ERIK ROELOFSEN

The Role of Analyst Conference Calls in Capital Markets

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in Capital Markets

**De rol van conference calls met analisten
in kapitaalmarkten**

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Preface

Like many dissertations, this dissertation has a long history. I started thinking about doing a PhD just after I completed my MscBA in 1997. My master thesis, titled "Balancing – Collaging - Changing", was a philosophical quest into accounting as a (socially constructed) representation of reality. What is the role of accounting in a world where reality is a social construction, rather than a positive fact? Which philosophers and postmodern writers could teach us something about this question? What would become the state of financial accounting if reality would become less and less singular, and people would become more cynical about the realities that are presented to them? What should change in accounting, in order for it to better appreciate differences[1]? These profound questions would warrant further research and offered plenty of perspectives to write a doctoral dissertation on.

However, before continuing my philosophical quest, I thought that a "few years" in practice "wouldn't hurt" and I started a job at PricewaterhouseCoopers. Twelve and a half years later, I have become an accountant, focusing on the debits and credits of financial reporting and valuation. Things do not get much less philosophical (and less sexy) than that. Moreover, by 2005, my interest in research had revived, but after another few years of philosophical wanderings, I had finally decided that empirical capital market research based on archival data, was the best path towards successful completion of a PhD; a path that almost diametrically faced my earlier research efforts. Today, after completing the empirical capital market research in this dissertation, it looks like I have arrived at a very different destination from the one that I envisaged when I started thinking about the PhD back in 1997. However, although my research and professional life took a very different path from what I had envisaged, the change in focus does not feel like a watershed. In fact, in the spirit of my earlier research, appreciating differences means that you are able to allow that there are multiple realities, and explore them, even when they are irreconcilable.

I have taken great joy in doing the research in this dissertation and I have learnt a lot from exploring its possibilities. My choice to focus on empirical capital market research meant

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[1] Diversity was not yet in vogue at the time. Today this question has gained more momentum and I believe there are many interesting research opportunities to consider.

that I had to do a number of statistics, econometrics, and capital market research courses. I have learnt a lot from these courses, and I still use the skills I have learnt in many situations. Doing the research also made me look at things from different perspectives. Particularly the capital market and analyst perspective on financial accounting were very different from what I was used to. In my everyday work, I often benefit from this ability to look through different eyes. In other words, I have truly developed myself by taking this new path, and I believe it has made me a better academic.

At the same time, the fact that I have been in profession this long, reflects the pleasure I get out of working with real people on real problems, whatever "real" may mean. Although from a philosophical perspective the interactions may seem shallow and from an academic perspective the problems may seem trivial, there is no substitute for fun, laughter, friendship, stress, despair, anger, disappointment, astonishment, and victory. I only intended to be in profession for a few years, but I have come to understand that there is no substitute for the real, and I have learnt that I like to be in the middle of it. I am glad PricewaterhouseCoopers allows me to.

As a part-time PhD student, the odds of successful completion are against you, and there have been occasions when I was not confident I would succeed. Quitting has, however, never entered my mind. I owe this to the continuous support and advice from my supervisors, Gerard Mertens and Leo van der Tas. Even when I had little focus or was showing little progress, they consistently gave me support and good advice. They have consistently expressed their belief in successful completion. I thank them for that.

My parents have also continuously motivated me, though by quite different means. They never missed an opportunity to ask whether my PhD was completed. The tenacity of this question, asked without any self-interest, is excellent fuel for PhD research. I knew that, with enough perseverance, I would eventually be able to confirmatively answer the question, and get it out of the way for ever. Their contribution has, however, been much bigger than just asking this question. I thank them for their support, concern and the pride they take in me.

The best decision I took in the entire PhD process was to start cooperating with co-authors. Originally this was inspired by the need for specific data, but I soon discovered that the cooperation with seasoned co-authors not only helped to stay motivated, but also resulted in much better research. Without the help from Dawn Matsumoto, Maarten Pronk, and Frank Verbeeten, this dissertation would have been of much lower quality then it is now. In fact, I guess it would not even have been finished by now.

The dissertation would also not have been finished without the generous support of PricewaterhouseCoopers. The firm allowed me to spend part of my time on research, and many people took great effort in ensuring that I was actually able to do so. At different times in my career, Leandro van Dam, Wim Holterman, Jack de Kreij, Peter van Mierlo, Wim Schoonderbeek, Alexander Spek, and Robert Swaak, stood up for me, and I thank them for their support. I am also grateful to the group of PhD candidates at PricewaterhouseCoopers that participated in the PhD peer group sessions. Olof Bik, Arjan Brouwer, Jose Hernandez, and Ewout Naarding offered a welcome sounding board, both in terms of content and practical struggles.

The capital market courses offered by the Limperg Institute have been instrumental in developing myself into a better empirical researcher. I am fortunate and grateful that Jan Bouwens invited me to these courses; the sessions with Peter Easton were amongst the most valuable and inspiring courses I ever attended. I also remember the many discussions with the other participants, and I am always happy to meet them at conferences and see that they have become excellent researchers. Stephan Hollander is one of them. I am proud to have a paper with him (and Maarten Pronk) on conference calls that is much related to this dissertation.

I realise that the completion of this dissertation has been a self-seeking endeavour, and I thank Marian, Carmel and Emily for enduring it. I have spent lots of time on it that I did not spend with them. We had holidays with my laptop running programs in a corner of a hotel room, and we had many sunny summer days that were fully spend on getting a regression to work. Marian had to endure it all, but she never complained one minute about it. I thank her for her patience, her understanding, and I thank her for her love.

1 Introduction

1.1 The use of analyst calls

This research examines conference calls that are conducted to inform the investor community about the financial performance of the firm. Over the past decade, conference calls have emerged as an important channel for investor communication. Among firms that hold meetings with the investment community, virtually all conduct quarterly conference calls. These conference calls are also known as "analyst calls" or "earnings conference calls." Most public companies hold four calls per year, usually two-to-five weeks after the completion of a quarter. Individual investors and the media are notified of upcoming conference calls by news releases and notices on the corporate website. The conference call is then conducted shortly after the release of the earnings announcement, typically within three to four hours. Almost all conference calls follow the same structure. A typical call opens with management welcoming everybody, followed by the CEO and CFO commenting on the company's performance and future prospects. The next part of the call is the discussion portion in which the floor is opened for questions from analysts.

Today, virtually all calls are open to individual investors and the media. On 15 August 2000, the Securities and Exchange Commission (SEC) adopted the new rule "Selective Disclosure and Insider Trading", referred to as "Regulation Fair Disclosure" or "Regulation FD". The new rule became effective on 23 October 2000 and was adopted to combat selective disclosure. Selective disclosure occurs when issuers release material non-public information about a company to selected persons, such as securities analysts or institutional investors, before disclosing the information to the general public. The SEC believed that the practice of selective disclosure lead to a loss of investor confidence in the integrity of capital markets.

Regulation FD requires that when an issuer intentionally discloses material information, it does so publicly and not selectively. The company may make the required disclosure by filing the information with the Commission (on a "Form 8-K", a very broad form used to notify investors of any material unscheduled event that is important to shareholders or the SEC), or by another method intended to reach the public on a broad, non-exclusionary basis, such as a press release. When selective disclosure of material information is made unintentionally, the company must publicly disclose the information promptly thereafter.

Since Regulation Fair Disclosure requires firms to make material disclosures broadly available, firms that previously restricted access to conference calls to selected financial analysts and institutional investors must allow unlimited access to their calls since 23 October 2000. Reasons to issue Regulation Fair Disclosure included concerns of the SEC that in the absence of a prohibition on selective disclosure, analysts may feel pressured to report favourably about a company or otherwise slant their analysis in order to have continued access to selectively disclosed information. The SEC was concerned by reports that analysts who publish negative views of a firm are sometimes excluded by that firm from calls and meetings to which other analysts are invited (SEC, 2000a).

At the same time, several companies offered webcasting technology and services that made it more practical and more affordable for companies to allow all investors to listen in on conference calls. Additionally, several transcription services offered services to provide draft transcripts soon after the call followed by an editorially reviewed final transcript. Following Regulation FD, most companies now webcast their conference calls. According to a wire service representative, between 1 October 2000 and 23 April 2001, the number of corporate webcasts on its service nearly quadrupled from the same period 12 months earlier (SEC, 2001).

The SEC considered that acceptable methods of public disclosure for purposes of Regulation FD include announcements made through conference calls that interested members of the public may attend or listen to. The SEC suggests, but does not require, the following model for making a planned disclosure of material information, such as a scheduled earnings release (SEC, 2000a):

- First, issue a press release, distributed through regular channels, containing the information;
- Second, provide adequate notice, by a press release and/or website posting, of a scheduled conference call to discuss the announced results, giving investors both the time and date of the conference call and instructions on how to access the call; and
- Third, hold the conference call in an open manner, permitting investors to listen in either by telephonic means or through Internet webcasting.

Companies are not required to furnish an additional 8K if the conference call is complementary to a written earnings announcement for which an 8K was furnished and the conference call is conducted within 48 hours after this release. Conference calls, therefore, rarely occur later than 48 hours after the earnings announcement. As a result, the analysis of the effects of conference calls should always be analysed in conjunction with the effect

of the corresponding earnings announcement (i.e. the analysis of the effect of conference calls should control for the effect of the earnings announcement).

Individual investors are usually not allowed to ask questions during a conference call. This is restricted to analysts, the primary targeted audience of the calls. Since the conference call is interactive, analysts can use the ability to ask questions to gain information that is relevant to their objectives. The broader access to calls following Regulation Fair Disclosure also allowed unsophisticated individual investors to listen to the conference call. In spite of fears that these unsophisticated investors would misinterpret the information that is provided during the call — and volatility would increase — managers did not reduce the information content of conference calls (Bushee, Matsumoto and Miller, 2002).

Conference calls can be viewed as a response to the declining relevance of financial statement information. There are many aspects of the firm that can have a major effect on the value of its shares, yet that cannot be assessed adequately by reading traditional corporate financial statements or even the footnotes and commentary that accompany them (Brennan and Tamarowski, 2000). One way in which firms respond to the inadequacy of financial statements is by conducting quarterly conference calls. Tasker (1998) analyses a small sample of conference calls held by firms in high-tech industries and observes four main categories of information provided in conference calls:

- Relatively detailed, objective quantitative information on both non-financial and financial indicators of performance such as revenue breakdowns by product, customer or region, backlog, the number of new customers, the number of units shipped and the employee headcount.

- Subjective, qualitative observations on issues such as industry trends (e.g. pricing, market size and market growth), assessments of competitors' new product offerings, customers' responses to the company's own new products and developments in the company's supply chain and distribution channels.

- Relatively detailed information on management's plans for the future, on topics such as cost reductions, working capital management and the timing and features of new product introductions.

- Management's guidance on future financial results such as expected revenue growth, gross margins, selling, general and administrative expenses and the effective tax rate.

Since earnings conference calls are a relatively new phenomenon, research on conference calls is limited. In particular, apart from the small sample study by Tasker, little extant

research analyses the content of the conference call on a large scale. Since transcripts of conference calls were not broadly available before the Regulation Fair Disclosure era (and are still not available on a large scale outside the United States), the difficulty of analysing (recorded) spoken language is likely to have prevented many researchers from engaging in content analysis. However, due to Regulation Fair Disclosure, transcripts have become available for a large majority of the conference calls conducted by firms listed on NYSE and NASDAQ. For most calls of these firms, transcripts are available from the start of 2002 through services such as Voxant FD wire (available through Factiva). This research exploits the fact that this data is now available and the three papers, on which this research is based, are among the first to analyse the content of conference calls on a large scale.

1.2   Subject of this research

This dissertation is based on three papers. All three papers examine transcripts of analyst calls. The data used in the analysis consists of transcripts of analyst calls conducted in the period 2003–05 by firms listed on the NYSE or NASDAQ. In order to analyse the length, intangibles disclosures and tone of the analyst call, software is used to count (specific) words in the transcripts. This data is used to examine three aspects related to the role of analysts in conference calls — length, the disclosure of intangible assets and tone (optimism versus pessimism).

Chapter 2 focuses on the length of conference calls. A unique feature of conference calls compared to other disclosure media is that the second part of the conference call is interactive. This interactivity may affect the dynamics of the disclosure process. In particular, the interactivity may be a source for the incremental informative nature of the conference call above the preceding earnings announcement. Analysts may elicit information from management when management fails to spontaneously provide the information. The presence of analysts may, therefore, improve the effectiveness of financial reporting. The results of Chapter 2 suggest that analysts play an active role in uncovering information during conference calls, resulting in a richer information environment than might otherwise exist.

Chapter 3 takes a more detailed look at the topical content of conference calls. Since the conference call is incremental to the preceding earnings announcement, it may play a role in providing information to capital markets with respect to subjects for which the accounting information provided in the earnings announcement is notoriously limited. For many years, it has been suggested that one such area is information on intangible assets. Chapter 3 investigates whether disclosures in conference calls about intangible assets are

informative to the market. The results show that stock markets respond to disclosures about internal intangible assets (e.g. research and development), external intangible assets (e.g. brand names) and human capital-related intangible assets. Additional analysis is provided with respect to the dynamics of intangible asset disclosures.

Chapter 4 focuses on incentives of analysts to voice optimism on the conference call. Analysts may refrain from asking certain questions in a public setting because their questions constitute work product (Unger, 2001), i.e. by revealing their questions on the call, analysts share the results of their work with other analysts, which reduces the uniqueness and incremental value of their work. They may also add a bias to the tone of their language in the conference call, to appease management or their buy-side clients. An incentive to appease management is to preserve access to management in the future. Analysts may moderate the tone of their language to appease their buy-side clients because buy-side clients with long positions are likely to prefer that analysts do not voice their negative views publicly, but only privately to their buy-side clients.

The results in Chapter 4 indicate that analysts moderate their tone when there is bad news. They further indicate that, in case the true beliefs of analysts are negative, analysts moderate their tone when institutional holdings in the firm are high.

Collectively, the research presented in this dissertation provides evidence of the relevance of earnings conference calls as disclosure events. It further suggests that the dynamics of conference calls affect the information production in capital markets and the way in which information flows to the market. The better understanding of why conference calls are useful and how the dynamics of the call affect information production should be useful knowledge for regulators and standard setters. This knowledge may be considered in developing new accounting standards for the disclosure of intangible assets and for assessing the effectiveness of Regulation Fair Disclosure.

2 What makes conference calls useful?[2]

2.1 Introduction

Over the past decade, conference calls have become an increasingly common form of voluntary disclosure (Bushee, Matsumoto, and Miller 2003) and prior studies suggest that these calls are significant information events (Frankel, Johnson and Skinner 1999; Bowen, Davis and Matsumoto 2002; Kimbrough 2005). Conference calls may be incrementally informative over a press release for at least two reasons. First, managers are able to provide information in a less constrained fashion (relative to financial statements and written press releases). Second, analysts play a direct role in uncovering information during the question and answer session by asking follow-up questions, requesting more detail or perhaps questioning management's interpretation of events. The purpose of this paper is to investigate how the interplay between management and analysts affects the informative nature of conference calls.

We examine this issue by studying the relation between the amount and content of information provided by management during the presentation portion of the call and the amount of information revealed in the discussion portion that follows. 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 to participants on the call. During the discussion portion of the call, analysts have the opportunity to question management's interpretation and/or elicit additional information that was not discussed during the presentation.[3] If analysts play an active role in uncovering information, we expect discussion periods to be longer when managers provide abnormally low levels of information in the presentation portion of the

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[2] This chapter is based on joint work with Dawn Matsumoto of the University of Washington and Maarten Pronk, of Erasmus University. I thank Willemijn van Eijck and Rosiandra de Jesus for their valuable research assistance. I also appreciate the comments of Orie Barron, Bob Bowen, Dave Burgstahler, Andy Call, Shuping Chen, Weili Ge, Bill Mayew, Shiva Rajgopal, Terry Shevlin, Mark Soliman, Jim Vincent and workshop participants at the Free University Amsterdam, INSEAD, Penn State University, Tilburg University, the University of Texas and the University of Washington.

[3] While it is possible that other, non-analyst call participants could ask questions during the discussion portion of the call, practically speaking, the vast majority of questions are from analysts.

call. In contrast, if the primary advantage of conference calls lies not with the interplay between managers and analysts but simply with the ability for managers to disclose information in a less constrained fashion (than a written press release), then we would not expect a negative relation between the length of the presentation and the length of the discussion period. In addition, it is possible that analysts could question managers when relatively less information is provided during the presentation and managers could refuse to answer. If this were the case, we would also not find a negative relation between presentation length and discussion length.

Our analyses are based on transcripts of over 10,000 earnings announcement-related conference calls (obtained from Voxant via Factiva) held during regular trading hours for the period January 2003 to December 2005. To test our hypothesis, we first determine the extent to which the length of the presentation is abnormal and then determine the association between abnormal length of the presentation and the length of the discussion, i.e. we run two-stage regressions. In the first stage, we regress the length of the *presentation* on numerous factors that are likely to influence the amount and type of disclosures managers provide in their presentation. We include both firm- and quarter-specific factors (such as firm performance, the earnings surprise and the occurrence of unusual events) as well as firm-specific factors (such as size, analyst following and growth). We also include firm dummies to provide control for other firm-specific factors that are likely to influence the length of presentations (including manager-specific characteristics such as verbosity).

Consistent with prior findings, we find that managers provide longer disclosures when reporting bad news (Baginski et al. 2004). We also find that managers provide longer disclosures when reporting larger earnings surprises, when earnings contain special items and when the firm engages in non-recurring events such as mergers and acquisitions and/or restructurings. Overall, our model is able to explain 76% of the variations in presentation length.

We use the residuals from these regressions (labelled "abnormal presentation length") as a measure of the extent to which managers provide relatively low (or high) levels of disclosure, given the circumstances of the firm. We then regress the length of the discussion period on the presentation residuals. Consistent with our conjecture, there is a negative relation between abnormal presentation length and discussion length, consistent with the idea that analysts probe managers more when they provide relatively little information upfront and that managers oblige by providing more disclosure in the discussion period. Moreover, we find that the relation is stronger for firms with greater

analyst following them, consistent with our explanation that analyst involvement results in the uncovering of information during the discussion portion of the call.

We also find that when we divide the abnormal presentation length variable into positive and negative values (positive values indicating presentations that are relatively long and negative values indicating presentation that are relatively short), we find abnormally short presentations are followed by longer discussions but abnormally long presentations do not lead to shorter discussion. In fact, it appears that abnormally long presentations also lead to longer discussions, although the magnitude of the relation is substantially smaller than for abnormally short presentations.[4]

Our conclusions are based on the assumption that the length of the presentation portion and the discussion portion of a call is a reasonable proxy for information content. In Section 2.4.3, we provide evidence to support this assumption by examining the relation between call length and revisions in analysts' forecasts. We find that longer calls result in greater revisions in analysts' forecasts and increased forecast accuracy. Together, our results suggest that analysts play an important role in forming the information content of conference calls by probing managers during the discussion phase when they provide relatively little information upfront. Moreover, managers are apparently willing to respond to analysts' request for information by providing at least some additional information.

We also examine the *content* of management's presentation, focusing on two particular dimensions of content — financial (versus non-financial) and forward-looking (versus backward-looking). Given that one of analysts' primary tasks is to forecast future earnings, we conjecture that analysts prefer financial disclosures and forward-looking disclosures. Thus, we predict that discussion periods will be longer when managers provide abnormally low levels of financial or forward-looking disclosures.

Similar to our previous analysis, we regress the proportion of financially oriented words in the presentation and the proportion of forward-looking words in the presentation on a number of control variables (the same variables used in our regression of presentation length) in order to estimate abnormal levels of financial and forward-looking disclosures. Results from this first-stage regression indicate that presentations contain more financially oriented words when reporting good news and in the presence of special items,

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[4] The fact that our results are not driven by abnormally long presentations followed by short discussion periods also addresses the alternative explanation that our finding is the result of some conference calls being constrained to a certain time limit (i.e. when managers' presentations are abnormally long, discussion periods will, by necessity, be cut short due to time constraints).

discontinued operations and/or restructurings. We also find some evidence that firms provide more forward-looking information when reporting bad news.

We then examine the impact of abnormal levels of financial and forward-looking information on discussion length. Consistent with our hypothesis, we find a negative a relation between discussion length and the financial residual, suggesting that fewer financial disclosures in the presentation results in longer discussion periods. However, inconsistent with our hypothesis, we find a positive relation between discussion length and our forward-looking residual, suggesting that more forward-looking disclosures in the presentation lead to longer discussion periods. One possibility is that forward-looking disclosures are inherently less verifiable and, as a result, analysts' require greater justification for these statements.

Our paper contributes to the literature in several ways. This is the first study to examine the interplay between managers and analysts in conference calls, adding to our understanding of the benefits of conference calls as a disclosure mechanism. Our evidence suggests that analysts are able to elicit additional disclosures from managers when their initial disclosures are abnormally short. Thus, the benefit of conference calls is not solely due to managers' ability to provide expanded disclosures in a less formal forum but is also due to analysts' active involvement in the call. It appears managers cannot anticipate all the information needs of analysts and, therefore, the discussion period provides analysts an opportunity to shape public disclosures made by the firm.

Second, this is one of the first studies to examine actual conference call transcripts to examine the quantity and type of disclosures in a firm's conference call.[5] We are also the first to examine the extent of financial and forward-looking disclosures made in conference calls. Prior studies have generally only examined the *existence* of conference calls as a measure of firm disclosure (Frankel et al. 1999; Tasker 1999; Bowen et al. 2002) because data on the actual content of calls was not available. Examining the quantity and type of disclosures made during conference calls can provide new insights into managers' disclosure decisions. Since it is probably difficult for a firm not to host a call once it has

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[5] In concurrent work, Frankel, Mayew and Sun (2007) 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 the results of our first stage regression, they find that firms who miss analyst forecasts have longer conference calls. Our studies differ in that we focus on the relation between information provided in the presentation and subsequent discussion periods whereas they focus primarily on the relation between missing analysts' expectations and overall call length and tone (both presentations and discussions combined).

established a policy of doing so, the manager's primary disclosure decision (once the decision to host a call has been made) is what and how much to disclose on the call. 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 make on a call and while prior studies provide evidence of the former, we provide evidence on the latter. For example, prior studies find that firms who host conference calls are more profitable than those that do not (Frankel et al. 1999), while we find that firms disclose more information in calls when earnings performance is poor.

In the next section, we discuss the prior literature and our hypotheses. We discuss our sample and variable measurement in Section 3. Section 4 presents the results of our analysis of the relation between presentation length and discussion length. Section 5 presents the results of our analysis of the content of presentations and the impact on discussion period length. Section 6 is the conclusion.

2.2   Prior literature and hypothesis development

2.2.1   Management disclosures during the presentation and discussion period length

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, Johnson and Skinner (1999) document abnormal trading volume and return volatility during the call period — where trading volume and return volatility are measured relative to a period after the press release is issued but before the conference call period. Bowen, Davis and Matsumoto (2002) find that analyst forecast accuracy increases after earnings announcements that include conference calls versus those that do not. Kimbrough (2005) finds that the market under-reacts less to current earnings when conference calls are hosted in conjunction with an earnings announcement relative to when a call is not hosted.

The reason conference calls are incrementally informative could be due to one or both of the following factors:

- First, it is possible managers voluntarily provide new or different information in the conference call relative to the press release. Frankel et al. (1999) conjecture 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, they may be willing to provide certain information during the

presentation portion of the call that they would not be willing to provide in a press release. This additional information would make the call more informative.

- Second, analysts' active involvement during the discussion phase of the conference call could result in the revelation of additional information. That is, managers may reveal information as a direct result of analysts' questions — information that they might not otherwise have disclosed. There are two reasons managers might not initially disclose certain information. First, managers may be unaware that a particular piece of information is important. If you assume that managers of high-growth companies are less sure of the information needs of investors because of the changing nature of their business environment, then the fact that high-growth companies are more likely to host conference calls (Frankel et al. 1999; Tasker 1998) is consistent with the idea that managers use conference calls so that analysts can participate and help identify what information should be disclosed.

In addition, it is possible that managers do not initially reveal certain information because they would prefer not to. In general, disclosure models assume that managers will disclose good news and not bad news. However, the failure to disclose information will be inferred as bad news, which can lead to an unravelling of the information unless there are reasons for non-disclosure such as the existence of proprietary costs (Verrecchia 1983) or uncertainty about the arrival of information (Dye 1985). A third possible reason for non-disclosure is that managers are unaware that certain information is value-relevant to investors. However, if analysts' directly ask managers for this information, this possibility is removed and managers will be forced to disclose the information. In other words, if managers fail to disclose certain information in the press release, the market may not necessarily be able to infer the lack of disclosure as bad news if 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, this "excuse" for non-disclosure is not viable and the manager will disclose the information to avoid the inevitable negative inference that would be made from a manager's unwillingness to disclose.

To summarise, the manager may not disclose all relevant information in either the press release or the presentation portion of the call. If analysts' play an active role in uncovering important information that managers fail to disclose in the presentation *and* if managers comply with analysts' requests for additional information, we expect the discussion portion

of the call to be longer when the presentation portion of the call is relatively brief.[6] Thus, our first hypothesis is:

> H1:   Analyst discussion periods are longer when management's presentation is abnormally short.

The above hypothesis suggests a negative relation between presentation length and discussion length. However, we do not necessarily expect the relation to be symmetric for cases when the manager provides abnormally low levels of information versus situations when the manager provides abnormally high levels of information. When management's presentation is abnormally short, we expect analysts to probe managers to disclose more information, leading to longer discussions. However, when the presentation is abnormally long, it is possible that the greater length is due to managers providing marginally relevant information. Thus, it is less clear that abnormally *long* calls will necessarily lead to *shorter* discussion periods. We therefore hypothesise:

> H2:   The negative relation between analyst discussion periods and abnormal presentation length is weaker for abnormally long presentations relative to abnormally short presentations.

Tests of this hypothesis also help address a potential alternative explanation — that the negative relation between abnormal presentation length and discussion period length is due to time constraints imposed on conference calls. If managers only allot a certain amount of time to conference calls, then when managers' presentations are abnormally long, discussion periods may be cut short — leading to a negative relation between the two

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[6] An alternative way to address the issue of the "value added" by analysts during conference calls is to examine the intra-day trading during the presentation versus the discussion portion of the call. This approach is problematic, however, because it assumes trading that occurs during each portion of the call is attributable solely to information disclosed during that portion of the call. It is possible (perhaps likely) that news disclosed during the presentation portion of the call could result in trading during the discussion portion of the call (if there is a lag in information processing or trade execution) and since discussions always follow presentations, this fact would give the appearance that discussion periods are more informative than presentation periods when that might not necessarily be the case. This issue is less problematic when analysing the information content of the presentation portion and discussion portion individually (as we do in the next chapter), since it is possible to control the absolute return during the presentation while analysing the discussion. Since, however, we are focussing on the association between the information in the presentation portion and the information in the discussion portion, the lag in information processing or trade execution may become problematic.

variables. However, if time constraints are the primary driver for the negative relation, we should see a stronger negative relation in the case of abnormally long presentations versus abnormally short presentations.

