0000	0.37	0.0000	0.50
LNA	*−0.0008*	*−1.69*	0.0004	1.32	0.0001	0.42	−0.0005	−1.46
Q2	**0.0008**	**4.48**	0.0000	−0.21	**−0.0007**	**−6.31**	0.0000	0.11
Q3	**0.0008**	**4.33**	−0.0002	−1.34	**−0.0005**	**−4.28**	**0.0005**	**3.60**
Q4	**0.0019**	**10.31**	**0.0013**	**9.40**	**−0.0004**	**−3.94**	**0.0064**	**5.05**
Y04	−0.0001	−0.74	**−0.0065**	**−4.96**	0.0000	−0.14	0.0001	0.79
Y05	**−0.0007**	**−3.35**	**−0.0011**	**−7.51**	*−0.0002*	*−1.63*	−0.0001	−0.82
Firm Fixed Effects	Included		Included		Included		Included	

[a] $\%FIN^{PRES}$ and $\%FIN^{DISC}$ are the percent of financially oriented words in the presentation and discussion, respectively (see Appendix A for word lists).

[b] $\%FUTURE^{PRES}$ and $\%FUTURE^{DISC}$ are the percent of future-oriented words in the presentation and discussion, respectively (see Appendix B for word lists).

[c] See Table 4 for variable definitions. Bolded (*italicized*) values are significant at the 5 percent (10 percent) level using a two-tailed test.

0.10). These results are consistent with the notion that managers wish to emphasize the future in their disclosures rather than discuss the poor performance over the past quarter. We also find some evidence that discussion sessions have more future-oriented disclosures when firm performance is poor; the coefficient on *ROA* is negative and significant.

Our control variables also provide some interesting observations. It appears that unusual or unexpected events generally result in not only more financially oriented, but also more future-oriented disclosures. We also note that the first fiscal quarter has far less financially oriented disclosures during the presentation than the other three quarters (which is also true for the discussion but only for the fourth quarter). In contrast, future-oriented disclosures are *greatest* during the first fiscal quarter presentation relative to the other three quarters. This is not, however, true for discussion periods: future-oriented disclosures are actually greater in the third and fourth fiscal quarters.

In summary, we find that during the presentation managers provide less financially and more future-oriented disclosures when firm performance is poor, consistent with the idea that managers avoid discussing the poor financial performance over the prior quarter. Since earnings announcement press releases generally consist of financial information regarding the past quarter, presentations with high (low) percentages of financially (future-) oriented disclosures likely have

greater overlap with the information in the earnings release.[34] Thus, this result is consistent with the greater information content of presentations when firm performance is poor.[35] For the discussion portion of the call, we find only weak evidence of a correlation between the type of disclosure and firm performance, perhaps because the extemporaneous nature of discussion periods make them more difficult to categorize.[36] Overall, the fact that we find an association between the content of conference calls and firm performance supports the notion that our prior finding of an association between the information content of calls and firm performance is due to real changes in the type of disclosures made during the presentation and the ensuing discussion.

VI. CONCLUSION

In this study, we examine the information content of the presentation and discussion portions of conference calls to provide evidence on the source of the incremental informativeness of conference calls over the accompanying press release. We find that both presentations and discussions are incrementally informative, but that discussion periods have greater information content than presentations. This finding suggests that the bigger benefit of conference calls comes from analysts' involvement in the question-and-answer session. Consistent with this conjecture, we find that the difference in information content is related to analyst following, with discussion period information content increasing in analyst following.

We also find that managers provide more information during the presentation when firm performance is poor, but the discussion period is relatively more informative than the presentation in these circumstances. This result is consistent with managers either being (1) unable to anticipate the information needs of analysts in the case of bad performance or (2) unwilling to voluntarily disclose this information in the presentation. As a result, the discussion period is relatively more informative.

Finally, we explore the types of disclosures managers make during the presentation and discussion sessions. We find that managers provide less financially oriented and more future-oriented disclosures when firm performance is poor, which is consistent with managers focusing more on nonfinancial, future-oriented disclosures when prior quarter's performance was poor. To the extent that markets find nonfinancial-oriented disclosures more informative, these findings help to explain the greater information content of presentations when firm performance is poor.

Overall, our results suggest that one of the primary benefits of hosting a conference call—as opposed to simply issuing an earnings press release—is due to the discussion session with analysts. This result is consistent with analysts playing an active role in shaping a firm's information environment. However, we recognize that the results in this study are tests of associations, and represent indirect evidence of the role analysts play in uncovering information during conference calls. Future studies might consider conducting more in-depth examinations of conference-call transcripts to provide more direct evidence of how analysts shape the information environment through their inquiries.

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[34] Frankel et al. (2009) find that managers are less likely to provide earnings guidance during conference calls when performance deteriorates, which is inconsistent with our finding that future-oriented words increase when performance falls but *is* consistent with our finding that financially oriented words decrease when firm performance falls. Thus, it appears that the lack of earnings guidance when performance is poor is not due to a lack of future-oriented discussion but perhaps more the result of managers inability (or reluctance) to translate this discussion into financial terms.

[35] We do not find significant correlations between the proportion of financially or future-oriented words in the presentation or discussion and abnormal absolute returns during the presentation or discussion. In general, it is difficult to assess the information content of a particular type of disclosure because returns are a reflection of *all* disclosures made during the presentation or discussion and presentations contain many different types of disclosures.

[36] Discussion sessions likely do not fall into discrete "categories" of "financially oriented" or "future-oriented" but instead have combinations of different types of disclosures. Presentations, in contrast, are perhaps more easily dichotomized as being backward-/financially oriented (i.e., those that contain primarily a recap of prior quarter's performance) and those that contain more substantive nonfinancial, future-oriented information.

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APPENDIX A

List of Financially Oriented Words

accounting
accrual
accruals
accrued
allowance
allowances
amortization
amortize
amortized
asset
assets
bond
borrowed
borrowing
borrowings
budget
budgeted
budgeting
buybacks
capex
capital
capitalization
capitalize
capitalized
cash
cent
cents
convertible
cost
costs
covenants
currencies
debentures
debt
debts
deferrals
deposit
deposits
depreciation
derivative
derivatives
dividend
dividends
dollar
dollars
earnings
ebit
ebitda
eps
equities
equity
euro
euros
expenditure
expenditures
expense
expenses
finance
financed
financial
financially
financials
financing
financings
gain
gains
goodwill
hedge
hedged
hedges
hedging
impaired
impairment
impairments
income
interest
investment
investments
lease
leased
leases
leasing
lending
leverage
liabilities
liability
liquidity
loan
loans
loss
losses
margin
margins
obligations
payable
payables
payment
payments
pound
pounds
prepaid
prepayment
prepayments
pretax
profit
profitability
profits
receivable
receivables
redeemable
refinance
refinanced
refinancing
rent
rental
rentals
repurchasing
reserve
reserves
revenue
revenues
roa
roe
roi
sales
securities
securitization
security
selling
shares
swaps
tax
taxable
taxes
unamortized
unleveraged
warrants

APPENDIX B

List of Forward-Looking Words

From LIWC[a]	Additional Words[b]
be	expect
he'll	expects
i'll	intend
it'll	intends
may	anticipate
might	anticipates
shall	plan
she'll	plans
they'll	believe
tomorrow	believes
we'll	projects
will	project
won't	looking forward
you'll	going forward
	look forward
	go forward
	looking ahead
	would
	should
	could

[a] Words designated by LIWC (see http://www.liwc.net) as future-oriented.
[b] Additional words included are based on an analysis of a sample of disclaimers included in company press releases as indicating forward-looking statements.