Finally, if analysts probe managers when they fail to provide sufficient information during the presentation portion of the call, we would expect firm's with greater analyst following to display a stronger negative relation between abnormal presentation length and discussion period length. Thus, we hypothesise:

> H3: The relation between analyst discussion periods and abnormal presentation length is stronger for firms with greater analyst following.

2.2.2 Content of the presentation and discussion period length

Tests of the previous hypotheses will shed light on whether analysts' participation in conference calls — and, in particular, their ability to elicit information that managers fail to disclose in the presentation — is a source of the incremental information content of conference calls over press releases. We also examine the *type* of disclosures made by managers in the presentation and their effects on the discussion period. This examination will provide further insight into the type of information that analysts' prefer.

In general, conference call presentations include a recap of the firm's financial performance during the past quarter as well as disclosures of non-financial information such as new products, customers or strategic alliances. In addition to discussing past performance, managers also often discuss future plans and expectations. Thus, we examine the content of the call along two dimensions — financial and forward-looking. While there are obviously many other dimensions which one could examine, we believe these are two of the more significant dimensions.[7]

Analysts' primary responsibility is to provide investment recommendations on the stocks they follow (Schipper 1991). Along with providing stock recommendations, analysts' also produce earnings forecasts that are inputs into their stock recommendations (Bradshaw 2004). In generating these earnings estimates, analysts often build spreadsheet models that

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[7] Also, because of the way the data for these measures 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.

project future income based on various assumptions of margins, investments, growth, etc. (Hutton 2004). Given the need to generate these models, we expect analysts to have high demand for financial and forward-looking information. Thus, when managers fail to provide this information in the presentation portion of the call, we expect it to lead to longer discussion periods. We hypothesise:

> H4: Analyst discussion periods are longer when the financial or forward-looking nature of management's presentation is abnormally low.

2.3   Data and variable measurement

2.3.1   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 1 January 2003 and 31 December 2005. This process yields 19,041 potential conference calls. We limit our sample to calls held during trading hours because we include a market-based measure of news in the earnings announcement as an independent variable (explained in Section 2.3.3), and we use actual returns during the presentation and discussion in the additional analysis in Note 38.[8] We then gather transcripts of calls from Voxant FD wire available through Factiva. We are unable to find transcripts for 5,234 calls, leaving us with a sample of 13,807 conference call transcripts.[9] We lose 2,634

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[8] Of the initial sample of 36,074 calls, 39.6% of firms always hold calls during trading hours, 35.4% always hold calls after trading hours, 14.6% switched once during the three-year period either from during to after or vice versa and 10.4% 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. Since none of the groups differ in terms of call length, the fact that we examine only calls held during trading hours likely does not bias our results. However, this may limit how much we may generalise our results to the extent firms that host calls after hours behave differently from firms who host calls during trading hours.

[9] 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

observations due to missing Trade and Quote (TAQ) intraday stock price data, Institutional Brokers Estimates System (I/B/E/S) analyst forecast data, Compustat quarterly financial statement data and/or stock price data from the Center for Research in Security Prices (CRSP). Finally, because our analyses include firm-fixed effects, we eliminate firms with less than four conference calls (1,321 observations). Our final sample is 10,062 firm-quarters. Table 2.1, Panel A details our sample selection process.

Table 2.1, Panel B presents the distribution of our sample across calendar quarters.[10] We have the most observations 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.[11] Panel C shows the 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, IBES, CRSP or TAQ data; missing transcripts on Voxant; calls held outside 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).[12]

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are larger (in terms of assets and market capitalisation) and more highly followed. This fact does not bias our results because we include firm-fixed effects in all our analyses but it may limit how much we may generalise our results to the extent that larger firms behave differently from smaller firms in the way they disclose information.

[10] Classification to a calendar quarter is based on the conference call date, not on the fiscal year-end of the company.

[11] For 2005, transcripts appear to be missing on 22 April, 26 April and 28 July. 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 the 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). We do not believe these missing transcripts introduce any systematic bias into our analysis.

[12] If we had 12 calls for all 1,318 firms in our sample, we should have 15,816 observations. Of the 5,804 quarters missing from our sample, 4% is due to missing Compustat , IBES, CRSP, or TAQ data, 29% is due to missing transcripts, 15% is due to calls held outside trading hours (see footnote 7) and 52% is due to no calls reported on the Dow Jones Calendar of Corporate Events in that quarter. Of the latter group, it appears that 39% is 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% (1,842 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% 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

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Finally, Panel D of Table 2.1 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 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% of our sample but comprises 28% of the population of NYSE/NASDAQ firms.

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decided against hosting a call. Thus, it appears that hosting conference calls tends to be a policy choice for the vast majority of firms.

Table 2.1

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 less than $1.00	(477)
Missing analyst forecast data on IBES	(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	Percentage
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	No. of Firms	Total
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

Table 2.1 *(continued)*

Sample selection and descriptive data

Panel D: Distribution of observations across industry

NAICS[13] Industry	No. of Obs.	% of Obs	% of Population[14]
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	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	288	2.86	1.75
Accomodation and Food Services	236	2.35	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	0.73	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

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[13] NAICS stands for the North American Industry Classification System.

[14] Percentage of population is the percent of firms on the NYSE and NASDAQ in each NAICS industry classification.

2.3.2 Dependent variables

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 key words 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 key words, we performed the split manually. In addition, each transcript includes a legal disclaimer at the end of the document. We removed this disclaimer from all transcripts.

Our primary measure of conference call length is based on the number of words in the presentation ($LENGTH^{PRES}$) and discussion ($LENGTH^{DISC}$) portions of the call. $LENGTH^{CC}$ represents the total number of words for the entire call. We also measured: 1) number of questions/remarks made by analysts during the discussion (#QUESTION), 2) the number of unique analysts asking questions/making remarks during the discussion (#ANALYSTS), 3) the number of words spoken by analysts during the discussion (#WORDS^{ANAL}), and 4) the number of words spoken by company representatives (#WORDS^{COMP}). Our main analysis is based on the $LENGTH^{DISC}$ but we provide additional descriptive statistics of these other measures to provide further insight into the discussion period.

Table 2.2, Panel A presents descriptive statistics on these variables. We also present histograms of $LENGTH^{PRES}$ and $LENGTH^{DISC}$ in Figure 1, Panels A and B. Across our sample, the average length of the presentation is approximately 2,900 words and the average length of the discussion portion of the call is 4,400 words. The inter-quartile ranges for the presentation and discussion periods are approximately 1,600 and 2,700 words respectively. Thus, discussion periods tend to be longer and are somewhat more variable in length than presentation periods. On average, there are 7.5 analysts participating during the call and they ask/make approximately 44 questions/remarks. In general, company representatives speak twice as many words as analysts during the discussion periods (2,900 versus 1,400 words). Thus, managers do the majority of talking during the discussion portion of the call, quite likely in response to analyst questions/remarks and reflecting the information needs of analysts.

Table 2.2
Descriptive statistics on dependent variables

Panel A: Descriptive statistics on call length (N = 10,062)

Variable[15]	Mean	1st Quartile	Median	3rd Quartile	Std Deviation	IQ Range
LENGTH^{PRES}	2928.27	2048.00	2798.50	3638.00	1246.74	1590.00
LENGTH^{DISC}	4438.30	2977.00	4341.50	5687.00	2055.90	2710.00
LENGTH^{CC}	7366.57	5576.00	7339.50	8976.00	2488.36	3400.00
#QUESTION	43.88	27.00	41.00	57.00	23.65	30.00
#ANALYST	7.57	5.00	7.00	10.00	3.76	5.00
#WORDS^{ANAL}	1384.01	852.00	1290.00	1763.00	787.36	911.00
#WORDS^{COMP}	2899.90	1831.00	2769.50	3774.00	1503.64	1943.00
#MIN^{PRES}	18.29	12.79	17.48	22.73	7.79	9.93
#MIN^{DISC}	28.25	18.95	27.64	36.20	13.09	17.25
#MIN^{CC}	46.55	35.21	46.38	56.74	15.76	21.53
IQ^{PRES}	745.04	401.00	630.00	964.00	531.86	
IQ^{DISC}	1643.96	1035.00	1490.00	2109.50	851.89	
IQ^{CC}	1840.28	1146.00	1652.00	2337.00	965.13	

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[15] LENGTH^{PRES}, LENGTH^{DISC}, and LENGTH^{CC} are the number of words spoken during the presentation, discussion and entire conference call respectively. #QUESTION is the number of times an analyst asks a question or makes a remark during the discussion. #ANALYST is the number of analysts participating in the call. #WORDS^{ANAL} (#WORDS^{COMP}) is the number of words spoken by analysts (company representatives) during the discussion. #MIN^{PRES}, #MIN^{DISC}, #MIN^{CC} are the estimated number of minutes of the presentation, discussion and entire conference call respectively, based on the median number of words spoken per minute based on a sub-sample of 1,263 calls for which we have the exact start and end times of the presentation and discussion. IQ^{PRES}, IQ^{DISC} and IQ^{CC} are the firm-specific inter-quartile ranges of the number of words in the presentation, discussion, and entire conference call respectively

Table 2.2 *(continued)*

Descriptive statistics on dependent variables

Panel B: Descriptive statistics on financial and forward-looking disclosures (N = 10,062)

Variable[16]	Mean	1st Quartile	Median	3rd Quartile	Std Deviation	IQ Range
%FIN^{PRES}	0.039	0.030	0.038	0.046	0.012	0.016
%FIN^{DISC}	0.017	0.012	0.016	0.021	0.007	0.009
%FUTURE^{PRES}	0.021	0.017	0.021	0.024	0.006	0.007
%FUTURE^{DISC}	0.024	0.021	0.024	0.028	0.005	0.007

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[16] %FIN^{PRES} and %FIN^{DISC} are the percentages of financial words spoken during the presentation and discussion respectively. Please refer to Exhibit 1 for the list of financially-oriented words used to define these variables. %FUTURE^{PRES} and %FUTURE^{DISC} are the percentages of forward-looking words spoken during the presentation and discussion respectively. Please refer to Exhibit 2 for the list of forward-looking words used to define these variables.

Table 2.2 (continued)

Descriptive statistics on dependent variables

Panel D: Correlation matrix [17]

	LENGTH^PRES	LENGTH^DISC	LENGTH^CC	#QUEST	#ANAL	#WRDS^ANAL	#WRDS^COMP	%FIN^PRES	%FIN^DISC	%FUT^PRES	%FUT^DISC
LENGTH^PRES	1.0000	0.0083	0.4088	−0.0136	−0.0351	0.0174	0.0131	−0.1205	0.0164	−0.0221	0.0427
LENGTH^DISC	−0.0347	1.0000	0.8878	0.6989	0.6170	0.7852	0.9132	−0.0475	−0.0253	0.0226	−0.0774
LENGTH^CC	0.4194	0.8927	1.0000	0.6194	0.5346	0.7088	0.8133	−0.0911	−0.0184	0.0087	−0.0507
#QUESTIONS	−0.0266	0.6791	0.6048	1.0000	0.6255	0.8192	0.4857	−0.0023	0.0545	0.0213	−0.0620
#ANALYSTS	−0.0468	0.6176	0.5399	0.6068	1.0000	0.6276	0.4918	−0.0054	0.0374	0.0212	−0.0393
#WORDS^ANAL	−0.0027	0.6860	0.6220	0.8110	0.5636	1.0000	0.5288	−0.0235	0.0265	0.0205	−0.0501
#WORDS^COMP	−0.0381	0.9049	0.8048	0.4013	0.4706	0.3158	1.0000	−0.0521	−0.0496	0.0180	−0.0760
%FIN^PRES	−0.1117	−0.0652	−0.1096	0.0047	−0.0106	−0.0140	−0.0779	1.0000	0.1210	−0.1267	−0.0067
%FIN^DISC	−0.0151	−0.0270	−0.0313	0.0427	0.0243	0.0159	−0.0448	0.1246	1.0000	0.0062	0.0553
%FUTURE^PRES	−0.0496	0.0360	0.0104	0.0242	0.0305	0.0229	0.0310	−0.1492	0.0192	1.0000	0.1023
%FUTURE^DISC	0.0368	−0.0880	−0.0633	−0.0629	−0.0506	−0.0497	−0.0854	−0.0099	0.0428	0.1021	1.0000

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

Figure 1

Distribution of conference call length (in words)

Panel A: Distribution of presentation length (LENGTH^{PRES})
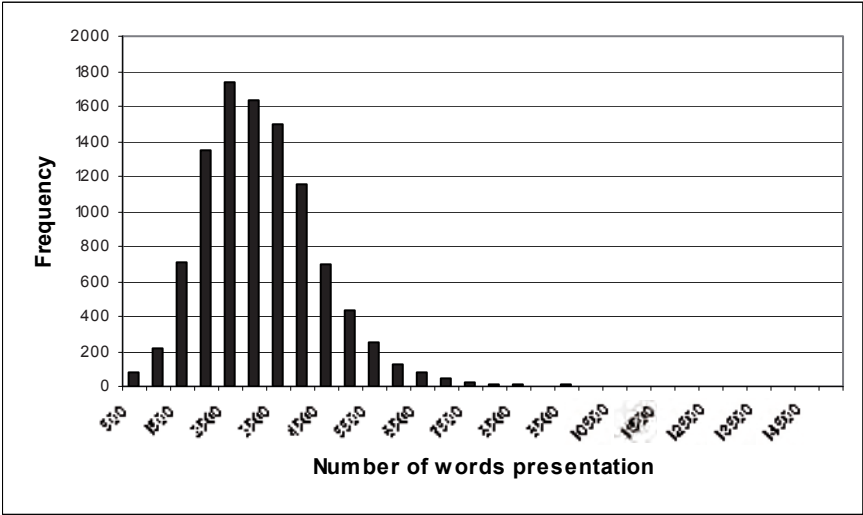

Panel B: Distribution of discussion length (LENGTH^{DISC})
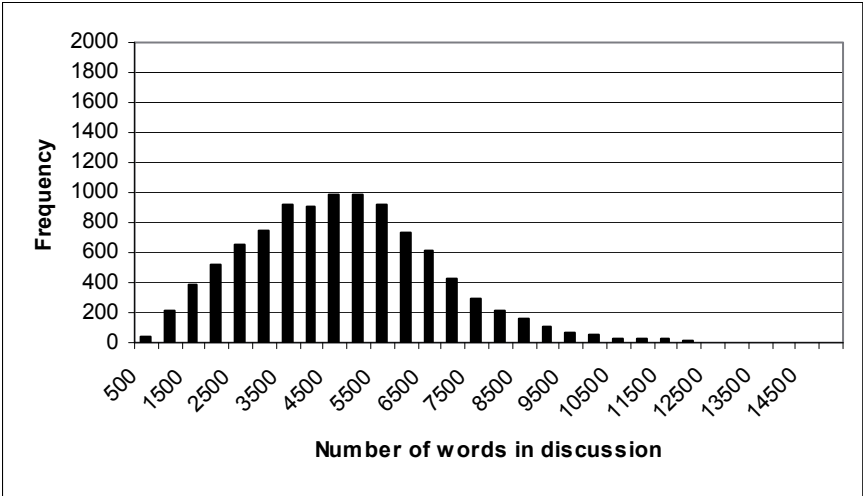
We also use a sub-sample of 1,263 conference calls (made between January 2005 and March 2005) for which we have exact start and end times for each segment of the call to provide some perspective on the length of calls in minutes. We match the times to our transcripts and calculate the number of words spoken per minute in the presentation and discussion portions of the call. We use the median number of words spoken per minute (160 and 157 for the presentation and discussion portions of the call respectively) to compute the approximate length, in minutes, of the presentation (#MIN^{PRES}) and discussion (#MIN^{DISC}) portions of the call. Statistics on these variables are also reported in Table 2.2, Panel A. The average length of the presentation is approximately 18 minutes while the average length of the discussion is 28 minutes. The inter-quartile ranges are approximately 10 and 17 minutes for the presentation and discussion respectively. Thus, while prior studies generally assume that conference calls last for 60 minutes following the start time of the call (Frankel et al 2002; Bushee et al. 2003), there is significant cross-sectional variation in the length of calls.

We also provide some evidence on within-firm variation in call length by computing the inter-quartile range of LENGTH^{PRES} and LENGTH^{DISC} (IQ^{PRES} and IQ^{DISC}) by firm. Several interesting observations arise from these descriptive statistics. First, within-firm variation in conference call length is significantly less than cross-sectional variation in length. For example, the average within-firm inter-quartile range for conference call length is approximately 1,840 words (or approximately 12 minutes), whereas the cross-sectional inter-quartile range is approximately 3,400 words (or 21 minutes). The fact that cross-sectional variation in conference call length is greater than within-firm variation suggests that firm characteristics, which tend to be stable across time — such as size and analyst following — play a large role in explaining cross-sectional differences in conference call length. Still, prior empirical and theoretical research suggests that firm-quarter specific factors (e.g. performance) also likely play a role in determining disclosure levels. Moreover, there are other time-invariant factors that likely impact the length of the presentation and discussion — such as managerial verbosity — that it would be beneficial to filter out. Thus, our analyses are all based on firm-fixed effects models.

Second, the average within-firm inter-quartile range for discussion periods (1,644 words or about 10.5 minutes) is more than twice as large as the average inter-quartile range for presentation periods (754 words or about 5 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 are likely to follow a general pattern or template for a given firm, leading to less variation in presentations. This fact, however, does not necessarily imply

that there is too little variation in presentation length to capture a relation with discussion length. As discussed further below, we measure "abnormal" presentation length based on a model of expected presentation length. The fact that managers do not vary their presentation length in circumstances when they would be expected to is likely to lead to longer discussion periods.

We measure financial orientation based on a word count of financially oriented words. Exhibit A presents the list of words we used to define this variable.[18] We compute the percentage of financially oriented words in the presentation as a percentage of the total words in the presentation ($\%FIN^{PRES}$). For comparison purposes, we also compute the percentage of financially oriented word in the discussion as a percentage of the total words in the discussion ($\%FIN^{DISC}$). Table 2.2, Panel B presents descriptive statistics on these variables. On average, a higher percentage of words spoken during the presentation (3.9%) is financially oriented than during the discussion (1.7%).

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[18] We first randomly selected 900 conference calls and identified all words occurring more than 10 times. From these 7,892 words, we identified words that we consider financial in nature.

Exhibit 1

List of financially oriented words

accounting	derivatives	leases	revenues
accrual	dividend	leasing	ROA
accruals	dividends	lending	ROE
accrued	dollar	leverage	ROI
allowance	dollars	liabilities	sales
allowances	earnings	liability	securities
amortization	EBIT	liquidity	securitization
amortize	EBITDA	loan	security
amortized	EPS	loans	selling
asset	equities	loss	shares
assets	equity	losses	swaps
bond	euro	margin	tax
borrowed	euros	margins	taxable
borrowing	expenditure	obligations	taxes
borrowings	expenditures	payable	unamortized
budget	expense	payables	unleveraged
budgeted	expenses	payment	warrants
budgeting	finance	payments	
buybacks	financed	pound	
capex	financial	pounds	
capital	financially	prepaid	
capitalization	financials	prepayment	
capitalize	financing	prepayments	
capitalized	financings	Pretax	
cash	gain	profit	
cent	gains	profitability	
cents	goodwill	profits	
convertible	hedge	receivable	
cost	hedged	receivables	
costs	hedges	redeemable	
covenants	hedging	refinance	

(Exhibit 1 – Continued)

currencies	impaired	refinanced
debentures	impairment	refinancing
debt	impairments	rent
debts	income	rental
deferrals	interest	rentals
deposit	investment	repurchasing
deposits	investments	reserve
depreciation	lease	reserves
derivative	leased	revenue

Our measure of forward-looking disclosures is based on a linguistic analysis tool called LIWC (Linguistic Inquiry and Word Count).[19] The software computes the percentage of words that are past, present and future-oriented based on a dictionary established by the creators of the software. As the software was designed to analyse texts in a general context, the words included in the dictionary are quite general *(please refer to Exhibit 2 for the list of words designated by the software as being future-oriented)*. The list is quite short because only a handful of verbs signal future tense (primarily "shall" and "will").[20] However, in business communications, there are other words that are often agreed upon as signifying a discussion of the future, despite the fact that the words are technically present tense (e.g. "expects", "anticipates", "intends", etc.). Earnings press releases often include a disclaimer about forward-looking statements that includes a list of words 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 *(please refer to Exhibit 2)*. We then compute the percentage of forward-looking words in the presentation (FUTURE^{PRES}) as well as in the discussion (FUTURE^{PRES}) as our measure of forward-looking disclosures. Table 2.2, Panel B presents descriptive statistics on these variables. On average, presentation and discussion periods have similar levels of forward-looking disclosures (means of 2.1% and 2.4% for presentation and discussion respectively).

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[19] The software is available at http://www.liwc.net. This software was also used in Li (2006)

[20] We thank Professor James Pennebaker (UT-Austin) for sharing their dictionary with us. We also thank him for his insights regarding future tense in the English language.

Exhibit 2

List of forward-looking words

From LIWC[21]	**Additional words**[22]
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

Finally, we present a correlation matrix of all our dependent measures in Table 2.2, Panel D after subtracting the within-firm mean from each variable (Spearman [Pearson] correlations reported above [below] the diagonal). Several interesting observations emerge from this table. First, the length of the discussion is more highly correlated with the overall length of the call (r = 0.89) than the length of the presentation (r = 0.42), indicating that

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[21] Words designated by LIWC (see http://www.liwc.net) as future-oriented.

[22] Additional words included based on an analysis of a sample of disclaimers included in company press releases as indicating forward-looking statements.

analyst discussion periods are a bigger determinant of overall call length than managers' presentations. Second, the words spoken by company representatives are more highly related to the length of the discussion (r = 0.90) than the words spoken by analysts (r = 0.69). Thus, the length of the discussion is largely determined by managers' answers rather than analysts' questions. Finally, there is a negative relation between financial disclosures and forward-looking disclosures in the presentation portion of the call but not in the discussion phase. Thus, it appears that managers' financial disclosures during the presentation portion of the call are more likely to be discussions about past performance. Since a portion of most conference call presentations are devoted to a recapitulation of the prior quarter's financial performance, this correlation is perhaps not surprising.

2.4 Relation between presentation and discussion period lengths

2.4.1 Measuring abnormal presentation length

To test the relation between presentation length and discussion length, we first model the determinants of presentation length to generate measures of "unexpected" or "abnormal" presentation length. The first four variables included in our model are measures of performance. The first two measure performance over the entire quarter (one being a measure of earnings performance and the other based on stock market performance), while the other two measure the unexpected performance at the time of the earnings release:

ROA – Earnings before extraordinary items (Compustat quarterly item 8) divided by total assets (Compustat quarterly item 44) at year-end.

RET^{QTR} – Market-adjusted returns cumulated from calendar day –92 to day –2 relative to the conference call date, which approximates returns over the quarter (excluding the earnings announcement return).

RET^{DAYB4} – Returns in the 24 hours prior to the conference call, measured as 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 ($MID^{dayprior}$) divided by $MID^{dayprior}$ (data obtained from the TAQ database). [23]

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[23] For approximately 98% 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.

MISS – A dummy variable equal to 1 if actual EPS for the quarter (per IBES unsplit-adjusted actuals file) is less than the mean consensus forecast EPS for the quarter (per IBES unsplit-adjusted summary file) and zero otherwise.

Prior studies have generally found a positive relation between performance and disclosure (Lev and Penman 1990; Lang and Lundholm 1993; Miller 2002; Frankel et al. 1999). However, many of these studies focus on the decision to make a disclosure rather than the volume of information disclosed, once the decision to disclose has been made.[24] In addition, recent studies on supplemental disclosures made with earnings forecasts (Hutton, Miller and Skinner 2003; Baginski, Hassell and Kimbrough 2004) suggest that managers may have incentives to provide more disclosures when forecasting *bad* news, suggesting a negative relation between the quantity of disclosure and performance.[25] Since the conference calls we examine are held in conjunction with an earnings release, at least a portion of the disclosures made in the call are "supplementing" the earnings release. Thus, we expect a negative relation between firm performance and presentation length.[26]

The next seven variables are intended to capture unexpected economic events during the quarter that may lead to longer presentations. If nothing significant happens during the quarter, managers will have less to discuss in the presentation. In contrast, if significant events do occur, presentations would be expected to be longer and if these are not, analysts are likely to demand greater disclosure in the discussion period. The variables used are:

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[24] Once a firm has established a policy of hosting conference calls following their earnings announcements, it is likely to be very costly for them not to host a call because of poor earnings performance. Thus, while prior evidence suggests that, on average, firms which 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. It is more likely that the above result is driven by the fact that firms are more likely to adopt a *policy* of hosting calls when performance is better.

[25] Baginski et al. (2004) find evidence consistent with this conjecture, while Hutton et al. (2003) do not. However, in the Hutton et al. (2003) study, the direction of the effect (while not statistically significant) is in the direction predicted — firms forecasting bad news provide greater "soft talk" disclosures.

[26] This conjecture is also consistent with survey evidence in Graham, Harvey and Rajgopal (2005) that indicates managers perceive conference calls to be longer when firms miss analysts' earnings forecasts. They report that "[t]he other statistically significant factor motivating managers to avoid missing earnings benchmarks relates to the time spent in explaining, especially in conference calls to analysts, why the firm missed the target". Frankel, Mayew, and Sun (2007) find evidence consistent with the perceptions reported in Graham et al. (2005) – firms missing expectations have longer conference calls in total (presentation and discussion periods combined).

- $|RET^{QTR}|$ – 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, defined as the absolute value of actual EPS (from IBES unsplit-adjusted actuals file) less the last mean consensus forecast prior to the earnings announcement (from IBES unsplit-adjusted summary file) divided by the stock price at the start of the conference call (from TAQ).

- $|SPITEM|$ – The absolute value of special items (Compustat quarterly item 32) divided by total assets (Compustat quarterly item 44) at year-end.

- $|DISCOP|$ – The absolute value of discontinued operations (Compustat quarterly item 33) divided by total assets (Compustat quarterly item 44) at year-end.

- $M\&A^{PRES}$ – The number of merger- and acquisition-related words (acquisition, acquisitions, acquisition's, M&A, merged, merger, merging, pre-acquisition, synergies, synergy and takeover) in the presentation divided by the total number of words in the presentation ($\times 100$).

- $RESTRUCT^{PRES}$ – The number of restructuring related words (layoffs, restructure, restructured, restructuring, restructurings, severance) in the presentation divided by the total number of words in the presentation ($\times 100$)

Finally, while we include firm-fixed effects in our model (which controls for static firm-specific characteristics such as industry membership), it does not eliminate the impact of other firm-specific characteristics that are not completely static — for example, analyst following, firm size, etc.[27] Since many of these latter characteristics have previously been shown in the literature to be related to disclosure, we include three additional control variables:

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[27] 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.

- ΔSALES – A measure of growth defined as current quarter sales (Compustat quarterly item 2) less prior-year sales in the same quarter , divided by total assets (Compustat quarterly item 44).

- AF – A measure of analyst following defined as number of analysts that issued an EPS forecast for the current quarter (from IBES summary file).

- LNASSETS – A measure of firm size defined as the log of total assets (Compustat quarterly item 44).

Table 2.3, Panel A provides univariate statistics on these variables. The mean ROA for the sample is less than 1%. The mean return over the prior quarter is –0.8% and returns in the 24 hours prior to the call are, on average, close to zero (0.1%). However, the majority of firms met or exceeded analysts' expectations — only 28.5% missed expectations.

Table 2.3, 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| — an indication that the larger magnitude exclusions tend to be negative (or income deteriorating) in nature.

$$
\begin{aligned}
Length^{PRES} = & \beta_0 + \beta_1 ROA + \beta_2 RET^{QTR} + \beta_3 RET^{DAYB4} + \beta_4 MISS + \beta_5 \left| RET^{QTR} \right| + \\
& + \beta_6 \left| RET^{DAYB4} \right| + \beta_7 \left| FE \right| + \beta_8 SPITEM + \beta_9 \left| DISCOP \right| + \beta_{10} M \,\&\, A^{PRES} + \\
& + \beta_{11} RESTRUCT^{PRES} + \beta_{12} \Delta SALES + \beta_{13} AF + \beta_{14} LNASSETS + \beta_{15} QTR2 + \\
& + \beta_{16} QTR3 + \beta_{17} QTR4 + \beta_{18} Y2004 + \beta_{19} Y2005 + \varepsilon
\end{aligned}
\tag{1}
$$

Our measure of abnormal presentation length is based on the following model:

We include fiscal quarter dummy variables (QTR2, QTR3, and QTR4) to control for differences across quarters in the length of calls and year dummy variables (Y2004 and Y2005) to control for trends over time in the length of calls. As discussed earlier, we run the above model including firm-fixed effects.

The results of equation (1) are presented in Panel C of Table 2.3.[28] Consistent with prior research, we find that conference call presentations are longer for firms with poorer performance, as measured using returns over the quarter (coefficient on RET^{QTR} significant at $p < 0.001$). Firms also have longer presentation when the news in the earnings release is significantly negative (coefficient on RET^{DAYB4} is significantly negative and coefficient on MISS is significantly positive). Significant surprising earnings announcements (as measured by absolute forecast errors and absolute returns in the 24 hours prior) also lead to longer presentations as do M&A and restructuring activities. Not surprisingly, as firms expand, they have longer presentations. Presentations also appear to be shortest in the first fiscal quarter and longest in the fourth fiscal quarter.

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[28] If we winsorise the top and bottom 1% of observations, we obtain similar results (with the exception that the coefficient on |SPITEM| is positive and statistically significant at $p<0.001$). We use the un-winsorised variables to generate our measure of abnormal presentation length and winsorise the residuals used as the independent variable in our second stage regression.

Table 2.3
Determinants of presentation length

Panel A: Univariate statistics

Variable[29]	Mean	1st quartile	Median	3rd quartile	Std Deviation
ROA	0.00	0.00	0.01	0.02	0.04
RET^{QTR}	-0.008	-0.102	-0.016	0.07	0.17
RET^{DAYB4}	0.00	-0.020	0.00	0.02	0.05
MISS	0.28	0.00	0.00	1.00	0.45
$|RET^{QTR}|$	0.12	0.04	0.09	0.16	0.12
$|RET^{DAYB4}|$	0.03	0.00	0.02	0.04	0.03
$|FE|$	0.00	0.00	0.00	0.00	0.02
$|SPITEM|$	0.00	0.00	0.00	0.00	0.03
$|DISCOP|$	0.00	0.00	0.00	0.00	0.00

(*Continued on next page*)

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[29] ROA is earnings before extraordinary items (Compustat quarterly item 8) divided by total assets at year-end (Compustat quarterly item 44). RET^{QTR} is the market-adjusted returns cumulated from day –92 to day –2, relative to the conference call date. RET^{DAYB4} is 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 ($MID^{dayprior}$) divided by $MID^{dayprior}$ (from the TAQ database). MISS is a dummy variable that is equal to 1 if actual EPS for the quarter (per IBES unsplit-adjusted actuals file) is less than the mean consensus forecast EPS for the quarter (per IBES unsplit-adjusted summary file) and zero otherwise. $|FE|$ is the absolute value of actual EPS (from IBES unsplit-adjusted actuals file) less the last mean consensus forecast prior to the earnings announcement (from IBES unsplit-adjusted summary file) divided by the stock price at the end of quarter (Compustat quarterly item 14). $|SPITEM|$ is the absolute value of special items (Compustat quarterly item 32) divided by ending total assets (Compustat quarterly item 44). $|DISCOP|$ is the absolute value of discontinued operations (Compustat quarterly item 33) divided by ending total assets (Compustat quarterly item 44). $M\&A^{PRES}$ is the number of merger and acquisition related words (acquisition, acquisitions, acquisition's, M and D, merged, merger, merging, preacquisition, synergies, synergy and takeover) in the presentation (discussion) divided by the total number of words in the presentation × 100. $RESTRUCT^{PRES}$ is the number of restructuring-related words (layoffs, restructure, restructured, restructuring, restructurings, severance) in the presentation divided by the total number of words in the presentation (discussion) × 100. ΔSALES is current quarter sales (Compustat quarterly item 2) less sales in the same quarter one year earlier, divided by total assets (Compustat quarterly item 44). AF is the number of analysts that issued an EPS forecast for the current quarter (from IBES summary file). LNASSETS is the log of total assets (Compustat quarterly item 44).

(Table 2.3 – Continued)

Variable	Mean	1st quartile	Median	3rd quartile	Std Deviation
M&A$_{\text{PRES}}$	0.11	0.00	0.04	0.17	0.16
RESTRUCT$_{\text{PRES}}$	0.03	0.00	0.00	0.02	0.08
ΔSALES	0.02	0.00	0.01	0.04	0.06
AF	7.35	3.00	6.00	10.000	5.88
LNASSETS	7.27	6.05	7.19	8.37	1.78

Table 2.3 (continued)
Determinants of presentation length

Panel B: Correlation Matrix[30,31]

Variables	ROA	RET^{QTR}	RET^{DAYB4}	MISS	$|RET^{QTR}|$	$|RET^{DAYB4}|$	$|FE|$	$|SPITEM|$	$|DISCOP|$	$M\&A^{PRES}$	$RESTR^{PRES}$	$\Delta SALES$	AF	LNASSETS
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	-0.01	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	0.00	0.03	-0.02	-0.06	-0.08
$|RET^{DAYB4}|$	0.04	-0.02	0.00	0.00	0.05	1.00	0.04	0.03	0.00	0.01	0.01	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
$|DISCOP|$	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
$M\&A^{PRES}$	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
$RESTRUCT^{PRES}$	-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
$\Delta SALES$	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
LNASSETS	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

[30] Spearman correlations shown above the diagonal; Pearson correlations shown below the diagonal.

[31] See Table 3, Panel A for variable definitions. For purposes of this table, we subtract the firm-mean from each variable (because subsequent analyses are based on firm-fixed effect models).

Table 2.3 *(continued)*

Determinants of presentation length

Panel C: Regression of presentation length on hypothesised determinants

LENGTH^{PRES}

Variable[32]	Pred	Coeff.	t-stat	p-value[33]
ROA	–	106.33	0.38	0.645
RET^{QTR}	–	−179.70	−4.17	0.000
RET^{DAYB4}	–	−383.48	−2.64	0.004
MISS	+	44.1:	2.50	0.006
|RET^{QTR}|	+	−20.22	−0.31	0.621
|RET^{DAYB4}|	+	432.76	2.11	0.017
|FE|	+	727.27	2.31	0.010
|SPITEM|	+	344.34	1.09	0.138
|DISCOP|	+	−267.12	−0.26	0.603
M&A^{PRES}	+	148.15	2.52	0.006
RESTRUCT^{PRES}	+	434.92	3.72	0.000
ΔSALES	?	20.9ʼ	0.15	0.881
AF	?	−0.8ʼ	−0.19	0.848
LNASSETS	?	98.4:	2.13	0.016
QTR2	?	125.25	6.66	0.000
QTR3	?	150.48	7.83	0.000
QTR4	?	411.09	21.53	0.000
Y2004	?	107.34	5.97	0.000
Y2005	?	59.7:	2.87	0.002
Firm-fixed Effects		Included		

N = 10,062, R^2 = 0.76

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[32] See variable definitions in Panel A. QTR2, QTR3 and QTR4 are dummy variables equal to 1 if the conference call relates to fiscal quarters 2, 3 and 4 respectively. Y2004 and Y2005 are dummy variables equal to 1 if the conference call is held in 2004 and 2005 respectively.

[33] p-values are one-tailed for variables with directional predictions and two-tailed otherwise.

Overall, the model has an R^2 of 76%, indicating that we were able to explain a significant amount of variation in presentation length. We use the residuals from this model as our measure of unexpected or abnormal presentation length (ABLNGTH^{PRES}) and use this as our independent variable in our second-stage regression.

2.4.2   The effect of abnormal presentation length on discussion length

To test hypothesis one, we run the following model:

$$LENGTH^{DISC} = \beta_0 + \beta_1 ABLNGTH^{PRES} + \varepsilon \qquad (2)$$

We expect the coefficient on β_1 to be negative – hence managers present relatively little information in the presentation, analysts will probe more in the discussion. Note, we do not include any of the determinants of presentation length in this analysis because the residual from the first-stage regression, ABLNGTH^{PRES}, is by definition orthogonal to these other variables and including them in the regression has no effect on β_1.

Our second hypothesis posits a stronger relation between ABLNGTH^{PRES} and LENGTH^{DISC} in situations where managers provide abnormally low levels of information relative to situations where managers provide abnormally high levels of information because it is possible that managers are providing a high volume of wrong information. To test this hypothesis, we allow the coefficient on ABLNGTH^{PRES} to vary for positive and negative values. Specifically, we define a dummy variable (POS) that is equal to one if ABLNGTH^{PRES} is positive and zero otherwise. We then interact this variable with ABLNGTH^{PRES}:

$$LENGTH^{DISC} = \beta_0 + \beta_1 ABLNGTH^{PRES} + \beta_2 POS + \beta_3 POS \times ABLNGTH^{PRES} + \varepsilon \qquad (3)$$

We expect the coefficient on β_3 to be positive if abnormally long presentations do not lead to shorter discussion periods as much as abnormally short presentations lead to longer discussions.

Hypothesis three predicts that the relation between abnormal presentation length and discussion length is stronger for firms with greater analyst following. We define a dummy variable (HI_ANAL) equal to 1 if analyst following (AF) is above the median for the entire sample (AF $\geq$ 6) and zero otherwise. We then this variable with our variables from model (3):

$$LENGTH^{DISC} = \beta_0 + \beta_1 ABLNGTH^{PRES} + \beta_2 POS + \beta_3 POS \times ABLNGTH^{PRES}$$
$$+ \beta_4 HI\_ANAL + \beta_5 HI\_ANAL \times ABLNGTH^{PRES} + \beta_6 HI\_ANAL \times POS \qquad (4)$$
$$+ \beta_8 HI\_ANAL \times POS \times ABLNGTH^{PRES} + \varepsilon$$

If firms with greater analyst following are more likely to probe managers when they fail to disclose sufficient information in the presentation portion of the call, then the coefficient on β_5 should be negative. For equations two, three and four, we winsorise the top and bottom 1% to reduce the impact of outliers on our inferences and, as before, we include firm-fixed effects.

The results of equation two, reported in the first set of columns of Table 2.4, indicates support for hypothesis one. Discussion periods are longer, on average, when managers' presentations are abnormally shorter (t-statistic = –2.53). The effect, however, is not substantial. An increase in presentation length of 745 words (the average within-firm inter-quartile range for presentation length) results in a decrease in discussion length of 46 words. However, part of the reason for this low effect is the fact that positive residuals — indicating abnormally long presentations — do not necessarily result in shorter discussion periods (i.e., the relation is not symmetric).

The results of equation three, presented in the next set of columns, demonstrate this effect. The coefficient on ABLNGTH^{PRES} in this equation represents the relation between abnormal presentation length and discussion length for firms with abnormally short calls and the coefficient here is –0.4094 (t-statistic = 6.66). A reduction of 745 words in the presentation would result in an increase of 305 words in the discussion. The coefficient on the interaction term, POS×ABLNGTH^{PRES}, represents the incremental effect for positive residuals. The coefficient is significantly positive (t-stat = 6.60) and, in fact, an F-test on the sum of the two coefficients (ABLNGTH^{PRES} and POS×ABLNGTH^{PRES}) indicates that the relation between abnormal presentation length and discussion length is statistically greater than zero for the positive residual group (F-stat = 11.26, p = 0.0008). It appears that abnormally long presentations actually lead to longer discussion periods. However, the magnitude of the effect is significantly less than it is for the negative residual group (the sum of the coefficients = 0.1886 vs. –0.4094 for the negative residual group).

Nevertheless, it appears that when managers present for a longer duration than expected, they are not necessarily presenting information that analysts want.[34]

Finally, the results of equation four are presented in the last three columns of Table 2.4. The results are consistent with hypothesis three. The coefficient on HI_ANAL×ABLNGTH^{PRES} is significantly negative (t-stat = 2.64), indicating that the negative relation between abnormal presentation length and discussion length is stronger for firms with high analyst following.

As an alternative specification, we also ran equations two, three and four using the number of questions asked by analysts (#QUESTION) as our dependent variable (untabulated). The results are inferentially similar (all variables of interest are significant at similar probability levels). The one exception is that the F-test on the sum of the coefficients ABLNGTH^{PRES} and POS×ABLNGTH^{PRES} is not significant, indicating there is no relation between discussion length and abnormal presentation length when presentations are abnormally long (vs. the positive relation reported using LENGTH^{DISC} as the dependent variable). However, the coefficient on POS×ABLNGTH^{PRES} is still significantly positive, consistent with hypothesis two.

Overall, the evidence is consistent with analysts playing a significant role in determining the information that is disclosed during conference calls and hence, in the incremental informative nature of conference calls. Moreover, the results suggest that managers (on average) respond to analysts' inquiries by providing more information, rather than refusing to answer their questions. These conclusions, however, assume that longer calls are a reasonable proxy for more information — an issue we address in the next section.

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[34] This result also addresses the concern that our finding is the result of some conference calls being constrained to a certain time limit (i.e. when managers' presentations are abnormally long, discussion periods will, by necessity, be cut short due to time constraints). It does not appear to be the case that abnormally long presentations lead to short discussion periods. Rather, the overall negative relation between abnormal presentation length and discussion length is driven by abnormally short presentations being followed by longer discussions (which is less likely the result of time limits). As additional evidence that our findings are not the result of time constraints, we also regressed discussion length on raw presentation length (not abnormal presentation length) and we do not find a statistically significant negative coefficient on presentation length (results untabulated). In other words, discussion lengths are longer not just when presentation are shorter but when presentations are *unexpectedly* shorter given the circumstances of the firm (e.g., the firms reports bad news, surprising earnings, special items, etc.).

2.4.3   The relation between length and information

A key assumption of the previous analysis is that longer presentations and discussion periods represent more information. However, it is possible that managers simply "talk a lot" without revealing any relevant information. This possibility seems relatively unlikely, particularly in a firm-fixed effects setting where cross-sectional variation in managerial "verbosity" is controlled for.[35] However, to provide some empirical evidence on this issue, we examine the relation between call length and changes in attributes of analysts' forecasts before and after the call. We examine three changes in analysts' forecasts of the subsequent quarter's earnings (quarter q+1):

- $|FREV|$ − Absolute analyst forecast revisions, defined as the absolute value of the difference between the median forecast of quarter q+1 issued before the conference call and the median forecast issued after the conference call, divided by price at the start of the call.

- ΔFE – The change in analyst forecast accuracy, defined as $(FE^{POST} - FE^{PRE})/P^{start}$, where FE^{POST} (FE^{PRE}) is the absolute value of the difference between actual earnings for quarter q+1 and the median forecast for quarter q+1 issued after (before) the conference call and P^{start} equals price at the start of the call.

- $\Delta DISP$ – The change analyst dispersion defined as $(DISP^{POST} - DISP^{PRE})$, where $DISP^{POST}$ ($DISP^{PRE}$) is the standard deviation of forecasts issued for quarter q+1 after (before) the conference call, divided by the median forecast issued after (before) the conference call.

For each analysis, our sample of forecasts includes only analysts who issue at least one forecast for quarter q+1 in the 90 days prior and 90 days subsequent to the conference call for quarter q. We then retain the last forecast issued prior and first forecast issued after the call for each analyst. All forecast and actual data are obtained from the IBES unsplit-adjusted detail file.

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[35] Alternatively, managers may actually use longer, more confusing sentence structures to convey *less* information. For example, Li (2006) finds that managers' disclosures in the MD&A section of the annual report are longer and more difficult to read when a firm reports poor performance. He interprets his findings as consistent with managers attempting to hide poor performance by providing unclear disclosures.

We run the following three regressions, including firm-fixed effects and winsorising the top and bottom 1% of both the dependent variable and the variable of interest — $LENGTH^{CC}$:

$$
\begin{aligned}
|FREV|, \Delta FE, \Delta DISP ={}& \beta_0 + \beta_1 LENGTH^{CC} + \beta_2 ROA + \beta_3 RET^{QTR} + \beta_4 RET^{DAYB4} \\
&+ \beta_5 MISS + \beta_6 \left| RET^{QTR} \right| + \beta_7 \left| RET^{DAYB4} \right| + \beta_8 |FE| + \beta_9 |SPITEM| + \beta_{10} |DISCOP| \quad (5) \\
&+ \beta_{11} M\&A^{PRES} + \beta_{12} RESTRUCT^{PRES} + \beta_{13} \Delta SALES + \beta_{14} AF + \beta_{15} LNASSETS \\
&+ \beta_{16} QTR2 + \beta_{17} QTR3 + \beta_{18} QTR4 + \beta_{19} Y2004 + \beta_{20} Y2005 + \varepsilon
\end{aligned}
$$

If longer calls are more informative for analysts, we expect analysts to revise their forecasts more, resulting in a positive coefficient on $LENGTH^{CC}$. If longer conference calls provide analysts with information that increases their forecast accuracy, we expect the coefficient on $LENGTH^{CC}$ to be negative (because negative values of ΔFE represent increased forecast accuracy). Finally, if longer conference calls result in greater consensus among analysts, we expect the coefficient on $LENGTH^{CC}$ to be negative.

Note that we include the full set of determinants of presentation length in our analysis here. As a result, the coefficients on $LENGTH^{CC}$ capture the effect of *abnormal* conference call length on analyst forecast revisions, accuracy and dispersion.[36] Including these variables helps ensure that our results are not driven by the effect of particular economic events that may lead to longer conference calls and also to greater forecast revisions and accuracy. For example, if a firm undergoes a restructuring, this event may be informative to the market irrespective of any increases in conference call length. However, because this event is likely to lead to increases in length, we would be at risk of concluding that longer calls are more informative when, in fact, they are simply correlated with events that result in greater accuracy or revisions. The downside of this approach, however, is that the impact of expected levels of disclosures made as a result of unusual events is not captured by $LENGTH^{CC}$.

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[36] Including the determinants as control variables is equivalent to regressing $LENGTH^{CC}$ on these control variables and including the residual of this regression as an independent variable in place of $LENGTH^{CC}$ in equation (5). Thus, one can interpret the variable $LENGTH^{CC}$ as capturing the effect of abnormal or unexpected conference call length on analyst forecast revisions, accuracy and dispersion.

Results of our analysis are presented in Table 2.5, Panel A.[37] We find that longer calls are associated with greater absolute forecast revisions of next quarter's earnings as well as improvements in forecast accuracy (coefficient on LENGTH^{CC} significant at p< 0.01 in both the |FREV| and ΔFE regressions). However, we do not find that longer calls are associated with changes in forecast dispersion (coefficient on LENGTH^{CC} in the ΔDISP regression is not statistically significant). To provide some sense of the magnitude of the effect, we note that a change in LENGTH^{CC} of 1840 words (the average within-firm inter-quartile range for call length) results in a change in |FREV| of 0.01656 and change in ΔFE of −0.01582. The inter-quartile ranges for |FREV| and ΔFE (untabulated) are 0.2383 and 0.2078 respectively. Thus, the changes in |FREV| and ΔFE represent 6.9% and 7.6% of the inter-quartile range respectively.

We focus on overall conference call length rather than the length of the presentation and the discussion separately because changes in analyst forecasts before and after the call are the result of both components. To truly test the informative nature of each component, we would need analysts to revise their forecasts after the presentation and then again after the discussion (which analyst do not do). However, to provide some evidence on this issue, we replace LENGTH^{CC} in our regressions with the two components of length: LENGTH^{PRES} and LENGTH^{DISC}. Results of this analysis are presented in Table 2.5, Panel B. It appears that the length of the discussion is more deeply related to revisions in forecasts and increased forecast accuracy — the coefficient on LENGTH^{PRES} in both the |FREV| and ΔFE regressions are not significant while the coefficients on LENGTH^{DISC} are both significant at p< 0.01.

Overall, our results suggest that longer calls represent more information to analysts — they revise their forecasts more when calls are longer and the revision improves their forecast

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[37] The difference in magnitude between LENGTH^{CC} and the dependent variables results in coefficients that are very small in magnitude. Therefore, we divide LENGTH^{CC} by 1000 and multiple |FREV| and ΔFE by 100.

accuracy.[38] Thus, the fact that analysts' discussion periods are longer when managers' presentations are abnormally short, suggests that analysts add to the information environment by eliciting further disclosures by managers.

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[38] An alternative test would be to examine absolute price revisions and trading volume during the actual presentation and discussion periods. Untabulated analyses of these effects indicate that longer presentations and discussions are associated with greater absolute price revisions and increased trading volume. These results add further support for our assumption that length is a reasonable proxy for more information.

Table 2.4

Relation between discussion length and abnormal aresentation length [39,40]

Variable	Pred.	Coeff.	t-stat	p-value	Coeff.	t-stat	p-value	Coeff.	t-stat	p-value
ABLNGTH^{PRES}	-	-0.0614	-2.53	0.006	-0.4094	-6.66	0.000	-0.2778	-3.65	0.000
POS	?				47.1280	1.13	0.259	47.0281	0.80	0.424
POS×ABLNGTH^{PRES}	+				0.5980	6.60	0.000	0.5375	5.62	0.000
HI_ANAL	+							608.8086	8.52	0.000
HI_ANAL ×ABLNGTH^{PRES}	-							-0.2200	-2.64	0.004
HI_ANAL×POS	?							-12.9585	-0.16	0.876
HI_ANAL×POS×ABLNGTH^{PRES}	?							0.1751	1.70	0.089
Firm-Fixed Effects		Included			Included			Included		
		$n = 10{,}062$, $R^2 = .6226$			$n = 10{,}062$, $R^2 = .6245$			$n = 10{,}062$, $R^2 = .6296$		

[39] This results from firm-fixed effects regressions of discussion length (LENGTH^{DISC}) on the residuals from our presentation length regression reported in Table 3. ABLNGTH^{PRES} is the residual from equation 1, the results of which are reported in Table 3, Panel C. POS is a dummy variable equal to 1 if ABLNGTH^{PRES} is positive and zero otherwise. HI_ANAL is a dummy variable equal to 1 if analyst following (as defined in Table 3, Panel A) is greater than the median and zero otherwise.

[40] P-values are one-tailed for variables with directional predictions and two-tailed otherwise.

Table 2.5

Relation between call length and analyst forecast properties

Panel A: Effect of overall call length on forecast revisions, accuracy and dispersion

Variables[42]	|FREV|[41] Coeff.	t-stat	ΔFE[1] Coeff.	t-stat	ΔDISP[1] Coeff.	t-stat
LENGTH^{CC}	0.0090	2.98	–0.0086	–2.73	0.0010	0.31
ROA	–0.7802	–4.62	0.1617	0.91	0.0216	0.13
RET^{QTR}	–0.2327	–8.84	0.0810	2.93	0.0372	1.33
RET^{DAYB4}	–0.8854	–10.04	0.6369	6.88	0.1114	1.18
MISS	0.0636	5.86	–0.0295	–2.59	0.0249	2.23
|RET^{QTR}|	0.2216	5.53	0.1663	–3.95	–0.1060	–2.48
|RET^{DAYB4}|	0.8574	6.87	–0.8786	–6.71	0.2892	2.15
|FE|	4.1729	12.34	—3.4097	–9.56	0.1314	0.42
|SPITEM|	–0.3814	–2.05	0.3332	1.71	–0.1361	–0.73
|DISCOP|	0.4483	0.68	–1.1374	–1.58	0.4426	—0.57

(Continued on next page)

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[41] This results from firm-fixed effects regressions of absolute forecast revisions (|FREV|), change in absolute forecast error (ΔFE) and change in forecast dispersion (ΔDISP) on conference call length. The sample of forecasts includes only analysts who issue at least one forecast for quarter q+1 in the 90 days prior and 90 days subsequent to the conference call for quarter q. For each analyst, we retain the last forecast issued prior and first forecast issued after the call. |FREV| is the absolute value of the difference between the median forecast issued prior to the call and the median forecast issued after the call, divided by price at start of call. ΔFE = (FE^{POST} – FE^{PRE})/Price at start of call, where FE^{POST} (FE^{PRE}) is the absolute value of the difference between actual earnings for quarter q+1 and the median forecast in our sample issued after (before) the call. ΔDISP = DISP^{POST} – DISP^{PRE}, where DISP^{POST} (DISP^{PRE}) is the standard deviation of forecasts in our sample issued after (before) the call, divided by the median of forecasts issued for quarter q+1 after (before) the call. Forecast and actual data are obtained from the IBES unsplit-adjusted detail file. For presentation purposes, we divide LENGTH^{CC}, LENGTH^{PRES} and LENGTH^{DISC} by 1000 and multiple |FREV| and ΔFE by 100.

[42] See variable definitions on Table 3. QTR2, QTR3, and QTR4 are dummy variables equal to 1 if the call relates to fiscal quarter 2, 3 and 4 respectively. Y2004 and Y2005 are dummy variables equal to 1 if the call is held in 2004 and 2005 respectively.

(Panel A – Continued)

Variables	|FREV| Coeff.	t-stat	ΔFE Coeff.	t-stat	ΔDISP Coeff.	t-stat
M&A^{PRES}	-4.8610	-1.73	1.0179	0.34	0.4953	0.17
REST^{PRES}	14.2792	2.65	-2.2694	-0.40	1.7340	0.31
ΔSALES	-0.2894	-3.44	0.0884	1.00	-0.0214	-0.27
AF	-0.0095	-3.60	0.0011	0.41	-0.0017	-0.66
LNASSETS	0.0683	2.38	-0.0459	-1.52	-0.0114	-0.37
QTR2	0.0214	1.95	-0.0257	-2.23	0.0124	1.13
QTR3	0.0485	4.26	-0.0223	-1.87	0.0006	0.06
QTR4	0.0285	2.41	-0.0015	-0.12	-0.0004	-0.03
Y2004	-0.0279	-2.55	0.0143	1.25	-0.0017	-0.15
Y2005	-0.0190	-1.48	0.0148	1.10	0.0148	1.12
Firm-Fixed	Included		Included		Included	

n=8,445, R^2=0.56   n=8,413, R^2=0.36   n=6,408 , R^2=0.24

Table 2.5 *(continued)*

Relation between call length and analyst forecast properties

Panel B: Effect of presentation/discussion length on forecast revisions, accuracy, and dispersion

Variables[44]	|FREV|[43]		ΔFE[1]		ΔDISP[1]	
	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat
LENGTH^{PRES}	0.0091	1.33	−0.0017	−0.24	−0.0066	−0.98
LENGTH^{DISC}	0.0090	2.75	−0.0099	−2.88	0.0014	0.41
ROA	−0.7795	−4.62	0.1610	0.91	0.0227	0.13
RET^{QTR}	−−0.2329	−8.85	0.0817	2.96	0.0362	1.30
RET^{DAYB4}	−0.8854	−10.04	0.6367	6.88	0.1089	1.16
MISS	0.0636	5.86	−0.0297	−2.61	0.0252	2.26
|RET^{QTR}|	0.2216	5.53	−0.1661	−3.95	−0.1057	-2.47
|RET^{DAYB4}|	0.8568	6.86	−0.8769	−6.70	0.2910	2.16
|FE|	4.1721	12.33	−3.4080	−9.56	0.1307	0.42
|SPITEM|	-0.3814	-2.05	0.3318	1.70	-0.1337	-0.72

(Continued on next page)

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[43] This results from firm-fixed effects' regressions of absolute forecast revisions (|FREV|), change in absolute forecast error (ΔFE), and change in forecast dispersion (ΔDISP) on conference call length. The sample of forecasts includes only analysts who issue at least one forecast for quarter q+1 in the 90 days prior and 90 days subsequent to the call for quarter q. For each analyst, we retain the last forecast issued prior and first forecast issued after the call. |FREV| is the absolute value of the difference between the median forecast issued prior to the call and the median forecast issued after the call, divided by price at start of call. ΔFE = (FE^{POST} − FE^{PRE})/Price at start of call, where FE^{POST} (FE^{PRE}) is the absolute value of the difference between actual earnings for quarter q+1 and the median forecast in our sample issued after (before) the call. ΔDISP = DISP^{POST} − DISP^{PRE}, where DISP^{POST} (DISP^{PRE}) is the standard deviation of forecasts in our sample issued after (before) the call, divided by the median of forecasts issued for quarter q+1 after (before) the call. Forecast and actual data are obtained from the IBES unsplit-adjusted detail file. For presentation purposes, we divide LENGTH^{CC}, LENGTH^{PRES} and LENGTH^{DISC} by 1000 and multiple |FREV| and ΔFE by 100.

[44] See variable definitions on Table 3. QTR2, QTR3, and QTR4 are dummy variables equal to 1 if the call relates to fiscal quarters 2, 3 and 4 respectively. Y2004 and Y2005 are dummy variables equal to 1 if the call is held in 2004 and 2005 respectively.

(Panel B - Continued)

Variables	|FREV| Coeff.	t-stat	ΔFE Coeff.	t-stat	ΔDISP Coeff.	t-stat
|DISCOP|	0.4482	0.68	-1.1321	-1.57	-0.4556	-0.59
M&A^{PRES}	-4.8518	-1.72	0.9111	0.31	0.5788	0.20
REST^{PRES}	14.2775	2.65	-2.3638	-0.42	1.7927	0.32
ΔSALES	-0.2895	-3.44	0.0887	1.00	-0.0214	-0.27
AF	-0.0095	-3.58	0.0012	0.44	-0.0017	-0.67
LNASSETS	0.0682	2.37	-0.0463	-1.53	-0.0108	-0.35
QTR2	0.0214	1.94	-0.0265	-2.29	0.0131	1.20
QTR3	0.0485	4.25	-0.0231	-1.93	0.0015	0.13
QTR4	0.0284	2.37	-0.0041	-0.32	0.0027	0.21
Y2004	-0.0279	-2.55	0.0137	1.19	-0.0011	-0.10
Y2005	-0.0190	-1.49	0.0146	1.09	0.0150	1.13
Firm-fixed Effects	Included		Included		Included	
	n=8,445, R^2=0.56		n=8,413, R^2=0.36		n=6,408 , R^2=0.24	

2.5 Relation between presentation content and discussion period length

2.5.1 Measuring abnormal financial and forward-looking disclosures

Next, we consider the content of management's presentations and the impact on discussion periods. Similar to our prior analysis, we examine the relation between financial and forward-looking disclosures by first modelling expected levels of these disclosures. There is considerably less prior research on the determinants of different types of disclosures but we suspect that many of the determinants of overall disclosure levels are also likely to be related to the tendency to make financial and forward-looking disclosures. In particular, we expect firm performance to be related to these types of disclosures because managers of poorly performing firms are reticent to discuss both the past as well as the financial performance of the company, leading to a positive relation between firm performance and financial disclosures and a negative relation between performance and forward-looking disclosures.

Thus, to measure abnormal financial and forward-looking disclosures, we capture the residuals from the following regressions:

$$
\begin{aligned}
\%FIN^{PRES}(\%FUT^{PRES}) = {} & \beta_0 + \beta_1 ROA + \beta_2 RET^{QTR} + \beta_3 RET^{DAYB4} + \beta_4 MISS + \beta_5 \left| RET^{QTR} \right| + \\
& + \beta_6 \left| RET^{DAYB4} \right| + \beta_7 \left| FE \right| + \beta_8 SPITEM + \beta_9 \left| DISCOP \right| + \beta_{10} M \& A^{PRES} + \\
& + \beta_{11} RESTRUCT^{PRES} + \beta_{12} \Delta SALES + \beta_{13} AF + \beta_{14} LNASSETS + \beta_{15} QTR2 + \\
& + \beta_{16} QTR3 + \beta_{17} QTR4 + \beta_{18} Y2004 + \beta_{19} Y2005 + \varepsilon
\end{aligned}
\tag{6}
$$

We again include year, fiscal quarter and firm dummies. The results of these regressions are reported in Table 2.6. Consistent with our expectations, we find that firms report more financial disclosures when performance during the quarter is good — the coefficient on both ROA and RET^{QTR} are significantly positive. We also find there is less financial disclosures when firms miss analysts' expectations (coefficient on MISS is significantly negative). Financial disclosures are also greater when firms report special items and when discussing restructuring activities during the presentation. Finally, financial disclosures appear to be lowest during the first quarter and highest in the fourth fiscal quarter as the coefficient on QTR2, QTR3, and QTR4 are all significantly positive, with QTR4 having a larger coefficient than QTR2 and QTR3.

With respect to forward-looking disclosures, we find some evidence that managers discuss the future more when performance is poor (coefficient on RET^{QTR} is marginally

significantly negative at p = 0.06) and when announcing bad news (coefficient on RET^{DAYB4} is significantly negative at p = 0.002). Perhaps, managers would prefer to focus on the future when past performance is poor. Managers also appear to focus on the future more when absolute returns during the quarter and in the 24 hours prior to the call are higher. Finally, forward-looking disclosures appear to be highest during the first fiscal quarter of the year as the coefficients on QTR2, QTR3, and QTR4 are all significantly negative.

Both models have reasonably good explanatory power (R^2 = 77% for the $\%FIN^{PRES}$ regression and R^2 = 58% for the $\%FUT^{PRES}$ regression).

Table 2.6

Determinants of financial and forward-fooking disclosures

Variable[46]	%FIN^{PRES45}				%FUT^{PRES1}			
	Pred Sign	Coeff.	t-stat	p-value[47]	Pred Sign	Coeff.	t-stat	p-value[3]
ROA	+	0.0088	3.17	0.001	−	-0.0019	-1.09	0.137
RET^{QTR}	+	0.0007	1.70	0.045	−	-0.0004	-1.59	0.056
RET^{DAYB4}	+	0.0009	0.67	0.253	−	-0.0026	-2.96	0.002
MISS	−	-0.0004	-2.08	0.019	+	0.0001	1.01	0.313
$|$RET$^{QTR}|$	?	-0.0006	-0.85	0.394	?	0.0011	2.79	0.005
$|$RET$^{DAYB4}|$	?	-0.0012	-0.61	0.544	?	0.0021	1.68	0.093
$|$FE$|$	?	0.0019	0.62	0.538	?	0.0005	0.27	0.786
$|$SPITEM$|$	?	0.0101	3.25	0.001	?	-0.0011	-0.56	0.573
$|$DISCOP$|$	?	0.0200	1.98	0.048	?	-0.0017	-0.26	0.792
M&A^{PRES}	?	0.0004	0.71	0.475	?	-0.0000	-0.22	0.822
RESTRUCT^{PRES}	?	0.0086	7.51	0.000	?	0.0011	1.52	0.127
ΔSALES	?	-0.0006	-0.43	0.668	?	-0.0008	-0.95	0.342
AF	?	-0.0001	-2.31	0.021	?	0.0000	0.61	0.542
LNASSETS	?	-0.0008	-1.69	0.092	?	0.0001	0.36	0.723
QTR2	?	0.0008	4.51	0.000	?	-0.0007	-6.33	0.000
QTR3	?	0.0008	4.47	0.000	?	-0.0005	-4.37	0.000
QTR4	?	0.0020	10.71	0.000	?	-0.0005	-4.24	0.000
Y2004	?	-0.0001	-0.75	0.452	?	-0.0000	-0.57	0.568
Y2005	?	-0.0007	-3.27	0.001	?	-0.0002	-1.87	0.062
Firm-Fixed Effects	Included				Included			
	N = 10,062, R^2 = 0.77				N = 10,062, R^2 = 0.58			

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[45] Results from firm-fixed effects' regressions of percentage of financial words in the presentation (%FIN^{PRES}) and percentage of forward-looking words in the presentation (%FUT^{PRES}).

[46] See variable definitions on Table 3, Panel A. QTR2, QTR3, and QTR4 are dummy variables equal to 1 if the conference call relates to fiscal quarter2, 3 and 4, respectively. Y2004 and Y2005 are dummy variables equal to 1 if the conference call is held in 2004 and 2005 respectively.

[47] p-values are one-tailed for variables with directional predictions and two-tailed otherwise.

2.6 The effect of abnormal financial and forward-looking disclosures on discussion length

Hypothesis four posits that analysts will probe managers more during the discussion if they provide unexpectedly low levels of financial and forward-looking disclosures. To test this hypothesis, we run the following regressions:

$$LENGTH^{DISC} = \beta_0 + \beta_1 ABFIN^{PRES} + \varepsilon \tag{7}$$

$$LENGTH^{DISC} = \beta_0 + \beta_1 ABFUT^{PRES} + \varepsilon \tag{8}$$

In both regressions, we expect the coefficient on β_1 to be negative if analysts demand financial and forward-looking information. In addition, one could argue (similar to our prior analysis) that the relation is not symmetric — that analysts probe managers more when they provide relatively little financial or forward-looking disclosures but providing unexpectedly high levels of financial or forward-looking disclosures does not necessarily reduce the length of the discussion. Thus, we also run the following regressions:

$$LENGTH^{DISC} = \beta_0 + \beta_1 ABFIN^{PRES} + \beta_2 POS^{FIN} + \beta_3 POS^{FIN} \times ABFIN^{PRES} \varepsilon \tag{9}$$

$$LENGTH^{DISC} = \beta_0 + \beta_1 ABFUT^{PRES} + \beta_2 POS^{FUT} + \beta_3 POS^{FUT} \times ABFUT^{PRES} \varepsilon \tag{10}$$

Where POS^{FIN} (POS^{FUT}) is a dummy variable equal to one, $ABFIN^{PRES}$ ($ABFUT^{PRES}$) is either positive or zero. We expect the coefficients on β_3 to be positive if abnormally high levels of financial or forward-looking disclosures do not lead to a reduction in discussion length in the same way that abnormally low levels of these disclosures lead to longer discussions.

The results of these analyses are presented in Table 2.7. Panel A reports the results of equations (7) and (9). Consistent with our hypotheses, we find that when unexpected levels of financial disclosures are lower, analysts' discussion periods last longer. However, the results are not asymmetric — the coefficient on the interaction variable, $POS^{FIN} \times ABFIN^{PRES}$, is not significant. Thus, abnormally low levels of financial disclosures lead to longer discussions in the same way that abnormally high levels of financial disclosures lead to shorter discussions.

The results of equations (8) and (10) are presented in Panel B. Inconsistent with our hypothesis, abnormally low levels of forward-looking disclosures do not lead to longer discussions. In fact, results suggest the opposite — $ABFUT^{PRES}$ — is positively related to discussion length. When we allow the coefficient on $ABFUT^{PRES}$ to vary for positive and negative values, we do not find a significant incremental slope coefficient for positive values of $ABFUT^{PRES}$ (coefficient on $POS^{FUT} \times ABFUT^{PRES}$ is not significant), but an F-test on the combined coefficients on $ABFUT^{PRES}$ and the interaction term, is significantly positive at $p<0.01$. Thus, the positive relation between $ABFUT^{PRES}$ and discussion length is driven by positive values of $ABFUT^{PRES}$. In other words, when managers provide unexpectedly high levels of forward-looking disclosures, analysts appear to probe them more in the discussion. One possibility is that forward-looking disclosures are inherently less verifiable and, as a result, analysts require greater justification for these statements.

Table 2.7

Relation between abnormal financial and forward-looking disclosures and discussion length

Panel A: Financial disclosures and discussion length

Variable[48]	Pred.	Coeff.	t-stat	p-value[49]	Coeff.	t-stat	p-value
ABFIN^{PRES}	-	-10.859	-4.72	0.000	-12.890	-2.22	0.013
POS^{FIN}	?				0.005	0.12	0.904
POS^{FIN}×ABFIN^{PRES}	+				3.245	0.38	0.350
		n = 10,062, R^2 = 0.623			n = 10,062, R^2 = 0.623		

[48] ABFIN^{PRES} (ABFUT^{PRES}) is the residual from equation 5, the results of which are reported in Table 6. POS^{FIN} (POS^{FUT}) is a dummy variable equal to 1 if ABFIN^{PRES} (ABFUT^{PRES}) is positive and zero otherwise.

[49] p-values are one-tailed for variables with directional predictions and two-tailed otherwise.

Table 2.7 (continued)

Relation between abnormal financial and forward-looking disclosures and discussion length

Panel B: Forward-Looking Disclosures and Discussion Length

Variable[1]	Pred.	Coeff.	t-stat	p-value[2]	Coeff.	t-stat	p-value
$ABFUT^{PRES}$	-	10.922	2.96	0.998	7.929	0.81	0.789
POS^{FUT}	?				-0.048	-	0.296
$POS^{FUT} \times ABFUT^{PRES}$	+				15.486	1.13	0.129
		$n = 10{,}062$, $R^2 = 0.623$			$n = 10{,}062$, $R^2 = 0.6801$		

2.7   Conclusions

We examine the relation between information provided by managers in the presentation portion of a conference call and the subsequent discussion with analysts later in the call. We find that when managers provide abnormally low levels of disclosure during the presentation portion of the call, analyst discussion periods are longer. However, it may not be that abnormally high levels of disclosure in the presentation lead to shorter discussions. In addition, the relation between low disclosure in the presentation and longer discussion periods is stronger for firms with greater analyst following. These results suggest that analysts play an active role in enriching the information environment by probing managers more when they provide relatively little information.

One might argue that length is not necessarily indicative of greater information. We provide evidence to suggest that, in general, more words spoken during calls do represent more information. We find that longer calls are associated with greater absolute forecast revisions and increased analyst forecast accuracy. The increased forecast accuracy, in particular, is contrary to the assumption in Li (2006) that longer disclosures are actually more "confusing".

We also investigate whether certain types of disclosures during the presentation portion of the call are related to reduced discussion periods. We find evidence that when there are unexpectedly low levels of financial disclosures, analysts' discussion periods are longer, which suggest analysts demand financially focused disclosures. Contrary to our expectations, however, discussion periods are not shorter when managers provide more forward-looking disclosures. Rather, discussion periods appear longer after unexpectedly high levels of forward-looking disclosures in the discussion portion.

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 that analysts are able to play an active role in uncovering information about the firm, resulting in a richer information environment.

3   Disclosure of intangible asset information in conference calls[50]

3.1   Introduction

We investigate the volume and information content of intangible asset disclosures in earnings conference calls. It is argued that intangible assets are the main drivers of wealth and growth in the contemporary economy (Lev, 2001). However, current accounting standards fail to reflect the value and performance of intangible assets in financial statements (Guimón, 2005; Stolowy & Jeny-Cazavan, 2001; and Cañibano et al, 2000). The current requirements of IFRS and US GAAP place significant limitations on the types of intangible assets that are permitted to be recognised (i.e. capitalised) in published financial statements. In addition, both IFRS and US GAAP specify only minimal requirements for the disclosure of information about intangible assets that might compensate for the limitations on recognition and measurement. As a result, several groups and individuals have expressed their concern regarding the relevance of financial statements and have called for greater disclosure of (non-financial) information about intangible assets (see Maines et al, 2003, 2002).

As a response to these calls, the FASB and IASB have formulated several initiatives[51] to investigate whether increased mandated disclosure of intangible asset information is

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[50] This chapter is based on joint work with Gerard Mertens and Frank Verbeeten of Rotterdam School of Management, Erasmus University. I appreciate comments from Douglas V. DeJong, Jeroen Suijs, and workshop participants at the EAA Congress 2008, EIASM conference on Intangibles 2007 in Ferrara, University of Amsterdam, Rotterdam School of Management Erasmus University.

[51] FASB proposed a new agenda project in 2001, "Disclosure of Information about Intangible Assets not Recognised in Financial Statements". FASB removed the topic from its agenda in 2004 because it was of the view that the project should be considered in the context of its plans for a coordinated agenda with the IASB. In December 2007, the IASB decided not to add a project on intangible assets to its active agenda. Instead, the the board expressed a desire that further research should be conducted until the board could consider it again for addition to the active agenda.

desirable. Opponents of increased disclosure requirements have expressed their concern over the explicit disclosure requirements as it would restrict the flexibility of firms to describe intangible assets (Business Roundtable, 2001). These opponents favour an information environment that is based on voluntary disclosures rather than mandated disclosures. Similarly, the IASB has noted that the benefits of additional disclosures should be considered in light of user needs and implementation costs (IASB, 2007). Finally, Maines et al. (2001) express the concern that the approach by the FASB and IASB proceeds on the assumption that the current disclosure environment for intangibles is suboptimal. However, Maines et al. (2001) argue that we know little about the validity of this assumption.

In this paper, we address these issues by analysing disclosures about intangibles in the existing disclosure environment. More specifically, we focus on the intangible asset disclosures in the presentation and discussion portions of earnings conference calls. Earnings conference calls provide companies with a (relatively) non-regulated opportunity to disclose information about intangible assets to capital market participants. We investigate whether these disclosures are relevant to investors and whether managers tailor to the information, demands of capital market participants. We find that intangible asset disclosures in conference calls have information content — in the sense that they positively affect absolute returns during the presentation and discussion portions of the call. Our results also suggest that disclosures are "sticky" information that is disclosed in a conference call and is likely to be addressed in subsequent conference calls as well. Finally, managers seem to learn from the questions that are asked in the discussion portion of the conference call. When analysts ask questions about intangible assets in the discussion portion of the call, management is more likely to include disclosures about those intangible assets in the next conference call's presentation. This result suggests that managers use the interaction with capital markets to understand their information needs. Jointly, our results suggest that information on intangible assets that is released through conference calls is relevant to investors and that managers try to cater to the information demands of capital market participants.

Our results contribute to the literature in several ways. First, according to our knowledge, this is one of the first short-window studies on intangible asset disclosures. Studies on short-window returns investigate whether a particular disclosure adds to the information set available to investors (Holthausen & Watts, 2001). Second, few studies have examined the disclosure of intangible asset in earnings conference calls. Matsumoto et al. (2009) find that longer calls are more informative, while Brown et al. (2004) find that conference calls reduce information asymmetry among equity investors. We add to these results by stating that the intangible asset disclosures are a significant determinant of the informative nature

of conference call. This suggests that the conference call (partially) compensates for a (perceived) lack of disclosures about intangible assets in the earnings announcement or other financial statements. Additionally, previous evidence (e.g. Bushee et al., 2003) suggests that conference calls are "sticky", i.e., firms that provide "open calls" stick to that decision. Our findings suggest that the information provided in those conference calls is also "sticky", i.e., intangible asset information that is provided in previous calls is likely to be discussed in subsequent calls. Finally, our evidence indicates that disclosures during the discussion portion have information content. This suggests that management is uncertain about the information needs of analysts in respect of intangible assets. In the additional tests, we found evidence that is consistent with this notion.

The rest of this paper is divided into six sections. The next section describes the literature regarding earnings conference calls. Section three describes the relevant literature in respect of intangible assets. The fourth section develops our hypotheses. Section five discusses the methodology of this paper and section six provides the empirical results, while the last section offers the conclusions and limitations.

3.2   Earnings conference calls

Information about intangible assets may find its way to the markets through other ways than mandated written disclosures. Many companies have been experimenting with new ways of external communication in order to convey information on intangible assets not presently incorporated in financial reports (cf. Bukh et al., 2005; and Bushee et al., 2003). The alternatives vary from mass media communication (such as press releases) to disclosure through investor relations meetings and conference calls (Bukh et al., 2005, Kimbrough, 2005; García-Meca, 2005; and Bowen et al., 2002). Earnings conference calls are large-scale telephone conference calls during which managers make presentations to, and answer questions from various market participants, usually about (future) earnings (Frankel et al., 1999). Following the introduction of Regulation Fair Disclosure, virtually all conference calls are open to the general public, usually through a live webcast of the call. The effect of conference calls on analysts and other market participants is an important issue because, virtually, all US-listed firms now use conference calls to enhance investors' understanding of earnings announcements (Kimbrough, 2005). The National Investor Relations Institute, for example, indicates that 92% of its members conduct conference calls (NIRI, 2004, p. 49) — up from 82% in 1998 (Bowen et al, 2002).

Conference calls provide benefits to companies and market participants. From the analyst's perspective, conference calls provide the opportunity to listen to the questions of others,

save time and money and provide more timely information to investors. From a company's perspective, conference calls save time and mitigate selective disclosure problems. Conference calls have additional advantages over press releases. They are subject to a lower standard of legal liability than statements made in a press release and are more flexible in providing information in response to analysts' questions (Frankel et al, 1999). Earnings-related conference calls are often used to supplement the mandated disclosures and are generally held within a few hours to a day following the issue of the earnings announcement press release (cf. Frankel et al., 1999; and Kimbrough, 2005). An average conference call includes an 18-minute presentation (Matsumoto et al., 2008) by management, followed by a 28-minute question and answer session in which a moderator assigns questions to the management team. The sponsoring company usually controls who asks questions (Frankel et al., 1999; and Mayew, 2008).

Prior studies have established that conference calls are informative to market participants in that they trigger unusually large trading and stock price responses (Bushee et al., 2003; and Frankel et al., 1999) and help analysts form more accurate earnings expectations (Bowen et al., 2002). However, till date, there has been little evidence that this trading behaviour is a function of the intangible assets disclosures released during conference calls (cf. Bushee et al., 2003). The findings by Kimbrough (2005) suggest that conference calls result in more timely analyst and investor responses to the future implications of current earnings surprises. Matsumoto et al. (2008) find that calls of longer duration are associated with greater absolute forecast revisions and increased analyst forecast accuracy.

Previous research suggests that managers disclose at least some additional information on intangible assets during conference calls. For example, Tasker (1998) notes that certain types of information (for example, information regarding intangible assets) are difficult to convey through traditional financial reporting channels and find strong support that firms with less-informative financial statements (i.e., those with more intangible assets) are more likely to host conference calls. Bushee et al. (2003) find that firms with higher intangible assets are less likely to provide open calls, which is consistent with the idea that firms with more complex financial disclosures target the information at more sophisticated market participants. Jointly, these results suggest that firms use conference calls as an economic and convenient medium to disclose information about intangible assets to market participants.

3.3 Intangible Assets

We define an intangible asset as a claim to future benefits that does not have a physical (buildings and inventory) or financial (stocks and bonds) embodiment (Lev, 2001). Current accounting standards fail to reflect the value and performance of intangible assets (Stolowy & Jeny-Cazavan, 2001; and Cañibano et al., 2000). For example, SFAS 2 requires that research and development costs be charged as expenses incurred. A less restrictive recognition criteria applies to intangible assets (other than R&D) that are acquired in a business combination. However, although SFAS 141 and SFAS 142 require that such intangibles are initially measured at fair value (cf. Kimbrough, 2007), subsequent measurement is based on cost less impairment for indefinite lived intangible assets and amortised cost less impairment for finite live intangible assets and, therefore, largely fails to capture the economic performance of intangibles. Therefore, much information about intangible assets is excluded from the financial statements.

One way to increase information about intangible assets is to mandate a standard set of disclosures related to intangible assets (Maines et al., 2001). However, the type of disclosure that is relevant for stakeholders depends on the context (Maines et al., 2001). Lambert (1998) also points out that several problems will arise if intangible asset disclosures are mandated. First, most information on intangibles is "softer" than most reported accounting measures. As a result, measures for intangibles are difficult to standardise. Second, Lambert (1998) notes that a disclosure standard must provide guidance on how to measure and present information on intangibles and whether the data should be provided at the level of the firm or its geographic or business segments. Third, empirical evidence (Kallapur & Kwan, 2004; and Mueller, 1999) suggests that managerial incentives affect the measurement, recognition and disclosure of intangible asset information (i.e., the reliability of intangible asset disclosures). Finally, there is little direct evidence on the benefits and costs of intangible asset disclosures (Maines et al., 2003).

Various frameworks to classify intangible assets have been described in the literature. Despite the differences in these frameworks, three major nexuses of intangibles are commonly identified (Abdolmohammadi, 2005; Lev, 2001; Guthrie & Petty, 2000; Brooking, 1996):

Structural or internal assets: These include innovation capital (intellectual capital, proprietary processes, research and development) and infrastructure assets (corporate culture and information technology). We distinguish between intellectual property assets and infrastructure assets as the first category refers to explorative activities of the organisation, while the second refers to the exploitative activities of the organisation..

Relational or external assets: These include brands, customer or supplier relations and strategic partners. Some of these can be considered to be proprietary, but only in a temporal sense and, even then, not with any degree of confidence as they tend to change over time. In addition, a company cannot control and/or change the behaviour of customers or suppliers if they are not compliant with company objectives. Human capital assets: These include personnel and compensation policies that create specific cultures and/or competences. They refer to the individual's education, skills, training, values, experiences, and so forth. These assets cannot be owned by an organisation. However, from a value-based perspective, they should be measured and managed as one cannot envisage an organisation without employees.

Several studies have investigated the value-relevance of intangible asset disclosures (see Wyatt, 2008; Ashton, 2005; Maines et al., 2003, 2001; Lev, 2001; Holthausen & Watts, 2001; Barth et al., 2001a; and Canibano et al., 2000, for reviews). Some recent studies have looked at the value relevance of intangible asset disclosures in general (see Dumay & Tull, 2007; Abdolmohammadi et al., 2006; Ritter & Wells, 2006; Goodwin & Ahmed, 2006; Liang & Yao, 2005; Han & Manry, 2004; and Rittter & Wells, 2006). Others have focused on the value-relevance of specific intangible assets, such as structural assets (cf. Liu, 2006; Ahmed & Falk, 2006; Callen & Morel, 2005; Gu & Lev, 2004; and Dehning et al., 2003), relational assets (cf. Kallapur & Kwan, 2004; Mizik & Jacobson, 2006; Rajgopal et al., 2003; Kohlbeck, 2004; and Riley et al., 2003) and, to a much lesser extent, human capital (see Bell et al., 2002; Abdel-khalik, 2003; and Lajili & Zeghal, 2006, 2005). Most of these studies suggest that intangible asset disclosures are value-relevant for investors.

However, other recent studies have found insignificant or negative associations between structural assets and market value. In a sample of 197 French firms, Cazavan-Jeny and Jeanjean (2006) found that capitalised R&D is negatively associated with stock prices and returns. They note that one of the reasons for this result could be that investors believe that firms manage earnings by capitalising R&D. In addition, Shi (2003) notes that, from the point of view of creditors, the adverse effect by the high volatility and uncertainty (the variance effect) of the firm's R&D activities outweigh, on average, the favourable impact of the firm's value increments (the mean effect). In a sample of 132 US firms, Shi (2003) finds that, for creditors, R&D expenditures reflect less asset-like characteristics but more risk attributes. Finally, Callen & Morel (2005) indicate that the seemingly ubiquitous finding that R&D is value-relevant may depend upon the econometric approach taken and the underlying valuation model.

Summarising, while most studies find a positive relation between structural assets (R&D, patents), relational assets (brands) and human capital assets on one hand and the market value of firms on the other hand, this relation may be affected by managerial incentives, industry structures, the perspective of the market party involved and the econometric methods used to estimate the relation. We extend previous research in two directions. First, we use a short-window event study. Relative to the long-horizon performance studies, short-window event studies provide limited data and/or risk estimation problems which should provide more confidence in the results (cf. Kothari, 2001, p. 192). In addition, previous literature has generally focused on earnings announcements or 10K-releases. We extend these studies by focusing on the incremental effects of intangible asset disclosures in conference calls after the earnings announcement.

3.4   Hypotheses development

A typical conference call includes a review of the recently completed quarter by management (which provides more colour to the press release) followed by a discussion portion with analysts. In both the presentation and discussion portion, information not contained in the press release may be disclosed (Kimbrough, 2005). For example, Frankel et al (1999) suggest that managers are more likely to make forward-looking statements during conference calls than to include them in the press release. Prior literature also suggests that earnings conference calls are useful to managers and market participants since they provide the opportunity to release information about intangible assets (see Tasker, 1998; Frankel et al, 1999). Matsumoto et al (2008) find evidence that longer calls are more informative.

Frankel et al (1999) find that conference calls provide information that is relevant to market parties; i.e., they find unusually large return volatility and trading volume during conference calls. In addition, they find that average trade size increases during conference calls, suggesting that larger investors trade in real time on the basis of information that is released during conference calls (see also Bushee et al, 2003). Frankel et al (1999) indicate that this evidence implies that conference calls provide value-relevant information. In addition, Brown et al (2004) find that conference calls reduce information asymmetry among investors and suggest that firms provide forward-looking information in conference calls. Therefore, we expect that the intangible asset disclosures that are released at any time during earnings conference calls provide new information to investors. Our first set of hypotheses relates to the information content of the presentation portion and discussion portion of the conference call:

H1a: Intangible asset disclosures provided during the presentation portion of the earnings conference call have information content.

H1b: Intangible asset disclosures provided during the discussion portion of the earnings conference call have information content.

If intangible asset disclosures in the discussion portion of the conference call have information content, the question arises why management did not provide this information earlier, for example, in the earnings announcement or in the presentation part of the call, instead of providing it in response to questions of analysts on the conference call. One potential reason is that management is unaware of the information needs of analysts; for example, Frankel et al (1999) indicate that managers may use conference calls when they are unsure of the information needs of investors. If managers use conference calls to learn about the information needs of investors, it is likely that – once they learn about these information needs – they will provide the requested information in subsequent conference calls. This suggests that the information provided in conference calls is "sticky"; once specific information has been provided in a conference call, it is likely that it will also be provided in subsequent conference calls.

Other studies on voluntary disclosure practices of firms provide mixed evidence on the "'stickiness" of voluntary disclosures. For example, Healy et al. (1999) identify a fairly large sample of firms whose AIMR scores have increased substantially, suggesting that firms provide more information over time. However, Hutton et al. (2003) find that among the 46 firms that issued earnings guidance multiple times during 1993–97, only 5 firms have consistently accompanied the earnings guidance with verifiable forward-looking information. Thus, they conclude that the practice is not "sticky".

Given the mixed evidence on various types of voluntary disclosures, we examine the extent to which a firm's practice of providing disaggregated earnings guidance is "sticky". We focus on two issues: (a) are intangible asset disclosures in conference calls "sticky" and (b) do managers learn about the information needs of investors through the Q&Asession during a conference call. If we assume that conference calls are used to identify the information needs of investors, it is likely that organisations will consistently disclose intangible asset information in the subsequent conference calls. This leads to our second hypothesis:

H2:   Management consistently discloses intangible asset information in the presentation portion of the conference call.

Finally, the discussion portion of a conference call provides analysts the opportunity to ask questions about issues regarding the company. The relatively unstructured nature of conference calls, with opportunities to engage in discussions with market parties to respond to specific information needs (cf. Frankel et al, 1999), suggests that flexibility (and relevance) may be an important characteristic of conference calls. This suggests that when managers become aware of the information needs of analysts in the discussion portion of a conference call, it is likely that they will address this issue in the presentation portion of the next conference call. This leads to our third hypothesis:

> H3: Management uses the discussion portion of the conference call to learn about the intangible asset disclosures required by analysts.

3.5   Methodology

3.5.1   Sample selection

We start our sample selection process by identifying announcements of earnings-related conference calls (via the Dow Jones Calendar of Corporate Events) held during trading hours (calls which are made between 9:30 a.m. and 2:30 p.m. EST[52]) by NYSE/NASDAQ firms between 1 January 2003 and 31 December 2005. We limit our sample to calls held during trading hours because we include a market-based measure of news in the earnings announcement as an independent variable and because we use intra-day market reactions to the call as a proxy for information content. This process yields 19,043 potential conference calls. We lose 4,853 observations due to missing Compustat data (including firms not listed in the US). We lose another 101 observations due to missing CRSP data. Subsequently, we gather transcripts of calls from Voxant FD wire, available through Factiva. We are unable to find transcripts for 3,146 calls. We lose 133 calls because we require Trade and Quote (TAQ) data during the minutes of the call and 41 observations due to missing I/B/E/S analyst forecast data. We lose another 1,177 observations by removing outliers (at 1% level) in dependent and independent variables. Our final sample for industry-fixed effects tests includes 9,592 firm-quarters. For our firm-fixed effects tests, we require at least four conference calls per firm, due to which we lose 1,099

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[52] We allow 1.5 hours for the call to complete. Hence, we end hour window 1.5 hours before the market closes at 4:00 p.m. i.e. at 2:30 p.m. Matsumoto et al. (2009) provide evidence that the vast majority of calls are completed within 1.5 hours.

observations. Our final sample for firm-fixed effects tests includes 8,493 observations. Table 3.1, Panel A details our sample selection process.

Table 3.1

Sample selection and descriptive data

Panel A: Sample attrition

Earnings-related conference calls held during trading hours	19,043
Missing data on Compustat	(4,853)
Missing data on CRSP	(101)
Transcript not available on Voxant FD wire	(3,146)
Missing data on TAQ or stock price<$1	(133)
Missing data on I/B/E/S	(41)
Outliers in dependent and independent variables (1%)	(1,177)
Final sample for industry-fixed effects tests	9,592
Less than four conference calls per firm	(1,099)
Final sample for firm-fixed effects tests	8,493

Table 3.1 (Continued)

Sample selection and descriptive data

Panel B: Distribution of observations across industry[53][54]

	No. of Obs.	% of Obs	% of Population
Manufacturing	3441	35.87	34.11
Finance and Insurance	1893	19.74	28.09
Information	599	6.24	10.37
Retail Trade	557	5.81	3.96
Mining	449	4.68	3.12
Utilities	358	3.73	2.26
Professional, Scientific and Technical Services	349	3.64	4.16
Transportation and Warehousing	336	3.50	2.36
Wholesale Retail	319	3.33	2.58
Administrative and Support, Waste Management and Remediation Services	253	2.64	1.75
Accomodation and Food Services	245	2.55	1.67
Health Care and Social Assistance	212	2.21	1.41
Construction	195	2.03	1.02
Real estate and Leasing	137	1.43	1.51
Other Services	81	0.84	0.38
Art, Entertainment and Recreation	76	0.79	0.42
Educational Services	67	0.70	0.31
Agriculture, Forestry, Fishing and Hunting	13	0.14	0.31
Unclassified Establishments	12	0.13	0.21
	9592	100	100

Panel B of Table 3.1 presents the distribution of our sample across industries, using the North American Industry Classification System (NAICS). We also report the percentage of the population of NYSE and NASDAQ firms comprising each industry classification. Our sample 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 20% of our sample but comprises 28% of the population of NYSE/NASDAQ firms.

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[53] NAICS stands for North American Industry Classification System

[54] % of Population is the percent of firms on the NYSE and NASDAQ in each NAICS industry classification.

3.5.2   Variables

3.5.2.1   Dependent variables

We use absolute returns to test our first and third hypothesis regarding the information content of intangible asset disclosures (cf. Bushee et al, 2003; Frankel et al, 1999). Holthausen & Verrecchia (1990) demonstrate that unexpected return variance and trading volume are equally valid measures of information content (defined as a signal that alters investors' beliefs); that is, each metric can be used to assess the information content of intangible asset disclosures in earnings conference calls (Frankel et al, 1999). To determine the length of the presentation and discussion in minutes, we use a subsample of 1,263 conference calls (conducted between January and March 2005) for which we have exact start and end times of each segment of the call. We match these start and end times to our conference call transcripts and calculate the number of words spoken per minute for the presentation and discussion portion of the call. We determine that the median number of words spoken per minute (160 and 157 for the presentation and discussion portions of the call respectively) and use these amounts to compute the approximate length, in minutes, of the presentation and discussion portions of the call. We use TAQ data to determine the absolute returns over these windows. Our measure for absolute returns, |RETPRES| (|RETDISC|), is defined as the absolute returns during the presentation (discussion) portion of the call.

Specifically, |RETPRES| (|RETDISC|) equals the 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), divided by the quote midpoint at the start of the presentation (discussion). The start of the presentation is assumed to be 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 of 1,263 calls with exact start and end times). The end of the presentation period is determined on the basis of the number of words in the presentation and the median number of words spoken per second, based on our subsample of conference calls with start and end times. The beginning of the discussion is assumed to start 28 seconds after the end of the presentation, which is the average time between the end of the presentation and the start of the discussion based on our subsample (generally for instructions by the operator). The end of the discussion period is similarly determined on the basis of the number of words in the discussion.

Our second and third hypotheses provide evidence on how management deals with the (perceived) information needs of analysts. We test our second hypothesis by evaluating

whether intangible assets disclosures in one conference call are followed by similar disclosures in subsequent conference calls. To test this hypothesis, we construct indicator variables that provide evidence on the disclosure about each class of intangible assets (INNOV, INFRASTR, EXTERNAL and HUMAN) in the previous two calls as well as the current conference call. Finally, we investigate whether managerial disclosures about an intangible asset aspect in the presentation are driven by analyst's questions in the previous conference calls. In other words, do managers learn from analysts' questions? To test this hypothesis, we construct indicator variables (FIRSTINNOV, FIRSTINFRASTR, FIRSTEXTERNAL, FIRSTHUMAN) that take on a value of 1 if the current call includes a disclosure about the intangible asset aspect, while in the two prior conference calls no disclosures about the intangible asset aspect were provided in the presentation, and takes on a value of 0 otherwise. Our indicator variables refer to the (presumably) first disclosure of information on this specific intangible asset aspect.

3.5.2.2   Independent variables

Our independent variables regarding types of intangible asset disclosures are based on content analysis of the conference calls transcripts. Content analysis has been used widely to investigate the release of intangible asset disclosures in annual reports (e.g. Francis et al, 2008; Abdolmohammadi, 2005; Guthrie et al, 2006; Guthrie et al, 2004), IPO-prospectuses (Bukh et al, 2005) and presentations of companies to analysts (Garcia-Meca, 2005; Garcia-Meca & Martinez, 2005). We use the framework developed by Abdolmohammadi (2005) in order to investigate our hypothesis with respect to the type of intangible assets. Table 3.2 Panel A lists the components in Abdolmohammadi's framework (2005) while Table 3.2 Panel B presents some examples of specific intangible asset disclosures in both the presentation and discussion section of a conference call.

Table 3.2

Intangible asset components

Panel A: Intangible asset framework (based on Abdolmohammadi, 2005)

Aspect	Category	Explanation	Components
Infrastructure capital	Corporate culture	Components that facilitate a creative/productive workplace	Corporate culture, Management philosophy, Leadership and Communication
	Information technology	All relate to the hardware/software of information management	Information technology, Network, Computer software, Operating systems, Electronic data interchange, Telecommunication and Infrastructure
Innovation capital	Intellectual property	Defined and protected assets	Intellectual property, Patents, Copyright, Soft assets, Intangibles, Licensing agreement and Franchising agreement
	Proprietary process	Better ways of delivering goods and services	Innovation, Innovative, Proprietary process, Trade secrets, Methodologies and Value added
	R&D	Ongoing search for new products or services	R&D
External capital	Brand	Company brand name/logo	Brand, Brand recognition, Brand development, Goodwill and Trademark
	Customer base	Acquiring and maintaining a customer base	Customer satisfaction, Customer recognition, Customer loyalty, Customer base, Customer retention, Customer service, Customer support and Market share
	Partnership	Working arrangements with other entities that produce something which neither entity could produce	Partnership and joint venture

		individually	
Human capital	Competence	Qualities possessed by employees	Intelligence, Knowledge, Know-how, Education, Competence, Motivation, Expertise, Intangible skills, Brain power, Specialist and Training
	Personnel	Specific policies that help retain qualified employees	Human resource, Employee satisfaction, Personnel, Employee retention, Flextime, Telecommuting and Empowerment

Table 3.2 (*Continued*)

Intangible asset components

Panel B: Examples of intangible asset disclosures in conference calls

Aspect	Presentation/ discussion	Example
Internal capital	Presentation	P15507: JOE HARNETT, VICE PRESIDENT AND ACTING CHIEF FINANCIAL OFFICER, MERCURY COMPUTER SYSTEMS: '…The electronics group. In total we have modeled the defense electronics group to grow flat to 5% on the top lines next year. However, within this segment, there are certain program tradeoff that is we anticipate. While certain programs are expected to grow significantly, others will likely offset. We will continue to monitor ordering ***patents***….'
	Discussion	D33522: JIM RICCHIUTI: ... And then on the SG&A line, despite the very strong sequential growth in revenues, your SG&A was only up modestly. I was just wondering if there is something in there that perhaps may be a little over legal expense or just what are some of the issues that are driving the SG&A? PAUL STEPHENSON: I'll let Jeff comment on the legal side in a minute but I think our SG&A numbers in terms of comparing one quarter to another typically have been affected by timing of trade shows, timing of the level of other advertising we're doing. We have been hiring in that area particularly on the sales side, so the compensation is going up. I guess just broadly I would say those are the main pieces. Jeff, do you want to speak a little bit on the legal side? JEFF UPIN: Yes. I think that the legal basically represents a combination of a couple of factors. One is as Gary mentioned, we continue to aggressively ***patent*** and try to capture our innovation in patentable form. And as our portfolio grows and as we file some of these patents internationally, those fees just tend to go up and some of the international filings tend to get very

		expensive.
External capital	Presentation	P17202: JIM ORR, CHAIRMAN, PRESIDENT, CEO, CONVERGYS: Our Information Management Group also announced an alliance with Visage Mobile during the quarter. Visage Mobile is a mobile virtual network enabler, providing operations and billing support systems to wireless service providers that utilize and establish carriers' network to deliver differentiated wireless services under their own ***brand*** name. Visage selected Geneva for their billing platform because Geneva is widely recognized for its operational reliability and will allow private-label wireless providers to launch their new wireless offerings quickly and cost effectively.
	Discussion	D12127: JEFFREY OMOHUNDRO, ANALYST, WACHOVIA SECURITIES: Hi, I would echo those comments of Mark, but my question is on the proprietary ***brand*** growth and the continuing acceleration there. I wonder if you can get into a little bit, and maybe let us know what efforts you are pursuing to drive the control brands, are you seeing an acceleration in new products or increased emphasis by your sales people, maybe elaborate a little bit on that. MICHAEL GRAY: A little bit of all of these, Jeff. We have continued line expansions under the brands we have already introduced. We have introduced a new line of bakery products under control brands, we intend to roll out a line of spices this year, some beverages, a new line of value added seafood products. So, we are continuing to roll out new brands and we are promoting very heavily with our sales force and that may be over the last year, we got everybody converted to a higher commission rate on selling our brands. So, we are experiencing really good customer acceptance and our people are very sold on our brand concept and are pushing it strongly with our customers, and we got all the incentives in place to continue to drive that.

Human capital	Presentation	P4753; CHAD FITZHUGH, CFO, SECRETARY, TREASURER, O'CHARLEY'S INC: On the labor front, we experienced higher bonus expense, payroll taxes and hourly labor costs that were offset by overall lower employee benefit costs. Hourly labor rates increased approximately 2-3% for the quarter. Contributing to the favourable employee benefit cost was a reduction in hourly insurance costs, partially offset by increase in workers' compensation expense. We expect that labor and benefits as a percentage of revenue will be flat to slightly up sequentially in the third quarter. In the restaurant operating cost category for the quarter, lower supervisory costs were offset by higher store occupancy costs. Supervisory expenses were favourable, due to lower compensation and management *training* expenses.
	Discussion	D4050: ALAIN KARAOGLAN, ANALYST, DEUTSCHE BANK: Thank you for having this call; it is very helpful. The question that I have regards the insurance business. Jeff and Roger, we are facing a softening property casualty environment and therefore pressure on revenues. How do you see -- what are you doing in order to grow that business? You had spoken in the past about the middle market opportunity about German and Japan. What are we going to do to grow the revenue lines? Obviously there is some margin expansion that may continue due to the efficiencies. But that can't continue forever even though you have -- may become more efficient. So what are the opportunities on a revenue side in order for the revenue to not to start going down at some point? JEFF GREENBERG: We have a number of opportunities and they fall into essentially 3 broad categories. One is the continued growth in our geographic presence around the world. You mentioned Germany and Japan and we've talked about them before but the list is a much longer one. We continue to show attractive growth across geographies in the major countries and a long way to go there. Second is even in this country in a number of segments of client -- by client size principally, we have very attractive opportunities to grow. The middle market being one and we continue to show good gains there. Our market share in the middle market we think is still in the single digits and so a long way to go.

		Then third, is that with this set of client relationships around the world and certainly growing by size, our ability to offer expanded services to clients is enormous and we are working very hard to continue to add to that array of services that we can offer our clients and ***training*** our people to be able to offer those services. There are a number of dimensions that are available to us to grow our top line and we are pursuing each one of them.

To measure the independent variables for our first hypothesis, 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 have checked whether the transcripts were split appropriately by searching the first 400 characters of the discussion for key words or phrases that are typically associated with the start of the discussion – for example, "instructions", "question-and-answer", "the floor is now open", "at this time". For discussion, transcripts that did not include any of the key words, we performed the split manually. In addition, each transcript includes a legal disclaimer at the end of the document; we removed this disclaimer from all transcripts.

We measure intangible asset disclosures by determining whether words related to each of the components are mentioned during the presentation portion or discussion portion respectively. We create indicator variables for each component of intangible assets, which take on a value of 1 if words related to the component are used in the section. As such, our intangible assets disclosure measure is a measure that intends to capture whether a specific intangible asset component is discussed in the conference call.

Table 3.3 presents the percentage of calls that include disclosures on intangible assets. Some interesting observations emerge from this table. First of all, disclosures of intangible assets in conference calls appear to be pervasive; about 81% of the presentations and about 79% of the discussions include words that are associated with intangibles. Furthermore, it appears that infrastructure capital, innovation capital, external capital and human capital are each discussed in a substantial proportion of the conference call presentations (between 30–50%) and discussions (between 12–45%). These results suggest that disclosures about intangible assets are an important aspect of the content of earnings conference calls. Additional analysis of the conference call transcripts (non-tabulated) suggests that intangible asset disclosures are quite important relative to other issues discussed in conference calls. Finally, the length of the conference call (which has been found to be associated with the informative nature; see Matsumoto et al, 2008) is positively related to intangible asset disclosures for all aspects.

Table 3.3

Percentage of calls that include intangibles disclosures

	Presentation	Discussion
Infrastructure Capital	50.3%	42.7%
Innovation Capital	30.0%	11.6%
External Capital	45.4%	43.2%
Human Capital	38.8%	44.9%
All Intangibles	80.8%	79.3%

For our tests of hypothesis 2, we derive indicator variables (INNOVPLAG, INFRASTRPLAG, EXTERNALPLAG and HUMANPLAG) that take a value of 1 for the occurrence of intangible asset disclosures with respect to an intangibles aspect in the presentation part of the previous conference call and 0 otherwise. Finally, in our test for our third hypothesis, we include indicator variables (INNOVDLAG, INFRASTRDLAG, EXTERNALD and HUMAND) that take a value of 1 for the occurrence of intangible asset disclosures with respect to an intangibles aspect in the discussion part of the previous conference call and 0 otherwise.

3.5.2.3   Control variables

To test our first hypothesis, we use industry-fixed effects regressions, which control for industry-specific factors that likely influence the length and type of disclosures made during calls. Industry membership is based on two-digit codes of the North American Industry Classification System (NAICS). Our other regressions use firm-fixed effects.

In all our tests of the hypotheses, we control for the effects of size by including sales and the natural logarithm of total assets (cf. Bowen et al, 2002; Tasker, 1998). Size is generally considered a proxy for the richness of the firm's information environment. In addition, we control for the effects of analyst following and growth prospects by using the number of estimates and the market-to-book ratio respectively as at the end of the quarter as control variables (cf. Barth et al, 2001b; Tasker, 1998); also, we include quarter- and year-

dummies to correct for time effects. In all our regressions, outliers are removed at the 1%level.

In testing hypotheses 1a and 1b, we control for the absolute return in the 24 hours before the call to correct for "momentum effects" (i.e. movements of share prices due to information provided in the press release). In addition, we control for the effects of absolute forecast error since Brown et al (2002) suggest that forecast error is a proxy for cross-sectional differences in the firm's information environment. In hypothesis 1b, we additionally control for the absolute return during the presentation portion of the call to control for the possibility that news in the presentation spills over to the discussion.

Since the stock market's response to the conference call may be associated with the accounting performance over the quarter and the stock performance over the period preceding the call, we include return on assets (ROA) and the equally weighted abnormal return over the 90 calendar days preceding the call (RETEW) as control variables in our regressions for H1a and H1b.

3.6　　Empirical tests

3.6.1　　Information content of intangible asset disclosures

We investigate whether the intangible asset disclosures in conference calls are value-relevant to market participants. In other words, we investigate whether the information provided in the presentation and discussion portion of the conference call is relevant to investors. To test H1a and H1b, we run the following models:

$$|RETPRES| = \beta_0 + \beta_1 INFRAP + \beta_2 INNOVP + \beta_3 EXTERNALP + \beta_4 HUMANP + \beta_5 |RETURNBF| + $$
$$+ \beta_6 |FERROR| + \beta_7 RETEW + \beta_8 ROA + \beta_9 LNASSETS + \beta_{10} MB + \beta_{11} NUMEST + \beta_{12} QTR2 + $$
$$+ \beta_{13} QTR3 + \beta_{14} QTR4 + \beta_{15} Y2003 + \beta_{16} Y2004 + \varepsilon$$

$$|RETDISC| = \beta_0 + \beta_1 INFRAD + \beta_2 INNOVD + \beta_3 EXTERNALD + \beta_4 HUMAND + \beta_5 |RETPRES| + $$
$$+ \beta_6 |RETURNBF| + \beta_7 |FERROR| + \beta_8 RETEW + \beta_9 ROA + \beta_{10} LNASSETS + \beta_{11} MB + \beta_{12} NUMEST$$
$$+ \beta_{13} QTR2 + \beta_{14} QTR3 + \beta_{15} QTR4 + \beta_{16} Y2003 + \beta_{17} Y2004 + \varepsilon$$

We use industry-fixed effects. Further, since we have multiple observations for each firm, we report clustered standard errors.[55] Table 3.4 provides our results.

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[55] Results from tests with unclustered standard errors are inferentially the same.

Table 3.4

Relevance of intangible asset disclosures

Panel A: Absolute return presentation[56]

	Predicted Sign	Parameter Estimate	Standard Error	t-value	p-value
INFRAP	+	0.0006276	0.00014286	4.39	<.0001
INNOVP	+	0.0005961	0.00019283	3.09	0.0010
EXTERNALP	+	0.0005682	0.00014661	3.88	<.0001
HUMANP	+	0.0005019	0.00015305	3.28	0.0006
ABSRETURNBF	?	0.0340435	0.00275342	12.36	<.0001
ABSFERROR	?	0.0149354	0.01190585	1.25	0.2098
RETEW	?	-0.0001967	0.00056012	-0.35	0.7255
ROA	?	-0.0158947	0.00400747	-3.97	<.0001
LNASSETS	?	-0.001871	0.00051168	-3.66	0.0003
MB	?	0.0000339	0.00003685	0.92	0.3572
NUMEST	?	0.0000761	0.00002018	3.77	0.0002
QTR2	?	-0.0002477	0.00017264	-1.43	0.1515
QTR3	?	-0.0003329	0.00017286	-1.93	0.0543
QTR4	?	0.0001467	0.00018154	0.81	0.4193
Y2003	?	-0.0002142	0.00016643	-1.29	0.1982
Y2004	?	0.0003588	0.00015094	2.38	0.0176
Industry fixed effects			Included		

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[56] Results from a industry fixed-effects regression of absolute returns ($|RET^{PRES}|$) on indicator variables for the occurrence of words related to intangible asset components in the presentation (one if words occur, zero otherwise). |RETPRES| equals the absolute value of the difference between the quote midpoint at the start of the presentation and the quote midpoint at the end of the presentation, divided by the quote midpoint at the start of the presentation. INFRAP, INNOVP, EXTERNALP, HUMANP are indicator variables for the occurrence of words related to internal capital, external capital and human capital in the presentation part of the conference call (one if words occur, zero otherwise). |RETURNBF| is the absolute value of the return over the 24 hours prior to the call (TAQ). |FERROR| is the absolute value of the EPS less the mean forecast EPS (I/B/E/S), divided by price, ignoring stale forecasts. LNASSETS is the natural logarithm of total assets (Compustat quarterly item 44). MB is market-to-book. NUMEST is the number of analysts who issued an EPS forecast for the current quarter (from IBES summary file). QTR2, QTR3 and QTR4 are dummy variables equal to 1 if the conference call relates to fiscal quarters 2, 3 and 4 respectively. Y2004 and Y2005 are dummy variables equal to 1 if the conference call is held in 2004 and 2005 respectively.

Panel B: Absolute return discussion[57]

	Predicted Sign	Parameter Estimate	Standard Error	t-value	p-value
INFRAD	+	0.0006549	0.00017488	3.75	0.0001
INNOVD	+	0.0007756	0.0002845	2.73	0.0033
externalD	+	0.0003063	0.0001624	1.89	0.0298
humanD	+	0.0009308	0.00016756	5.55	<.0001
absreturnP	?	0.2106302	0.01546482	13.62	<.0001
absreturnbf	?	0.0358274	0.00318812	11.24	<.0001
absferror	?	0.031864	0.01349222	2.36	0.0183
retew	?	0.0000261	0.00069392	0.04	0.9700
ROA	?	-0.007624	0.00429441	-1.78	0.0760
lnassets	?	-0.0023482	0.00057592	-4.08	<.0001
MB	?	0.0000526	0.00003895	1.35	0.1768
NUMEST	?	0.0001445	0.00002336	6.19	<.0001
qtr2	?	0.0001183	0.00019729	0.6	0.5489
qtr3	?	0.000133	0.00021791	0.61	0.5418
qtr4	?	0.0001393	0.00021052	0.66	0.5083
y2003	?	-0.0001508	0.00019518	-0.77	0.4399
y2004	?	-0.0001941	0.00017931	-1.08	0.2791
Industry fixed effects			Included		

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[57] Results from an industry fixed-effects regression of absolute returns (|RETDISC|) on indicator variables for the occurrence of words related to intangible asset components (one if words occur, zero otherwise) in the discussion. See variable definitions on Panel A, INFRAD, INNOVD, EXTERNALD and HUMAND are indicator variables for the occurrence of words related to infrastructure capital, innovation capital, external capital and human capital in the discussion part of the conference call (one if words occur, zero otherwise).

The results in Panel A indicate that disclosures in the presentation regarding infrastructure capital intangible assets, innovation capital intangible assets, external capital intangible assets and human capital intangible assets all have information content. From this, we infer that voluntary disclosures by management with respect to these intangible assets may (partially) compensate for insufficient disclosures in the earnings announcement, management forecasts, press releases or financial statements. In other words, managers appear to use the presentation portion of the conference call to provide information on intangible assets. In addition, this information is relevant to capital market participants.

Panel B presents the information content of intangible asset disclosures in the discussion portion of the call. The results are similar to those in Panel A, except that external capital intangible assets are notably less significant (p<0.03).These results indicate that although management provides information about intangible assets in the presentation portion of the call, these disclosures are not sufficient to satisfy the information needs of analysts. As a consequence, management provides (probably additional) disclosures about these intangible assets in response to analyst questions.

3.6.2   Are disclosures "sticky"?

The fact that conference calls may be used to identify information needs of analysts (cf. Frankel et al, 1999) should result in "consistent disclosures". That is, once the information needs of analysts have been identified, firms are likely to discuss information regarding the intangible assets in which analysts are interested. . In other words, it is likely that intangible asset disclosures are "sticky". We run the following models:

$$INFRAP = \beta_0 + \beta_1 INFRAPlag + \beta_2 LNAssets + \beta_3 MB + \beta_4 Numest + \beta_5 Qtr2 + \beta_6 Qtr3 + \beta_7 Qtr4 + \\ + \beta_8 y2003 + \beta_9 y2004 + \varepsilon$$

$$INNOVP = \beta_0 + \beta_1 INNOVPlag + \beta_2 LNAssets + \beta_3 MB + \beta_4 Numest + \beta_5 Qtr2 + \beta_6 Qtr3 + \beta_7 Qtr4 + \\ + \beta_8 y2003 + \beta_9 y2004 + \varepsilon$$

$$EXTERNALP = \beta_0 + \beta_1 EXTERNALPlag + \beta_2 LNAssets + \beta_3 MB + \beta_4 Numest + \beta_5 Qtr2 + \beta_6 Qtr3 + \\ + \beta_7 Qtr4 + \beta_8 y2003 + \beta_9 y2004 + \varepsilon$$

$$HUMANP = \beta_0 + \beta_1 HUMANPlag + \beta_2 LNAssets + \beta_3 MB + \beta_4 Numest + \beta_5 Qtr2 + \beta_6 Qtr3 + \\ + \beta_7 Qtr4 + \beta_8 y2003 + \beta_9 y2004 + \varepsilon$$

We run the above models in LOGIT regressions. The models are estimated with firm-fixed effects to control for firm-specific factors. Results are reported in Table 3.5.

The results show that once managers disclose information about intangible assets, they are more likely to do so in subsequent calls, i.e. disclosing information about intangible assets commits management to continue to disclose. The one exception is information about external intangible assets. Consistent with our finding that the information content of disclosures about external intangible assets in the discussion portion of the call is least pronounced, we find that managers do not commit themselves to continue to disclose information about external intangible assets. However, if they do disclose information about external intangible assets in the presentation portion, this disclosure does have information content. Together, these results suggest that managers are selective in the information they disclose about external intangible assets. A possible explanation for this result is that information about external intangible assets is more competition sensitive than information about other intangible assets.

The results suggest that once information needs have been identified by managers, they will continue to provide information through conference calls.[58]

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[58] Alternatively, managers could choose to provide the disclosures through other media, such as press release or annual report and no longer in the presentation portion of the conference call. This would, however, go against our hypothesis and against our results.

Table 3.5

Stickiness of intangible asset disclosures[59],[60]

	INFRA				INNOV			
	Parameter Estimate	Standard Error	Wald Chi-Square	p-value	Parameter Estimate	Standard Error	Wald Chi-Square	p-value
INFRAPlag	0.0552	0.0317	3.0336	0.0408				
INNOVPlag					0.0864	0.0434	3.9613	0.0233
LNASSETS	5.5318	1.5604	12.5683	0.0004	-0.917	2.1291	0.1855	0.6667
MB	0.082	0.0285	8.2675	0.004	0.0644	0.0404	2.5406	0.111
NUMEST	-0.0199	0.02	0.9875	0.3204	0.0155	0.0258	0.36	0.5485
QTR2	-0.00219	0.0777	0.0008	0.9775	-0.00991	0.1028	0.0093	0.9232
QTR3	0.0703	0.0795	0.7817	0.3766	0.1115	0.105	1.1277	0.2883
QTR4	0.3029	0.0791	14.681	0.0001	0.2339	0.1034	5.122	0.0236
Y2003	-0.0238	0.0867	0.0754	0.7836	-0.3711	0.1137	10.6484	0.0011
Y2004	0.0734	0.0707	1.0759	0.2996	-0.1505	0.0916	2.7005	0.1003
Firm fixed effects	Included				Included			

[59] Results from firm-fixed-effects regression of indicator variables for the occurrence of words related to intangible asset components (one if words occur, zero otherwise) in the presentation, on indicator variables for the occurrence of words related to intangible assets in the discussion part of the prior conference call.

[60] p-values are one-tailed for variables with directional predictions and two-tailed otherwise.

Table 3.5 (continued)

Stickiness of intangible asset disclosures

	External				Human			
	Parameter Estimate	Standard Error	Wald Chi-Square	p-value	Parameter Estimate	Standard Error	Wald Chi-Square	p-value
EXTERNALPlag	0.0085	0.0479	0.0315	0.92955	0.1305	0.0328	15.8204	<.0001
HUMANPlag	2.0012	1.4475	1.9113	0.1668	1.5266	1.5486	0.9719	0.3242
LNASSETS	0.00703	0.0287	0.0601	0.8063	-0.0128	0.0298	0.1832	0.6686
MB	-0.00902	0.0199	0.2058	0.6501	0.0027	0.0213	0.0161	0.8989
NUMEST	0.0402	0.0797	0.2538	0.6144	0.00184	0.0787	0.0005	0.9813
QTR2	0.0286	0.082	0.1219	0.727	0.0313	0.0802	0.1525	0.6961
QTR3	0.2899	0.0806	12.9379	0.0003	0.063	0.0845	0.5551	0.4562
QTR4	-0.012	0.0875	0.0188	0.8909	-0.00177	0.094	0.0004	0.9849
Y2003	-0.0519	0.0721	0.5183	0.4716	-0.0217	0.0704	0.0952	0.7577
Y2004								
Firm fixed effects	Included				Included			

3.6.3 Do managers learn from the discussion portion?

The fact that information is provided in response to questions from analysts suggests that managers are unsure about the (specific) information requirements of analysts. If conference calls are used to identify analysts' information needs, it is likely that managers will provide information on intangibles in the presentation of a conference call if analysts have asked questions on that issue in the discussion portion of the previous conference call. In our third set of tests, we investigate this issue: we analyse if the first occurrence of a disclosure of an aspect of intangible assets in the presentation portion of the earnings conference call is associated with the occurrence of words related to the aspect of intangible assets in the discussion portion of the prior earnings conference call. We run the following models:

$$FIRSTINFRA = \beta_0 + \beta_1 INFRADlag + \beta_2 LNAssets + \beta_3 MB + \beta_4 Numest +$$
$$+ \beta_5 Qtr2 + \beta_6 Qtr3 + \beta_7 Qtr4 + \beta_8 y2003 + \beta_9 y2004 + \varepsilon$$

$$FIRSTINNOV = \beta_0 + \beta_1 INNOVDlag + \beta_2 LNAssets + \beta_3 MB + \beta_4 Numest +$$
$$+ \beta_5 Qtr2 + \beta_6 Qtr3 + \beta_7 Qtr4 + \beta_8 y2003 + \beta_9 y2004 + \varepsilon$$

$$FIRSTEXTERNAL = \beta_0 + \beta_1 EXTERNALDlag + \beta_2 LNAssets + \beta_3 MB + \beta_4 Numest +$$
$$+ \beta_5 Qtr2 + \beta_6 Qtr3 + \beta_7 Qtr4 + \beta_8 y2003 + \beta_9 y2004 + \varepsilon$$

$$FIRSTHUMAN = \beta_0 + \beta_1 HUMANDlag + \beta_2 LNAssets + \beta_3 MB + \beta_4 Numest +$$
$$+ \beta_5 Qtr2 + \beta_6 Qtr3 + \beta_7 Qtr4 + \beta_8 y2003 + \beta_9 y2004 + \varepsilon$$

We run the above models in LOGIT regressions. The models are estimated with firm-fixed effects to control for firm-specific factors. Results are reported in Table 3.6.

Table 3.6
Do managers learn from the discussion portion?[61][62]

	FIRSTINFRA				FIRSTINNOV			
	Parameter Estimate	Standard Error	Wald Chi-Square	p-value	Parameter Estimate	Standard Error	Wald Chi-Square	p-value
INFRADlag	0.2734	0.0412	44.1004	<.0001				
INNOVDlag					0.2714	0.0626	18.8053	<.0001
LNASSETS	-2.1884	1.7262	1.6073	0.2049	-1.6224	2.0728	0.6126	0.4338
MB	0.039	0.0356	1.1979	0.2737	-0.046	0.0392	1.3759	0.2408
NUMEST	-0.0245	0.0241	1.0342	0.3092	-0.0074	0.0288	0.066	0.7973
QTR2	0.0962	0.1004	0.9182	0.3379	-0.136	0.1196	1.2924	0.2556
QTR3	0.1453	0.1027	2.0027	0.1570	-0.0666	0.1205	0.3058	0.5803
QTR4	0.6175	0.0947	42.4883	<.0001	0.452	0.1107	16.6753	<.0001
Y2003	0.496	0.1035	22.9754	<.0001	0.465	0.1211	14.7538	0.0001
Y2004	0.206	0.0893	5.3192	0.0211	0.0204	0.1076	0.0359	0.8497
Firm fixed effects	Included				Included			

[61] Results from firm-fixed-effects regression of indicator variables for the occurrence of words related to intangible asset components (one if words occur, zero otherwise) in the presentation, on indicator variables for the occurrence of words related to intangible assets in the discussion part of the prior conference call.

[62] p-values are one-tailed for variables with directional predictions and two-tailed otherwise.

Table 3.6 (continued)

Do managers learn from the discussion portion?

	FIRSTEXTERNAL				FIRSTHUMAN			
	Parameter Estimate	Standard Error	Wald Chi-Square	p-value	Parameter Estimate	Standard Error	Wald Chi-Square	p-value
EXTERNALlagD	0.1954	0.049	15.8888	<.0001				
HUMANlagD					0.0911	0.0417	4.7576	0.0146
LNASSETS	-1.4927	2.0878	0.5112	0.4746	-1.9857	1.9889	0.9969	0.1591
MB	0.0142	0.0455	0.0981	0.7541	-0.0302	0.0411	0.5375	0.2318
NUMEST	0.0186	0.0301	0.384	0.5355	0.0500	0.0273	3.3550	0.0335
QTR2	0.0786	0.1165	0.4553	0.4998	0.1957	0.1064	3.3828	0.0330
QTR3	0.2668	0.1151	5.3739	0.0204	0.3202	0.1057	9.1701	0.0013
QTR4	0.4032	0.1158	12.1279	0.0005	0.3037	0.1093	7.7211	0.0028
Y2003	-0.2724	0.1355	4.0433	0.0443	-0.2138	0.1232	3.0142	0.0413
Y2004	-0.0227	0.0959	0.0558	0.8132	-0.0612	0.0892	0.4705	0.2464
Firm fixed effects	Included				Included			

The results indicate that the first disclosure of information about aspects of intangible assets in the presentation portion of a conference call is associated with the occurrence of words related to that aspect of intangible assets in the Q&A part of the prior conference call. This result holds for all categories of intangible assets; it suggests that managers use the discussion portion of the conference call to learn about the information needs of analysts with respect to intangible asset disclosures. In addition, managers use this "discussion portion knowledge" to provide intangible asset disclosures in the presentation portion of the next conference call.

3.7   Discussion and conclusions

We study whether disclosures about intangible assets in earnings conference calls are relevant to capital market participants. We find that disclosures about innovation and infrastructure intangible assets, external intangible assets as well as human intangible assets have information content. This result holds for both the presentation as well as the discussion portion of the conference call. Our findings indicate that the conference call, at least partially, compensates for the insufficient disclosures about intangible assets in earnings announcements, management forecasts, press releases or other financial statements.

In a second set of tests, we find that intangible asset disclosures in conference calls are "sticky": disclosures in the presentation portion of one conference call are likely to be discussed in the presentation portion of subsequent conference calls as well. This suggests that managers informally commit to a policy to provide disclosures about intangible assets. The one exception is disclosures related to external intangible assets; managers do not seem to commit to disclosing information about external intangibles once they have disclosed it in a prior call. Consistent with our finding that the information content of disclosures about external intangible assets in the discussion portion is least pronounced, this result suggests that managers are selective in what they disclose about external intangible assets. A possible explanation for this effect is that disclosures about external intangible assets are more likely to be competition sensitive compared to other intangible assets. Finally, we find that the first occurrence of disclosures about intangible assets in the presentation portion of the conference call is associated with the occurrence of disclosures about these intangible assets in the discussion period of the prior conference call. This result holds for all aspects of intangible assets and suggests that managers use the conference call to learn about the information needs of analysts with respect to intangible assets.

The results from our study imply that earnings conference calls help to identify the information needs of capital markets participants. In addition, conference calls appear to provide a platform that (partially) compensates for the currently insufficient disclosures under GAAP in other financial statements.

Our results should be interpreted with some caution because they are based on the analysis of conference calls. We do not take other avenues for voluntary disclosure (e.g. management forecasts, press releases and annual reports) into account. In addition, our measure for intangible asset disclosure may pick up the effect of "more disclosure" rather than solely the effect of intangible asset disclosures. However, we find that discussions about intangible assets make up a substantial part of the conference calls that we analyse; as such, increased disclosures may cover intangible assets. Clarification on these issues requires an examination of the association between more comprehensive measures of disclosure policies and stock price returns, as well as an analysis of whether additional disclosures complement or substitute for conference calls.

4 Do analysts voice their true beliefs in conference calls?

4.1 Introduction[63]

Hosting a conference call in conjunction with an earnings announcement has become commonplace among firms over the past decade. Prior research suggests these calls are important information events, resulting in higher trading volume, greater return volatility, improved analyst forecast accuracy and reduced post-earnings announcement drift (Frankel, Johnson and Skinner 1999; Bowen, Davis and Matsumoto 2002; Kimbrough 2005). Moreover, recent evidence suggests that the discussion portion with analysts is a critical part of most conference calls because it allows analysts to elicit additional disclosures from managers (Matsumoto, Pronk and Roelofsen 2009). While it is undoubtedly the case that managers' responses to analysts' questions provide additional information to call participants, it is also possible that participants on the call learn something from the analysts' questions themselves. The tone, wording and focus of analysts' questions can provide insight into the analysts' opinion about the prospects of the firm and perhaps reveal the nature of analysts' private information. To avoid revealing their private information to other call participants, analysts may choose to mask their opinions in certain circumstances. The purpose of this paper is to investigate if analysts reveal their true beliefs during conference calls and the circumstances under which they may choose to mask them.

We investigate this issue using textual analysis of conference call transcripts. In particular, we measure the degree of optimism/pessimism expressed by analysts during the discussion portion of the call using a count of words deemed optimistic/pessimistic. Since we expect analysts to be more optimistic when firms report good news, we first confirm that our measure of analyst optimism is related to the news in the earnings announcement. We find that analysts use less optimistic (more pessimistic) language during the discussion portion of the call when they are surprised by the firms reporting negative earnings or when returns in the 24 hours prior to the conference call (i.e., when the earnings press release is distributed) are negative. These results help to validate our measure of analyst optimism.

We then investigate whether the lower optimism expressed by analysts in the face of bad news is tempered by the presence of institutional investors. Prior research suggests that institutional investors trade in response to analysts' stock recommendations and that such trading contributes to their ability to outperform individual investors (Chen and Cheng 2006). Their ability to outperform individual investors would, however, be diminished to the extent individuals are able to infer or anticipate analysts' opinions (and potentially stock recommendation changes). Given that in the post-Regulation Fair Disclosure (Reg FD) era firms' conference calls are publicly accessible, institutional investors would likely prefer that analysts do *not* express their true beliefs during the call but rather, privately communicate their opinions to their clients. Thus, we predict that analysts are less likely to use pessimistic language in the face of poor firm performance for firms with high institutional holdings. Results are consistent with this prediction.

Although analysts may not express their true opinions during the call, their forecast revisions likely reflect their true beliefs about the firm's future prospects. We, therefore, examine the relation between forecast revisions and analyst optimism and the moderating effect of institutional holdings. We find a positive relation between analysts' forecast revisions and our measure of analyst optimism, providing further validation of our measure. Further, consistent with our expectations, we find that the positive relation is attenuated for firms with greater institutional investors. This result is consistent with analysts not expressing their true beliefs during conference calls to preserve their institutional clients' informational advantage.

This paper contributes to the literature on the information content of conference calls. Over the past decade, conference calls have become an increasingly common form of voluntary disclosure. However, until recently, most studies examining conference calls as an information event have been limited to examining only the existence of conference calls because transcripts of calls were not readily available. Since the passage of Reg FD, however, transcripts for a large sample of calls are accessible for analysis and studies have begun to analyse the content of calls and, in particular, the interaction between managers and analysts that occurs during the discussion portion of the call (Mayew 2008; Matsumoto et al. 2009). Although Matsumoto et al. (2009) find that discussion periods are longer when managers fail to disclose enough information during the presentation portion of the call (suggesting that analysts are able to elicit additional information from managers), this study suggests that the language they use in asking questions does not necessarily reflect their true opinions.

This paper also contributes to our general understanding of the relationship between analysts and institutional investors. While analysts' incentives to bias their forecasts and

recommendations because of investment banking relationships has been well studied (Lin and McNichols 1998; Michaely and Womack 1999; Dechow et al. 2000), less is known about the incentives faced by analysts as a result of soft-dollar arrangements with institutional clients. In a recent study, Juergens and Lindsey (2008) find that institutional investors actually sell securities through the market maker of an analyst's firm in the days *prior* to the release of an analyst's recommendation downgrading a stock — consistent with analysts warning their institutional clients of an impending downgrade. Our results are consistent with Juergens and Lindsey (2008) in that we find evidence that consistent with analysts hiding their true beliefs during conference calls to preserve their clients' informational advantage.

In the next section, we discuss our hypotheses. Section 3 describes our sample selection. We present our empirical results in Section 4. Section 5 concludes the findings.

4.2   Prior research and hypothesis development

Although conference calls are one of the most common forms of voluntary disclosures made by firms, research on the actual content of conference calls has been limited until recently — primarily due to the lack of large samples of call transcripts prior to Reg FD. Recently, a number of studies have investigated various issues surrounding the content of conference calls. Matsumoto, Pronk and Roelofsen (2009) investigate the relation between management presentations during conference calls and the ensuing discussions with analysts. They find that analyst discussion periods are longer when managers provide less disclosure during the presentation portion of the call, suggesting that analysts are able to elicit additional disclosures from managers during the discussion period. Mayew (2008) investigates whether managers discriminate against analysts with unfavourable opinions of the firm by denying their ability to ask questions during the call and find evidence consistent with this conjecture. Both studies suggest that the analysts' ability to ask questions during the discussion period is important both to the analyst as well as to the audience at large by enriching the disclosures provided by management.

In fact, the give-and-take that occurs between managers and analysts during the discussion portion of conference calls is one of the defining characteristics that distinguish conference calls from other mechanisms of disclosures (e.g. company-issued press releases). During this period, analysts can ask managers to clarify or elaborate on points made during the presentation, perhaps by asking for additional detail or supporting evidence. These additional disclosures are undoubtedly informative to the market. However, the way in

which analysts word their questions potentially reveals the analysts' attitude toward the firm as well. Moreover, analysts could preface their questions with comments that are either supportive or disparaging, which more directly reveals their beliefs about management and the firm's prospects.

We argue that the optimism or pessimism expressed by analysts in their questions/comments is likely informative to participants in the call — over and above the actual news disclosed in the accompanying earnings release. Prior research supports the informative nature of both analysts' forecasts (Givoly and Lakonishok 1979; Brown, Foster and Noreen, 1985) and their recommendations (Francis and Soffer 1997). Given that analysts' opinions, as expressed in their forecasts and recommendations, are informative to the market, it seems reasonable that the language analysts use while asking questions or making comments would be viewed as additional expressions of their opinions (although more subtle) and would be similarly informative. Consistent with this notion, research by Davis et al. (2008) indicates that the optimism or pessimism expressed by management in press releases has information content, over and above the "hard" information disclosed in the press release. We extend their finding by examining the information content of *analysts'* optimism/pessimism expressed during the discussion portion of conference calls. Our first hypothesis is as follows:

H1:   Analyst optimism/pessimism expressed during the discussion portion of a company's conference call is informative to the market.

Confirmation of our first hypothesis would suggest that analysts can impact a company's stock price by the comments they make and questions they ask during the discussion phase of a conference call. Given the potential impact of their questions/comments, analysts may have incentives to avoid expressing any pessimistic views they have on the firm during the conference call. Prior research suggests that analysts have multiple incentives to avoid issuing negative information about a firm, including investment banking relationships (O'Brien, McNichols and Lin 2005) and preserving access to management-provided information (Chen and Matsumoto 2006; Mayew 2008). These prior studies generally focus on the impact these incentives have on the propensity to issue negative recommendations and/or forecasts. However, the incentive to bias recommendations and/or forecasts is tempered by the fact that analysts' performance is often judged on the quality of these two outputs and judging the quality of these outputs is relatively straightforward (particularly for forecasts). In contrast, the optimism/pessimism expressed during conference calls is not easily measured and so it is less likely that analysts would be held accountable for failing to express negative views (or being overly optimistic) during calls. The lack of accountability coupled with the pressure to appease management likely

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results in analysts' biasing the views they express during conference calls. In particular, we predict that analysts are less likely to express their true beliefs when the firm announces bad news relative to when the firm announces good news. Our second hypothesis is:

H2:   Analysts are less likely to express their true beliefs about the firm's future prospects during the conference call when the firm announces bad news relative to when the firm announces good news.

The incentive for analysts to avoid negative views on the firm to win management's favour — either because of investment banking relationship and/or to maintain access to company-provided information — is well studied in the literature. Another less well-studied incentive that potentially impacts analysts' decisions is the incentive to preserve the information advantage of their institutional clients. Most analysts do not sell their research directly to clients. Rather, analysts' clients — largely institutional investors — "pay" for the research they receive from analysts by directing their trades through the firm where the analyst works (Conrad, Johnson and Wahal 2001; Cowen, Groysberg and Healy 2006). Prior research suggests that institutional investors trade in response to analysts' recommendations and that this trading contributes to their ability to outperform individual investors (Chen and Cheng 2006). Given the potential for analysts' questions/comments to impact the firms' stock prices, institutional investors probably prefer analysts not to reveal their true beliefs during the conference call but rather to communicate their thoughts privately. This preference is possibly greater in the face of bad news because it is often difficult for institutions to unwind their positions in a firm quickly, particularly if they own large stakes in the firm.[64] Therefore, to appease their institutional clients, analysts have an incentive to avoid expressing negative views during the conference call.

Such behaviour would be consistent with the findings of Juergens and Lindsey (2008) who find a dramatic increase in buying volume handled by the market maker of an analyst's firm relative to other market makers on days when the analyst releases an upgrade but, in the case of downgrades, find an increase in selling volume through the market maker, *prior* to the official release of the downgrade. Their results suggest that analysts provide information to their institutional clients in advance to allow their clients time to unwind their positions. In the case of conference calls, analysts might avoid making their true beliefs public during the call and instead communicate their opinions to their clients at the

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[64] If an institution is listening in on a conference call, it is likely the institution owns shares in the company's stock.

conclusion of the call and prior to the release of any revisions in their forecasts and/or recommendations.

Based on these arguments, we predict the incentive for analysts to avoid expressing their true negative beliefs about the firms is greater when the firm has greater institutional ownership. Our third hypothesis is:

H3:   Analysts are more likely to avoid expressing their true negative beliefs about a firm during the conference call when the firm has greater institutional ownership.

4.3   Data and variable measurement

4.3.1   Sample selection

We start our sample selection process by identifying announcements of earnings-related conference calls (via the Dow Jones Calendar of Corporate Events). This procedure yields 27,672 calls. We limit our sample to firms that regularly conduct conference calls by removing 2,665 calls from firms that conducted less than 6 calls over the sample period. Subsequently, we gather transcripts of calls from Voxant FD wire, available through Factiva. We are unable to find transcripts for 8,505 calls, leaving us with a sample of 16,502 conference call transcripts. We further limit our sample to calls held during trading hours (calls beginning after 9:30 a.m. and before 16:00 p.m. EST) by NYSE/NASDAQ firms between 1 January 2003 and 31 December 2005, because we include a market-based measure of news in the earnings announcement as an independent variable. This process yields 11,720 potential conference calls. We lose 3,346 observations due to missing Trade and Quote (TAQ) data, I/B/E/S analyst forecast data, Compustat data and/or CRSP data. We lose another 1,708 observations by removing outliers (at the 1% level) in dependent and independent variables. Our final sample includes 6,666 firm quarters. Table 4.1, Panel A details our sample selection process.

Table 4.1

Sample selection and descriptive data

Panel A: Sample attrition

Earnings-related conference calls on DJ Calendar of Corporate Events	36,074
Not listed on NYSE or NASDAQ	8,402
Calls of firms with less than six conference calls	2,665
Transcripts not available on Voxant FD Wire	8,505
Calls outside trading hours	4,782
Missing data on TAQ, IBES or Compustat	3,346
Outliers in dependent and independent variables (1%)	1,708
Final sample	6,666

Table 4.1 *(Continued)*

Sample selection and descriptive data

Panel B: Distribution of observations across industry

	No. of obs.	% of obs.	% of population
Manufacturing	2,334	35.01	34.11
Finance and Insurance	1,320	19.80	28.09
Retail Trade	436	6.54	3.96
Information	419	6.29	10.37
Mining	370	5.55	3.12
Professional, Scientific and Technical Services	246	3.69	4.16
Utilities	233	3.50	2.26
Transportation and Warehousing	222	3.33	2.36
Wholesale Retail	211	3.17	2.58
Accomodation and Food Services	195	2.93	1.67
Administrative and Support, Waste Management and Remediation Services	152	2.28	1.75
Construction	149	2.24	1.02
Health Care and Social Assistance	126	1.89	1.41
Real estate and Leasing	105	1.58	1.51
Other Services	46	0.69	0.38
Art, Entertainment and Recreation	42	0.63	0.42
Educational Services	42	0.63	0.31
Agriculture, Forestry, Fishing and Hunting	10	0.15	0.31
Unclassified Establishments	8	0.12	0.21
	6,666	100	100

Panel B of Table 4.1 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 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 19% of our sample but comprises 28% of the NYSE/NASDAQ firms.

4.3.2   Dependent variables

4.3.2.1   Optimism measure

Our measure of optimism is based on word counts of positive and negative words in the discussion portion of the conference call. 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 checked whether the transcripts were split appropriately by searching the first 400 characters of the discussion for key words or phrases that are typically associated with the start of the discussion — for example, "instructions", "question-and-answer", "the floor is now open", "at this time". For discussion transcripts that did not include any of the key words, we performed the split manually.   In addition, each transcript includes a legal disclaimer at the end of the document. We removed this disclaimer from all transcripts.

Within the discussion portion of the conference call, we determine whether a fragment was spoken by management or by an analyst. Speakers also appearing in the transcript of the preceding presentation are deemed to be part of management. If speakers did not appear in the preceding presentation, we base the classification of the speaker as either management or analyst based on the affiliation and position stated in the call.

For each text fragment (i.e. the text that starts after the name and affiliationand continues till the next name and affiliation) that is spoken by an analyst we count the number of "positive words" and the number of "negative words".[65] Our definition of positive words and negative words is based on a review of word frequencies in some 900 conference call transcripts. We counted the total frequencies of all words in these transcripts and scanned the resulting 7,892 words with a frequency of more than 10, for words with a clear positive tone and words with a clear negative tone. This procedure resulted in 82 words with a positive tone and 45 words with a negative tone. Additionally, our count of positive words excludes (where appropriate) positive words that are preceded by "no", "not", "not very", "not so", "aren't" or "haven't". Those word combinations are included as a single negative word in our counts of negative words. This procedure adds 90 word combinations to our

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[65] We use VBA programs to count words and compute our proxies for optimism. Other widely available content analysis software (such as Diction) apply a similar approach to measuring optimism, but are less flexible in distinguishing between words spoken by management and analysts.

definition of negative words. Exhibit 1 provides a list of all positive and negative words used in our definition of optimism.

We count the number of positive words spoken by analysts (POS^{ANAL}) as well as the number of negative words (NEG^{ANAL}). In order to control for the length of the call, we scale our measures by the total number of words spoken by analysts. Thus, we also count the total number of words spoken by analysts in the discussion ($\#WORDS^{ANAL}$). This results in the following definition of analyst optimism (OPT^{ANAL}):

$$OPT^{ANAL} = \frac{POS^{ANAL} - NEG^{ANAL}}{\#WORDS^{ANAL}}$$

Table 4.2 reports descriptive statistics for our optimism measure along with additional variables used in our tests (and explained in more detail below). The mean of OPT^{ANAL} is 0.0058, indicating that on average there are more optimistic words spoken by analysts than pessimistic words.

Exhibit 1

Words counted in the definition of optimism

Panel A: Positive words

accomplished	good	strength
accomplishment	happy	strengthen
accomplishments	healthy	strengthened
achieve	impressive	strengthening
achieved	improve	strong
achievements	improved	stronger
achieving	improvement	strongest
advantage	improvements	strongly
attractive	improving	success
benefit	leadership	successes
benefited	leading	successful
benefits	meet	successfully
best	momentum	superior
compliment	opportunities	sustainable
confidence	opportunity	terrific
confident	optimism	top
congratulate	optimistic	tremendous
congratulations	outperform	tremendously
encouraging	outperformed	win
enhance	outperforming	winning
enthusiasm	outstanding	wins
enthusiastic	positive	won
excellence	positively	
excellent	progress	
excited	promising	
excitement	prosperity	
exciting	proud	
fantastic	recovers	
favorable	recovery	
fortunately	satisfaction	

Panel B: Negative words

not accomplished	no improvements	bankruptcies
not achieve	not improving	bankruptcy
didn't achieve	no leadership	cautious
not achieving	not leading	cautiously
no advantage	not meet	challenged
not attractive	didn't meet	claimants
not very attractive	no momentum	damage
no benefit	no opportunities	damages
didn't benefit	no opportunity	delay
not benefit	no optimism	deterioration
no benefits	not outperform	disappointed
no compliment	didn't outperform	disappointing
not compliment	not outperformed	disappointment
no confidence	haven't outperformed	dispute
not confident	not outperforming	disruption
not very confident	aren't outperforming	disruptions
not encouraging	not outstanding	downsizing
not very encouraging	not positive	failure
not enhance	not very positive	headwinds
didn't enhance	no progress	impaired
no enthusiasm	not promising	inefficiencies
not enthusiastic	not very promising	lose
not excellent	not proud	losing
not so excellent	no recovery	overhang
not excited	no satisfaction	poor
not very excited	no strength	problematic
not so excited	not strengthening	recession
no excitement	not strong	severe
not exciting	not very strong	shutdowns
not very exciting	not so strong	slowdown
not so exciting	not stronger	slower

(Continued on next page)

(Exhibit 1 – Continued)

not fantastic	no success	slowing
not favourable	no successes	sluggish
not good	not successful	struggles
not very good	not very successful	struggling
not so good	not superior	termination
isn't good	not sustainable	underperforming
isn't very good	not terrific	unfavourable
not happy	not tremendous	unfortunate
not healthy	not tremendously	unfortunately
not impressive	not win	unsuccessful
not very impressive	no win	weakest
not so impressive	not winning	write down
not improve	no wins	
didn't improve	apologise	
no improvement	bad	

Table 4.2

Descriptive statistics

Variable[66]	Mean	Median	Standard deviation	Minimum	Maximum
OPT^{ANAL}	0.0057	0.0053	0.0034	−0.0015	0.0172
OPT^{MGMT}	0.0084	0.0081	0.0036	0.0006	0.0205
OPT^{PRES}	0.0122	0.0117	0.0050	0.0016	0.0274
FREV	0.0009-	−0.0004	0.0034	−0.0238	0.0129
INSTHOLD	0.6086	0.6636	0.2738	0	1.8385
CHANGEROA	0.0011	0.0004	0.0148	−0.0829	0.1051
RETURN^{DISC}	0.0000	0	0.0108	−0.0472	0.0416
RET^{DAYB4}	0.0019	0.0016	0.0414	−0.1614	0.1408
NEGRET^{DAYB4}	0.4712	0	0.4992	0	1
FERROR	0.0005	0.0004	0.0038	−0.0291	0.0209

[66] OPT^{ANAL} is defined as (number of positive words spoken by analysts less number of negative words spoken by analysts), divided by the total number of words spoken by analysts. OPT^{PRES} and OPT^{MGMT} are defined in a similar way as OPT^{ANAL} for the words spoken by management in the presentation (OPT^{PRES}) and the words spoken by management in the discussion section of the call (OPT^{MGMT}). FREV is the difference between the median forecast issued for quarter q+1 in the 90 days prior to the conference call for quarter q and the median forecast issued for quarter q+1 in the 60 days following the conference call. INSTHOLD is the total shareholdings reported by investment managers as a percentage of total shares outstanding, both per the CDA/Spectrum institutional holdings (13f) database and measured at the end of the quarter preceding the conference call. CHANGEROA is the change in ROA, defined as earnings before extraordinary items (Compustat quarterly item 8) divided by ending total assets (Compustat quarterly item 44). RET^{DAYB4} is the return in the 24 hours prior to the conference call, measured as 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} (data obtained from the TAQ database). NEGRET^{DAYB4} is an indicator variable equal to 1 when RET^{DAYB4} is negative and zero otherwise. FERROR is the actual EPS (from IBES unsplit-adjusted actuals file) less the last mean consensus forecast prior to the earnings announcement (from IBES unsplit-adjusted summary file) divided by the stock price at the end of quarter (Compustat quarterly item 14). MISS is an indicator variable equal to 1 when FERROR is negative and zero otherwise. RET^{QTR} is the market-adjusted returns cumulated from calendar day –92 to day –2 relative to the conference call date. MB is the market-to-book as per the end of the quarter (Compustat) and LNMVAL is the natural logarithm of market capitalisation as per the end of the quarter (Compustat). AF is the number of analysts that issued an EPS forecast for the current quarter (from IBES summary file). #WORDS^{ANAL} is the number of words spoken by analysts.

Variable[66]	Mean	Median	Standard deviation	Minimum	Maximum
MISS	0.2628	0	0.4402	0	1
RET^{QTR}	0.0131-	-0.0167	0.1368	−0.4503	0.4733
MB	2.7861	2.1944	2.4874	−8.4687	27.7597
LNMVAL	7.3364	7.2396	1.3340	4.3392	11.0906
AF	8.3393	7	5.5550	1	27
#WORDSANAL	1,423.0000	1361.5	646.97329	175	3640

4.3.2.2   Return during the discussion

We use a sub-sample 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 match the times to our transcripts and calculate the number of words spoken per minute in the presentation and discussion portions of the call. We use the median number of words spoken per minute (160 and 157 for the presentation and discussion portions of the call, respectively) to compute the approximate length, in minutes, of the presentation and the start time of the discussion. We use TAQ data to calculate the true return over the window starting at the approximated start time of the discussion and ending 60 minutes after the start of the call.

4.3.3   Explanatory variables

To test our hypotheses requires measures of 1) analysts' true beliefs, 2) bad news, and 3) institutional ownership. We measure analysts' true beliefs based on revisions in their forecasts. As discussed previously, analysts' forecasts are easily compared to actual earnings and therefore, it is more difficult for analysts to bias these measures.[67] As such, we measure the revision in analysts' next quarter earnings as the difference between the

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[67] We recognise that prior studies suggest that analysts occasionally bias their forecast – in particular, analysts appear to issue more optimistic forecasts early on and subsequently "walk-down" their forecasts as the year progresses (Richardson, Teoh and Wysocki 2004). The walk-down effect should not bias our results as long as the level of initial optimism is not *greater* for firms who subsequently report *bad* news (resulting in the need for a greater walk-down following bad news that does not necessarily represent the analysts' true beliefs). In other words, as long as revisions in analysts forecast is not a *poorer* measure of analysts true beliefs when firms report bad news, our results should not be biased. We do not expect this to be the case. Note that if a bigger walk-down is triggered by the bad news reported by the firm, this in itself will not bias our results as it is still an appropriate measure of the analysts' true beliefs.

median forecast issued for quarter q+1 in the 90 days prior to the conference call for quarter q and the median forecast issued for quarter q+1 in the 60 days following the conference call (FREV). We only include analysts with forecasts at both horizons (before and after the call) so that our median forecast measure at each horizon is based on the same analyst pool. More positive revisions in analysts' forecasts following the conference call imply analysts have more positive views about the firm.

To measure accounting bad news, we use a dummy variable (MISS), which is equal to 1 if actual EPS for the quarter (per IBES unsplit-adjusted actuals file) is less than the mean consensus forecast EPS for the quarter (per IBES unsplit-adjusted summary file) and zero otherwise. Prior research suggests that firms incur a market penalty when they miss analysts' expectations (Bartov et al. 2002), although recent evidence suggests this penalty has dissipated since 2002 (Koh et al. 2008). Nevertheless, managers still appear to view missing expectations as problematic and take actions to avoid this outcome (Graham et al. 2005). Given the importance of missing expectations to both the market and management, it appears reasonable to assume analysts are equally sensitive to this benchmark.

As an alternative measure of bad news, we use bad news as perceived by the market. We use a dummy variable ($NEGRET^{DAYB4}$), which is equal to 1 if the return over the 24 hours before the start of the call is negative and zero otherwise.

Finally, we measure institutional ownership using data from the CDA/Spectrum Institutional (13f) Holdings database and define institutional holdings (INST) as the total shareholdings reported by investment managers as a percentage of total shares outstanding, both measured at the end of the quarter preceding the conference call. In our tests of hypothesis three, we use a dummy variable ($INST^{HIGH}$) that is equal to 1 if institutional holdings are above the median of the sample, and zero otherwise.

Descriptive statistics in Table 4.2 indicate that average forecast revisions are negative. The average percentage of institutional holdings is 65%, which is relatively high compared to prior studies and is likely due to the fact that our sample is comprised of firms with 1) available conference call transcripts and 2) active analyst coverage.[68]

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[68] In their study of the firms who host open vs. closed conference calls, Bushee et al. (2003) report an average institutional ownership percentage of 36% and 42% for their open and closed call samples, respectively. The difference between their sample and ours suggests that transcripts of conference calls may be more readily available for large firms.

4.3.4   Control variables

In our main analyses, we use an industry-fixed effects model, which controls for static industry-specific characteristics that affect optimism. Industry membership is based on two-digit codes of the North American Classification System (NAICS). Since it is also possible that our results are related to firm-specific and quarter-specific characteristics, we include additional control variables in our regressions. First, we include a measure of firm size equal to the natural logarithm of the market value of equity at the end of the quarter (MVAL). Second, we include a measure of analyst following (AF), equal to the number of analysts that issued an EPS forecast for the current quarter (from IBES summary file). Third, we include market-to-book (MB) per the end of the quarter as a proxy for growth.

The optimism of analysts on the conference call is also likely associated with performance over the completed quarter. We, therefore,include two measures of performance in our regressions.   Return on assets (ROA), equals earnings before extraordinary items (Compustat quarterly item 8) divided by ending total assets (Compustat quarterly item 44). Market performance is based on equally weighted market-adjusted returns cumulated from day –92 to day –2 relative to the conference call date (RET^{QTR}), which approximates returns over the quarter.

We further control for the magnitude of news by including unexpected earnings performance and unexpected performance from the market's perspective. Unexpected earnings performance (FERROR) is defined as the difference between actual EPS for the quarter (per IBES unsplit-adjusted actuals file) and the mean consensus forecasted EPS for the quarter (per IBES unsplit-adjusted summary file), divided by the price at the end of the quarter (per CRSP). Unexpected performance from the market's perspective is defined as returns (RET^{DAYB4}) in the 24hours prior to the conference call, measured as 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 ($MID^{dayprior}$) divided by $MID^{dayprior}$ (data obtained from the TAQ database).

The optimistic language used by analysts on the conference call is likely to be affected by the language used by management. Analysts may repeat words used by management or may generally be more inclined to use optimistic language when management uses optimistic language. We   control for the optimistic language used by management by including two measures of the usage of optimistic language by management. Optimism in the presentation portion of the call (OPT^{PRES}) is defined in a similar way as OPT^{ANAL}, i.e. positive less negative words spoken by management in the presentation portion of the call, divided by the number of words spoken by management. Optimistic language used by

management in the discussion portion of the call (OPT^{MGMT}) is defined in a similar way, using the text spoken by management in the discussion portion of the call. We also include the number of words spoken by analysts on the discussion to control for a potential effect of the length of the analysts' discussion.

Finally, we include fiscal quarter dummy variables (QTR2, QTR3, and QTR4) to control for differences across quarters in optimism and year dummy variables (Y2003 and Y2004) to control for time-specific events that may affect optimism (e.g., macroeconomic shocks).

Descriptive statistics of our control variables are presented in Table 4.2. Similar to our OPT^{ANAL} variable, the means of OPT^{MGMT} and OPT^{PRES} are both positive, indicating that management uses more optimistic than pessimistic words during the presentation and discussion portions of the conference call. Not surprisingly, the means of OPT^{MGMT} and OPT^{PRES} are greater than the percentage of OPT^{ANAL} on average, indicating that management uses more optimistic language than analysts.

The average return during the quarter is close to zero (−.8%). Consistent with the high institutional ownership of our sample, the average analyst following is 8.1, a relatively high number compared to other studies.[69]

Table 4.3 presents a correlation matrix of all our variables (Spearman correlations reported above the diagonal and Pearson correlations reported below the diagonal).

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[69] Bushee et al (2003) report analysts' following of between 3.6 and 4.0, again suggesting that transcripts may be more readily available for firms with greater interest from sophisticated market participants – analysts and institutions.

Table 4.3
Univariate statistics[70]

Variables[71]	OPT^{ANAL}	OPT^{MGMT}	OPT^{PRES}	FREV	INSTHIGH	CHANGEROA	RET^{DISC}	RET^{DAYB4}	$NEGRET^{DAYB4}$	FERROR	MISS	RET^{QTR}	MB	LNMVAL	AF	#WORDSANAL
OPT^{ANAL}	1	0.23	0.21	0.11	0.01	0.08	0.03	0.17	-0.15	0.11	-0.16	0.08	0.02	-0.04	-0.02	-0.11
OPT^{MGMT}	0.24	1	0.36	0.06	0.04	0.03	-0.01	0.06	-0.06	0.08	-0.12	0.03	0.02	0.08	0.04	0.00
OPT^{PRES}	0.21	0.36	1	0.10	0.07	0.07	0.00	0.09	-0.08	0.11	-0.17	0.06	0.03	0.15	0.05	0.05
FREV	0.15	0.06	0.11	1	-0.04	0.14	0.03	0.22	-0.16	0.30	-0.22	0.16	0.06	0.13	0.07	-0.02
INSTHIGH	0.02	0.04	0.07	-0.02	1	0.00	0.01	0.02	-0.02	0.00	-0.04	0.01	0.03	0.16	0.20	0.14
CHANGEROA	0.12	0.07	0.13	0.20	0.00	1	0.00	0.11	-0.07	0.19	-0.13	0.11	0.04	0.03	0.01	0.01
RET^{DISC}	0.03	-0.01	0.00	0.04	0.01	0.00	1	0.01	-0.02	0.01	-0.01	-0.02	-0.03	-0.01	0.00	0.00
RET^{DAYB4}	0.17	0.06	0.09	0.27	0.02	0.13	0.02	1	-0.72	0.27	-0.29	-0.02	-0.01	0.00	-0.01	-0.02
$NEGRET^{DAYB4}$	-0.14	-0.06	-0.08	-0.21	-0.02	-0.10	-0.01	-0.72	1	-0.21	0.25	0.01	0.00	-0.01	0.01	0.01
FERROR	0.15	0.09	0.14	0.32	0.00	0.27	0.01	0.36	-0.30	1	-0.57	0.09	-0.02	0.06	0.02	0.01
MISS	-0.16	-0.12	-0.17	-0.27	-0.04	-0.21	-0.01	-0.29	0.25	-0.76	1	-0.08	-0.06	-0.09	-0.11	-0.04
RET^{QTR}	0.07	0.04	0.06	0.18	0.03	0.16	-0.02	-0.02	0.01	0.11	-0.08	1	0.06	-0.02	-0.05	-0.04
MB	0.04	0.05	0.07	0.09	0.05	0.09	-0.02	-0.02	0.02	-0.02	-0.09	0.11	1	0.13	0.10	0.07
LNMVAL	-0.03	0.08	0.13	0.13	0.17	0.06	-0.02	0.00	-0.01	0.03	-0.08	-0.01	0.21	1	0.65	0.31
AF	0.01	0.06	0.06	0.08	0.21	0.04	0.00	-0.01	0.01	0.02	-0.12	-0.06	0.15	0.64	1	0.33
#WORDSANAL	-0.08	0.02	0.05	-0.02	0.15	0.01	0.01	-0.02	0.01	0.02	-0.05	-0.04	0.08	0.32	0.37	1

[70] Pearson above the diagonal, Spearman below the diagonal

[71] See variable definitions on Table 2

4.4 Empirical tests

4.4.1 Is analyst optimism informative?

Hypothesis 1 poses that analyst optimism/pessimism expressed during the discussion of a company's conference call is informative for the market. We presume that optimism/pessimism is informative when stock returns are affected during the conference call. We, therefore, test whether the analyst optimism is positively associated with contemporaneous stock market returns during the discussion period. We use the following model to test Hypothesis 1:

$$RET^{DISC} = \beta_0 + \beta_1 OPT^{ANAL} + \beta_2 OPT^{MGMT} + \beta_3 OPT^{PRES} + \beta_4 RET^{PRES} + \beta_5 RET^{DAYb\$} +$$
$$+ \beta_6 FERROR + \beta_7 CHANGEROA + \beta_8 RET^{QTR} + \beta_9 MB + \beta_{10} LNMVAL + \beta_{11} AF +$$
$$+ \beta_{12} l\#WORDSANAL + \beta_{13} QTR2 + \beta_{14} QTR3 + \beta_{15} QTR4 + \beta_{16} Y2003 + \beta_{17} Y2004 + \varepsilon$$

We use industry-fixed effects. Further, since we have multiple observations for each firm, we report clustered standard errors.[72] Table 4.4 provides our results. If the optimism of analysts is informative to the market, we expect higher returns during the discussion period, resulting in a positive coefficient on OPT^{ANAL}. We find that optimism/pessimism of analysts is informative to the market (coefficient on OPT^{ANAL} positively significant, p-value = 0.0156).

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[72] Our results are inferentially the same when we do not cluster standard errors or when we only cluster on firms.

Table 4.4

Is analyst optimism informative?

Variables[73]	Predicted Sign	Parameter estimate	Standard error	t-value	p-value[74]
OPT^{ANAL}	+	0.0898	0.0416	2.16	0.0156
OPT^{MGMT}	?	0.0612-	0.0411	1.49-	0.1366
OPT^{PRES}	?	0.0125	0.0307	0.41	0.6840
RET^{PRES}	?	0.1509	0.0222	6.81	<.0001
RET^{DAYB4}	?	0.0022	0.0043	0.52	0.6009
FERROR	?	0.0005	0.0432	0.01	0.9906
CHANGEROA	?	0.0063	0.0111	0.57	0.5698
RET^{QTR}	?	0.0012-	0.0012	0.94-	0.3483
MB	?	0.0001-	0.0001	2.53-	0.0113
LNMVAL	?	0.0000-	0.0001	0.12-	0.9021
AF	?	0.0000	0.0000	0.51	0.6122
#WORDSANAL	?	0.0000	0.0000	0.25	0.8013
QTR2	?	0.0002-	0.0004	0.51-	0.6089
QTR3	?	0.0003-	0.0004	0.78-	0.4342
QTR4	?	0.0003-	0.0004	0.68-	0.4971
Y2003	?	0.0005	0.0004	1.36	0.1734
Y2004	?	0.0001-	0.0003	0.36-	0.7198

N = 6,666

4.4.2   Effect of bad news on reflection of analysts' true beliefs

In Hypothesis 2, we predict that analysts are less likely to express their true beliefs about the firm's future prospects during a conference call when the firm announces bad news compared to when the firm announces good news. We test this hypothesis for both accounting bad news (missed median forecast) and market bad news (negative stock return on the earnings announcement). To test Hypothesis 2, we use the following models:

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[73] See variable definitions on Table 2. QTR2, QTR3 and QTR4 are dummy variables equal to 1 if the conference calls relate to fiscal quarters 2, 3 and 4 respectively. Y2004 and Y2005 are dummy variables equal to 1 if the conference calls are in 2004 and 2005 respectively.

[74] p-values are one tailed for variables with directional predictions and are two tailed otherwise.

$$OPT^{ANAL} = \beta_0 + \beta_1 FREV + \beta_2 MISS + \beta_3 FREV * MISS + \beta_4 OPT^{MGMT} + \beta_5 OPT^{PRES} +$$
$$+ \beta_6 CHANGEROA + \beta_7 RET^{DAYB4} + \beta_8 FERROR + \beta_9 RET^{QTR} + \beta_{10} MB + \beta_{11} LNMVAL +$$
$$+ \beta_{12} AF + \beta_{13} \#WORDSANAL + \beta_{14} QTR2 + \beta_{15} QTR3 + \beta_{16} QTR4 + \beta_{17} Y2003$$
$$+ \beta_{18} Y2004 + \varepsilon$$

$$OPT^{ANAL} = \beta_0 + \beta_1 FREV + \beta_2 NEGRET^{DAYB4} + \beta_3 FREV * NEGRET^{DAYB4} + \beta_4 OPT^{MGMT} +$$
$$+ \beta_5 OPT^{PRES} + \beta_6 CHANGEROA + \beta_7 RET^{DAYB4} + \beta_8 FERROR + \beta_9 RET^{QTR} + \beta_{10} MB +$$
$$+ \beta_{11} LNMVAL + + \beta_{12} AF + \beta_{13} \#WORDSANAL + \beta_{14} QTR2 + \beta_{15} QTR3 + \beta_{16} QTR4 + \beta_{17} Y2003$$
$$+ \beta_{18} Y2004 + \varepsilon$$

In both regressions, we are interested in coefficient β_3. If β_3 is positive and significant, analysts moderate the tone of their questions and comments when there is (accounting) bad news. We further predict that there is a positive association between the analysts' true optimism (Forecast Revision, FREV) and the optimism voiced on the conference call (OPT^{ANAL}). Besides, we also predict that analyst optimism will be lower when the firm misses the earnings per share forecast (MISS) or when the market reacts negatively to the earnings announcement ($NEGRET^{DAYB4}$).

The results of our analyses are presented in Table 4.5. We use industry-fixed effects. Further, since we have multiple observations for each firm and conference calls may cluster around the same dates, we report standard errors that are clustered by firm and by the date of the conference call[75].

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[75] Our results are inferentially the same when we do not cluster standard errors or when we only cluster on firm.

Table 4.5

Reflection of analysts' true beliefs in case of bad news

Panel A: Earnings bad news

Variables[77]	Predicted sign	Parameter estimate	Standard error	t-value	p-value[76]
FREV	+	0.0863	0.0146	5.930	<.0001
MISS	-	0.0008-	0.0001	7.840-	<.0001
FREV*MISS	-	0.0395-	0.0229	1.730-	0.0418
OPTMGMT	?	0.1554	0.0126	12.360	<.0001
OPTPRES	?	0.0880	0.0088	9.970	<.0001
ChangeROA	?	0.0077	0.0027	2.810	0.0050
RETDAYB4	?	0.0011	0.0003	3.640	0.0003
MB	?	0.0000	0.0000	0.790	0.4316
LNMVAL	?	0.0002-	0.0000	4.740-	<.0001
AF	?	0.0000	0.0000	3.550	0.0004
#WORDSANAL	?	0.0000-	0.0000	10.780-	<.0001
QTR2	?	0.0002	0.0001	1.420	0.1571
QTR3	?	0.0001-	0.0001	0.790-	0.4298
QTR4	?	0.0000-	0.0001	0.400-	0.6912
Y2003	?	0.0003	0.0001	3.350	0.0008
Y2004	?	0.0001	0.0001	1.270	0.2046

N = 6,666

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[76] p-values are one tailed for variables with directional predictions and are two tailed otherwise.

[77] See variable definitions on Table 2. QTR2, QTR3 and QTR4 are dummy variables equal to 1 if the conference calls relate to fiscal quarters 2, 3 and 4 respectively. Y2004 and Y2005 are dummy variables equal to 1 if the conference calls are held in 2004 and 2005 respectively.

Panel B: Returns bad news

Variables[79]	Predicted sign	Parameter estimate	Standard error	t-value	p-value[78]
FREV	+	0.0953	0.0166	5.74	<.0001
NEGRETDAYB4	-	0.0008-	0.0001	9.73-	<.0001
FREV*NEGRETDAYB4	-	0.0468-	0.0218	2.14-	0.0161
OPTMGMT	?	0.1565	0.0125	12.51	<.0001
OPTPRES	?	0.0911	0.0087	10.43	<.0001
ChangeROA	?	0.0086	0.0027	3.16	0.0016
RETDAYB4	?	0.0014	0.0003	4.55	<.0001
MB	?	0.0000	0.0000	1.06	0.2914
LNMVAL	?	0.0002-	0.0000	4.84-	<.0001
AF	?	0.0000	0.0000	4.44	<.0001
#WORDSANAL	?	0.0000-	0.0000	10.79-	<.0001
QTR2	?	0.0002	0.0001	1.66	0.0964
QTR3	?	0.0001-	0.0001	0.62-	0.5351
QTR4	?	0.0000-	0.0001	0.12-	0.9078
Y2003	?	0.0004	0.0001	3.83	0.0001
Y2004	?	0.0001	0.0001	1.40	0.1623

N = 6,666

[78] p-values are one tailed for variables with directional predictions and are two tailed otherwise.

[79] See variable definitions on Table 2. QTR2, QTR3 and QTR4 are dummy variables equal to 1 if the conference calls relate to fiscal quarter 2, 3 and 4 respectively. Y2004 and Y2005 are dummy variables equal to 1 if the conference calls are held in 2004 and 2005 respectively.

The results in Panel A indicate that the coefficient on FREV*MISS is significantly negative (p-value = 0.0418), i.e., analysts do not fully voice their true optimism/pessimism when there is accounting bad news. As predicted, the coefficient on FREV is significantly positive (p-value <0.0001), and the coefficient on MISS is significantly negative (p-value <0.0001), i.e., as predicted, there is an association between the analysts' true optimism and the optimism voiced on the call. Analysts are less optimistic when there is accounting bad news. Panel B shows that the results are stronger when there is market bad news, defined as a negative return on the earnings announcement (FREV*MISS, p-value <0.0001; NEGRET^{DAYB4}, p-value <0.0001).

4.4.3   Effect of institutional holdings

We examine whether the analysts' optimism is associated with the level of institutional holdings in the firm. While literature generally recognises the analysts as potential monitors of the firm (Healy and Palepu, 2001), the effectiveness of this group of intermediaries to monitor managers has been called into question due to potential conflict of interests (Healy and Palepu, 2003). If conflict of interests exists, analysts may accommodate their comments and questions, during the earnings conference call, to their incentives. More specifically, analysts may not question or make a comment, because they are aware that their buy-side clients have invested in the firm and by asking critical questions or making pessimistic remarks they may jeopardise their relationship with their buy-side clients. The analyst may, therefore, rather not question or make the comment, but try to obtain or confirm the information in a subsequent one-on-one with the firm, and share that information exclusively with his/her buy-side client before making it public. Therefore, it is possible that analysts moderate the tone of their remarks about the firm's performance when their views are negative and institutional holdings are high. We, therefore, split our sample into a "negative view" sample and a "positive view" sample, based on analyst forecast revisions. When the analyst revises downwards, we include the observation in our "negative view" sample. Otherwise, the observation is included in our "positive view" sample.[80]

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[80] Alternatively, one can define a "negative view" as a revision that is lower than the average or median analyst revision for the industry in the quarter. In non-tabulated tests, we find that our results are robust if we split our sample on the mean or median forecast revision (divided by price) in the industry in the quarter of the conference call.

The introduction of Regulation Fair Disclosure may have aggravated this phenomenon. Due to Regulation Fair Disclosure, all buy-side analysts have access to conference calls, thus, increasing the possibility that the buy-side clients of sell-side analysts are listening in on the call or are reading the transcripts.

We, therefore, examine whether the extent to which the optimism of analysts reflects their true beliefs is affected by the level of institutional holdings. We assume that the analysts' true beliefs are reflected in the subsequent earnings forecast revision and we use the forecast revision as a proxy for the analysts' true beliefs. Hypothesis 3 poses that analysts are more likely to avoid expressing their true negative beliefs about a firm during the conference call when the firm has greater institutional ownership.

To test our hypothesis, we use the following model:

$$OPT^{ANAL} = \beta_0 + \beta_1 FREV + \beta_2 INSTHIGH + \beta_3 INSTHIGH * FREV + \beta_4 OPT^{MGMT} + \beta_5 OPT^{PRES} +$$
$$+ \beta_6 CHANGEROA + \beta_7 RET^{DAYB4} + \beta_8 FERROR + \beta_9 RET^{QTR} + \beta_{10} MB + \beta_{11} LNMVAL +$$
$$+ \beta_{12} AF + \beta_{13} \#WORDSANAL + \beta_{14} QTR2 + \beta_{15} QTR3 + \beta_{16} QTR4 + \beta_{17} yY2003 + \beta_{18} Y2004 + \varepsilon$$

We predict that β_1 is positive and significant, indicating that optimism of analysts during the discussion portion of the conference call reflects the analysts' true beliefs. We further predict that β_3 is negative and significant, indicating that high institutional holdings reduce the extent to which the optimism of analysts on the conference call reflects their true beliefs. Table 4.6 presents the result of our analysis.

Table 4.6

Effect of institutional holdings on reflection of optimism

Negative forecast revision sample

Variables[82]	Predicted sign	Parameter estimate	Standard error	t-value	p-value[81]
FREV	+	0.1173	0.0219	5.36	<.0001
INSTHIGH	?	0.0001-	0.0001	0.83-	0.4044
FREV*INSTHIGH	-	0.0989-	0.0276	3.58-	0.0002
FERROR	?	0.0327	0.0130	2.51	0.0122
OPTMGMT	?	0.1595	0.0164	9.70	<.0001
OPTPRES	?	0.0867	0.0119	7.30	<.0001
CHANGEROA	?	0.0080	0.0035	2.26	0.0236
RETDAYB4	?	0.0013	0.0004	3.42	0.0006
MB	?	0.0000	0.0000	1.47	0.1404
LNMVAL	?	0.0002-	0.0001	2.82-	0.0048
AF	?	0.0000	0.0000	1.80	0.0722
#WORDSANAL	?	0.0000-	0.0000	7.80-	<.0001
QTR2	?	0.0002	0.0001	1.23	0.2206
QTR3	?	0.0000-	0.0001	0.07-	0.9475
QTR4	?	0.0000	0.0001	0.27	0.7857
Y2003	?	0.0005	0.0001	3.71	0.0002
Y2004	?	0.0000-	0.0001	0.15-	0.8833

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[81] p-values are one tailed for variables with directional predictions and are two tailed otherwise.

[82] See variable definitions on Table 2. QTR2, QTR3 and QTR4 are dummy variables equal to 1 if the conference calls relate to fiscal quarters 2, 3 and 4 respectively. Y2004 and Y2005 are dummy variables equal to 1 if the conference calls are held in 2004 and 2005 respectively.

The results in Table 4.6 show that the analysts' negative true beliefs are reflected in the optimism/pessimism of analysts during the call. Further, the results confirm that the analysts' true beliefs are less reflected in the optimism voiced on the conference call, when institutional holdings are high. Non-tabulated results for the positive forecast revision sample indicate that institutional holdings have no effect on the extent to which positive true beliefs are reflected in the optimism voiced by analysts on the conference call.

4.5   Conclusions

The purpose of this research is to investigate whether analysts reveal their true beliefs during conference calls as well as the circumstances under which they may choose to mask them. We investigate this issue using textual analysis of conference call transcripts. We count words with a positive tone and words with a negative tone used by analysts in the discussion portion of the conference call. These counts are used to construct a measure of the amount of optimistic/pessimistic language used by analysts.

In our first test, we examine whether optimistic language of analysts is informative to the market. We find a positive association between the optimistic language used by analysts during the discussion portion of the conference call and contemporaneous stock returns. We infer that the optimistic language used by analysts is informative. Our results suggest that analysts can impact a company's stock price by their comments and questions during the discussion portion of a conference call. With this, we extend the findings of Davis et al. (2008) — optimistic language used by management in the earning press release is informative — to *analysts'* optimism/pessimism expressed during the discussion portion of conference calls.

Prior research suggests that analysts have multiple incentives to avoid issuing negative information about a firm, including investment banking relationships (O'Brien, McNichols and Lin 2005) and preserving access to management-provided information (Chen and Matsumoto 2006 and Mayew 2008). Our second set of tests suggest that the lack of accountability for language used in conference calls coupled with the pressure to appease management result in biased view of analysts expressed during conference calls. We find that analysts are less likely to express their true beliefs when the firm announces bad news compared to when the firm announces good news.

The incentive for analysts to avoid negative views on the firm to win management's favour — either because of investment banking relationship and/or to maintain access to company-provided information — is well studied in the literature. Another less-studied incentive that potentially impacts analysts' decisions is the incentive to preserve the

information advantage of their institutional clients. In our third set of tests, we find that analysts are more likely to avoid expressing their true negative beliefs about a firm during the conference call when the firm has greater institutional ownership. Institutional investors are likely to prefer that analysts do not reveal their true beliefs during the conference call but communicate their thoughts privately. This preference is likely to be greater in the face of bad news because it is often difficult for institutions to unwind their positions in a firm quickly, particularly if they have large stakes in the firm. Our results suggest that analysts bias the language of conference calls to appease their buy-side institutional clients and to preserve the information advantage of their institutional clients. Analysts appease their buy-side clients because they are normally paid by these clients through soft-dollar arrangements.

To summarise, our results indicate that the optimism reflected in the discussion portion of conference calls is biased. This bias may partly be due to analysts appeasing management in order to maintain access to management. However, our tests further suggest that the positive relation between the analysts' true beliefs and the optimism voiced on the conference call is attenuated for firms with greater institutional investors. This result is consistent with analysts biasing their language during conference calls to preserve the information advantage of their institutional clients'. Instead of voicing their true beliefs on the conference call, analysts may communicate their opinions at the conclusion of the call and prior to the release of any revisions in their forecasts and/or recommendations.

5   Conclusion

Over the past two decades, conference calls with analysts have gained a prominent place in investor communications. Their flexibility, interactivity and relatively informal nature have been mentioned as primary advantages of conference calls. This suggests conference calls play an active role in informing capital markets. What the exact nature of that role is, is an empirical question. This research provides evidence on that question.

From the first study in this research, it can be concluded that one of the primary benefits of hosting a conference call — as opposed to simply issuing an earnings press release — is that analysts are able to play an active role in uncovering information about the firm, resulting in a richer information environment.. By probing managers more when they provide relatively little information, the information flow to capital markets increases. More specifically, this study finds that unexpectedly low levels of financial disclosures in the presentation by management, result in more financially focused questions by analysts. Contrary to what one might expect, discussion periods are not shorter when managers provide more forward-looking disclosures. Rather, discussion periods appear longer after unexpectedly high levels of forward-looking disclosures in the discussion portion, suggesting that analysts demand confirmation of forward-looking disclosures. This study also provides evidence to suggest that, in general, more words spoken during calls do represent more information, i.e. when the call is longer, the revisions of analyst earnings forecasts are greater.

The second study in this research provides evidence on the nature of the information in the conference call that is provided to capital markets over and above the information in the earnings press release. It indicates that the conference call, at least partially, compensates for the insufficient disclosures about intangible assets in earnings announcements, management forecasts, press releases or other financial statements. Disclosures about innovation and infrastructure intangible assets, external intangible assets as well as human intangible assets have information content, i.e. these disclosures move stock prices. This result holds for both the presentation as well as the discussion portion of the conference call. This study also finds that intangible asset disclosures in conference calls are "sticky": disclosures in the presentation portion of one conference call is likely to be discussed in the presentation portion of subsequent conference calls as well. This suggests that managers informally commit to a policy to provide disclosures about intangible assets.

Further, this study suggests that managers use the conference call to learn about the information needs of analysts with respect to intangible assets. If analysts ask a question about intangible assets, managers are more likely to voluntarily provide information on that category of intangible assets in future conference calls.

In the last study in this research, the tone of language in conference calls is studied. More specifically, it is investigated whether the specific setting of the conference call makes analysts bias their tone of language. The results suggest that analysts bias the language of conference calls. This bias may partly be due to analysts appeasing management in order to maintain access to management. However, the study also finds that analysts bias their language to appease their buy-side institutional clients and to preserve the information advantage of their institutional clients.

Overall, the results of this research suggest that the conference call plays an active role in informing capital markets. The conference call adds to the information environment by providing analysts the opportunity to probe management, and by providing relevant disclosures about intangible assets over and above the earnings press release. However, the research also suggests that analysts participating in the call are not neutral, but bias their language in the conference call to appease management and their buy-side institutional clients.

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Summary

Conference calls held in conjunction with an earnings release have become increasingly common in recent years, yet there is little evidence on the reason these calls are incrementally informative over the accompanying press release. In Chapter 2 of this dissertation, one potential source for the incremental informativenature of conference calls is examined – the ability of analysts to elicit new information from managers during the discussion portion of the call. Using a sample of over 10,000 conference call transcripts, the relation between information provided by managers during the presentation portion of conference calls and the subsequent discussion period with analysts is examined. I find that when managers provide abnormally low levels of disclosure during the presentation portion of the call, analyst discussion periods are longer. In addition, the relation between low disclosure in the presentation and longer discussion periods is stronger for firms with greater analyst following. I also present evidence that, in general, longer calls are more informative to the market – they are associated with larger analyst forecast revisions and improvements in analysts' forecast accuracy. Finally, I explore whether certain types of disclosures during the presentation lead to shorter discussions. I find that greater financial disclosures lead to shorter discussions while greater forward-looking disclosures lead to longer discussions. Overall, the results suggest that analysts play an active role in uncovering information during conference calls, resulting in a richer information environment than might otherwise exist.

In Chapter 3, the relationship between intangible asset disclosures in conference calls and contemporaneous stock price reactions is examined. Based on intangible asset disclosures in over 8,000 earnings conference calls, I provide evidence that stock markets respond to disclosures of intangible asset information in conference calls. In addition, I find that intangible asset disclosures are "sticky": once information about intangible assets is presented in the presentation portion of a conference call, it is more likely that information about the same category of intangible assets will be discussed in the presentation portion of subsequent conference calls. The one exception is information about external intangible assets; managers are not more likely to disclose information about external intangible assets once they have done so in the past. Together with our finding that the information content of disclosures about external intangible assets in the discussion portion is least pronounced, this result suggest that managers are selective in the disclosures they provide about external intangible assets. Finally, I find that managers learn about the information

needs of analysts from the questions about intangible assets that are raised by analysts during the discussion portion of the call, i.e. in the next conference call, managers are more likely to voluntarily provide information on these intangible assets in the presentation. Jointly, these results suggest that disclosures about intangible asset - are informative, managers try to tailor their disclosures to the demands of analysts, but managers are more selective with respect to disclosures about external intangible assets.

In Chapter 4, I investigate whether analysts reveal their true beliefs during conference calls and the circumstances under which they may choose to mask them. I investigate this issue using textual analysis of conference call transcripts. I count words with a positive tone and words with a negative tone used by analysts in the discussion portion of the conference call. These counts are used to construct a measure of the amount of optimistic/pessimistic language used by analysts. I examine whether optimistic language voiced by analysts is informative to the market. I find a positive association between the optimistic language used by analysts during the discussion phase of the conference call, and contemporaneous stock returns. I infer that the optimistic language used by analysts is informative.

In subsequent tests, I examine whether analysts are less likely to express their true beliefs when the firm announces bad news relative to when the firm announces good news, and whether the optimistic language used by analysts is affected by institutional holdings in the firm. Analyst optimism is potentially impacted by the incentive to preserve access to management and to preserve the information advantage of their institutional clients.

My results indicate that the optimism reflected in the discussion portion of conference calls is biased. I find that analysts are more likely to avoid expressing their true negative beliefs about a firm during the conference call when the firm announces bad news. Further, if the analyst's true beliefs are pessimistic, the analyst is less likely to voice her true beliefs on the conference call. Institutional investors likely prefer analysts not to reveal their true beliefs during the conference call but rather to communicate their thoughts privately. My results suggest that analysts add bias to the language used in conference calls to appease their buy-side institutional clients, and to preserve the information advantage of their institutional clients. Analysts have incentives to appease their buy-side clients, because they are normally paid by their buy-side clients through soft dollar arrangements.

Collectively, the research presented in this dissertation provides evidence of the relevance of earnings conference calls as a disclosure event. It further suggests that the dynamics of conference calls affect the information production in capital markets, and the way in which information flows to the market. The better understanding of why conference calls are useful and how the dynamics of the call affect information production should be useful

knowledge for regulators and standard setters. This knowledge may be considered in developing new accounting standards for the disclosure of intangible assets and for assessing the effectiveness of Regulation Fair Disclosure.

Samenvatting

Conference calls die naar aanleiding van een kwartaalbericht worden gehouden, zijn de laatste jaren steeds populairder geworden, maar er is weinig bewijs voor het incrementele nut dat een conference call heeft boven het kwartaalbericht. In hoofdstuk 2 van dit proefschrift wordt één potentiële factor die in additioneel nut kan resulteren onderzocht, de mogelijkheid om gedurende het vraag-en-antwoord deel van de conference call nieuwe informatie aan het management te ontlokken. Op basis van een steekproef van ongeveer tienduizend transcripties van conference calls, onderzoek ik de relatie tussen het deel van de conference call waarin het management een presentatie geeft en het discussiedeel van de conference call. Ik vind dat de discussieperiode van de conference call langer wordt naar mate het management in de presentatie abnormaal weinig toelichting geeft. Daarnaast is de relatie tussen weinig toelichting in de presentatie en langere discussies sterker naarmate meer analisten de onderneming volgen. Ook vind ik bewijs dat (in het algemeen) langere calls meer informatief zijn voor de markt; langere calls zijn gerelateerd aan grotere opvolgende aanpassingen in de voorspellingen van analisten en een verbetering in de juistheid van de voorspellingen van analisten. Ten slotte onderzoek ik of bepaalde typen toelichtingen in de presentatie, leiden tot kortere discussie. Ik vind dat meer financieel getinte toelichtingen in de presentatie leiden tot een kortere discussie, terwijl meer toekomstgerichte toelichtingen tot een langere discussie leiden. Bij elkaar genomen, suggereren deze resultaten dat analisten tijdens de conference call een actieve rol spelen in het onthullen van informatie, waardoor een rijkere informatieomgeving ontstaat dan anders het geval zou zijn.

In hoofdstuk 3 van dit proefschrift wordt de relatie tussen toelichtingen over immateriële activa in conference calls en gelijktijdige aandelenkoersreacties onderzocht. Op basis van toelichtingen over immateriële activa in meer dan 8.000 conference calls, geef ik bewijs dat aandelenmarkten reageren op toelichtingen over immateriële activa. Daarnaast vind ik dat toelichtingen over immateriële activa "vasthoudend" zijn: zodra er informatie over immateriële activa wordt verstrekt in het presentatiedeel, is het meer waarschijnlijk dat in volgende presentaties van conference calls ook informatie over die categorie immateriële activa wordt verstrekt. De enige uitzondering betreft externe immateriële activa; het is niet meer waarschijnlijk dat managers informatie over externe immateriële activa gaan verstrekken zodra ze dat al een keer hebben gedaan. Gezamenlijk met mijn bevinding dat de koersreacties op informatie die over externe immateriële activa in het discussiedeel worden verstrekt het minst geprononceerd zijn, suggereert dit resultaat dat managers selectief zijn in de informatie die zij verschaffen over externe immateriële activa. Ten slotte vind ik dat managers leren wat de informatiebehoefte van analisten is door middel

van de vragen die analisten stellen gedurende het discussiedeel, dat wil zeggen: in de volgende conference call is het meer waarschijnlijk dat managers vrijwillig informatie over dezelfde categorie immateriële activa verstrekken. Gezamenlijk suggereren deze resultaten dat toelichtingen over immateriële activa in een conference call informatief zijn, dat managers hun toelichtingen aanpassen op de behoefte van analisten, maar dat managers meer selectief zijn ten aanzien van de informatie over externe immateriële activa.

In hoofdstuk 4 onderzoek ik of analisten op conference calls hun echte mening uiten en de omstandigheden waaronder ze hun echte mening mogelijk verhullen. Ik onderzoek dit door middel van tekstuele analyse van transcripties van conference calls. Ik tel de door analisten gebruikte woorden met een positieve toon en de woorden met een negatieve toon, in het discussiedeel van de conference call. Deze tellingen worden gebruikt om een maatstaf voor het optimistische/pessimistische taalgebruik van analisten te construeren. Ik onderzoek of het optimistische taalgebruik van analisten informatief is voor de markt. Ik vind dat er een positief verband bestaat tussen de optimistische taal die door analisten in de conference call wordt gebruikt en de gelijktijdige aandelenkoersen. Ik leid daar uit af dat optimistisch taalgebruik door analisten informatief is voor beleggers.

In aanvullende toetsen, onderzoek ik of het minder waarschijnlijk is dat analisten hun echte mening op conference calls uiten wanneer de onderneming slecht nieuws aankondigt ten opzichte van wanneer de onderneming goed nieuws aankondigt en of optimistisch taalgebruik wordt beïnvloed door de belangen van institutionele beleggers in de onderneming. Het optimisme van analisten wordt mogelijk beïnvloed door het belang dat analisten hebben om toegang tot het management te hebben en het belang om de informatievoorsprong die hun institutionele beleggers hebben te behouden.

Mijn resultaten tonen aan dat het optimisme in het discussiedeel van de conference call vertekend is. Ik vind dat het meer waarschijnlijk is dat analisten vermijden om negatieve meningen te uiten op de conference call, wanneer de onderneming slecht nieuws heeft aangekondigd. Daarnaast vind ik dat, indien de analist in werkelijkheid pessimistisch is, het minder waarschijnlijk is dat de analist dit pessimisme uit wanneer de belangen van institutionele beleggers in de onderneming groter zijn. Institutionele beleggers hebben er waarschijnlijk een voorkeur voor dat analisten het pessimisme niet uiten in de conference call, maar in plaats daarvan hun mening niet-publiekelijk delen. Mijn resultaten suggereren dat analisten hun taalgebruik aanpassen om hun institutionele klanten te behagen en om de informatievoorsprong van hun institutionele klanten te behouden. Analisten hebben er belang bij om hun institutionele klanten te behagen, omdat zij doorgaans worden betaald door hun institutionele klanten door middel van zogenaamde "soft dollar" regelingen.

Gezamenlijk geeft het onderzoek dat in dit proefschrift wordt gepresenteerd bewijs van de relevantie van conference calls als een medium voor beleggersinformatie. Het suggereert tevens dat de dynamiek van conference calls de informatieproductie door kapitaalmarkten beïnvloedt en de manier waarop informatie naar de markt vloeit beïnvloedt. Dit betere begrip van de redenen waarom conference calls relevant zijn en hoe zij informatieproductie beïnvloeden kan nuttige kennis zijn voor toezichthouders en regelgevers. Deze kennis kan overwogen worden bij het ontwikkelen van nieuwe regels voor verslaggeving over immateriële activa en voor de beoordeling van de effectiviteit van Regulation Fair Disclosure.

About the author

Erik Roelofsen received his Masters of Science in Business Administration from the Rotterdam School of Management, Erasmus University (The Netherlands), majoring in Financial Management and Change Management. He obtained his qualification as a *Registeraccountant* (registered auditor) from the University of Tilburg (The Netherlands).

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This research sheds more light on the role of conference calls in capital markets by analysing a large sample of conference call transcripts, analyst forecasts, and contemporaneous stock market reactions. The study investigates why conference calls are useful. The analysis shows that managers who provide little information in their presentation are actively probed by analysts. Hence, the interactivity of the call enriches the information environment. In a second study, evidence is presented that information about intangible assets is one of the items in conference calls that moves stock markets. This study also shows that managers use the conference call to learn about the information needs of analysts with respect to intangible assets. A third study suggests that sell-side analysts do not voice their true beliefs on conference calls in an attempt to favour their buy-side clients.

Collectively, these results provide evidence that conference calls with analysts enrich the information environment, but their usefulness may be restricted by analyst incentives.

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