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**THE EFFECTS OF LANGUAGE POWER AND COMMUNICATION
MODE ON INVESTOR JUDGMENTS**

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Abstract

In this study, I examined how, in the context of the question and answer (Q&A) segment of earnings calls, language power contained in a manager's speech (powerful or powerless) interacts with the mode by which the manager's speech is communicated to investors (audio recording or written transcript) to influence investor judgments of the attractiveness of a target company as an investment opportunity (i.e. persuasion). I used a controlled experiment to provide insights into this research question. I found that that language power in a manager's speech had no influence on investor judgments of a target company when earnings call information is transmitted via written transcripts. In contrast, when earnings call information was transmitted via audio recordings, investor judgments were more negative when the manager speaking on the call used powerless language than when he used powerful language. In addition, when earnings calls were transmitted via audio recordings, the valence of participants' speaker-related thoughts were more negative when the manager used powerless language in his speech than when he used powerful language. The results also showed that the effects of language power on investor judgments were mediated by the valence of participants' speaker-related thoughts when earnings calls were transmitted via audio recordings. Further analysis that I conducted provided evidence to suggest that non-verbal hesitations might have compensated for the negative effects of other powerless language cues (i.e. verbal hesitations and hedges) on investor judgments when earnings calls were transmitted via audio recordings. My study extends the literature on linguistic analysis by using an experiment to hold constant other aspects of a manager's speech, and showing that language power plays an incremental role in influencing

investor judgments. It is also the first to examine the relative effects of audio and text based disclosure on investor judgments.

1. Introduction

While traditional research on financial reporting has focused on numerical financial information, there has been a growing trend of recent research examining the broader realm of non-financial information that accompanies financial reporting. In particular, recognizing that “language is the medium through which companies communicate much of the information on their past and projected future performance” (Hales et al. 2011), there has been a growing research focus on the various dimensions of language that is used in disclosure and also on the modes by which that information is transmitted.

For instance, Tan et al. (2015) and Rennekamp (2012) examined the effects of the readability of disclosures on investor judgments. In particular, in examining how the readability of information influenced processing fluency, Rennekamp (2012) found that disclosures that were presented in more readable formats led to stronger reactions from investors. Tan et al. (2015) extended research in this area by studying how language sentiment (and investor sophistication) effects were conditional on the readability of information, and found that when disclosures were readable, language framing effects did not influence investor reactions. In contrast, when disclosures were less readable, language framing effects had different effects on sophisticated and less sophisticated investors. Hales et al. (2011), in studying how language influenced judgments, looked at the effects of the vividness of language on investor judgments. They found that when news flashes were preference-consistent, investors were insensitive to the use of vivid (versus pallid) language. In contrast, when news flashes were preference-inconsistent, investors reacted more strongly to the use of vivid language than to the use of pallid language.

Additionally, archival studies have also examined language effects. Price et al. (2012) analyzed the effects of the tone (i.e. sentiment) of language used in the Q&A segment of earnings calls on market reactions. Other studies such as Loughran and McDonald (2011) and Loughran and McDonald (2015) also examined the relationship between the tone of language used in 10-K filings and variables such as returns, trading volumes, and return volatility. Further, Li (2008) analyzed the relationship between the readability of annual reports (using the fog index) and firm performance.

At the same time, in examining the effects of communication mode on investor judgments, Elliott et al. (2011) found that disclosures made via video communication led to stronger investor reactions than disclosures made via text communication.

In this study, I extend the literature in this area by examining how, in the context of the question and answer (Q&A) segment of earnings calls, the language power contained in a manager's speech (powerful or powerless) interacts with the mode by which the manager's speech is communicated to investors (audio recording or written transcript) to influence investor judgments of the attractiveness of a target company as an investment opportunity (i.e. persuasion).

Language, particularly in speech, has been classified in the literature as being powerful or powerless (O'Barr 1982). Powerless language in the current context refers to speech containing powerless language cues such as non-verbal hesitations (e.g. "umm," "ehhh"), verbal hesitations (e.g. "well," "you know," "I mean"), and hedges (e.g. "I guess," "kind of," "sort of") while powerful language is characterized by speech marked by the absence of such powerless language cues.

I examined the effects of language power on investor judgments in the context of the Q&A segment of earnings calls, which have become an increasingly common form of corporate voluntary disclosure (Bushee et al. 2003). Prior research suggests that earnings calls are incrementally informative over accompanying press releases (Matsumoto et al. 2011), and that verbal and non-verbal cues exhibited by managers during the Q&A segments of earnings calls can influence market reactions (Tetlock 2007; Mayew and Venkatachalam 2012).

In practice, firms typically conduct earnings calls on a quarterly basis to discuss quarterly earnings results. An earnings call begins with prepared statements by management which reiterates earnings information contained in press releases, and is then followed by a Q&A segment where analysts can ask questions of management (Price et al. 2012). While managers tend to use formal language when reading from their scripted prepared statements, they typically revert to using more “natural language” during the Q&A segment of earnings calls (Price et al. 2012; Core 2001). Consequently, it is likely for there to be substantial variation in the language power that managers employ during the Q&A segment of earnings calls. In preliminary analysis that I conducted on a sample of US firms, I found that managers’ use of powerless language during the Q&A segments of earnings calls ranged from a low of 2.86 cues/minute to a high of 11.59 cues/minute.¹ As such, the Q&A segment of earnings calls represents a suitable setting for my study and is important because it closely reflects a situation which routinely occurs in practice.

¹ The sample consisted of earnings calls conducted by twenty firms. To obtain a wide sample of firms, ten firms were each randomly selected from listings on the New York Stock Exchange (NYSE) and NASDAQ. These twenty firms differed in size, with their market capitalizations (as at May 2015) ranging from US\$0.7B to US\$368.3B. The firms also operated in a variety of sectors including basic materials, consumer goods, healthcare, industrial goods, services, and technology. The earnings calls examined were conducted in relation to the firms’ announcements of earnings for the periods between Q3 2012 and Q2 2013, and the lengths of Q&A segments analyzed ranged from 2 minutes 23 seconds to 7 minutes 36 seconds. A summary of the findings are presented in Appendix (A).

Earnings calls can be accessed publicly in several ways. In addition to the “live” calls which investors and analysts can dial-in to, firms frequently also upload written transcripts and/or audio recordings of the calls onto their websites after the event for the public to access on-demand. This practice raises the possibility of investors and stakeholders in a company accessing the same earnings call information via different communication modes. In examining how communication mode can influence investor decisions when accessing information from earnings calls, my study builds on prior research which has found that people, including investors, can react differently when accessing the same set of information communicated via different modes (e.g. Chaiken and Eagly 1976; Chaiken and Eagly 1983; Elliott et al. 2011).

Recent research has sought to examine the relationship between language power, communication mode, and persuasion, with dual process theories such as the Heuristic-Systematic Model (Chaiken 1980) and the Elaboration Likelihood Model (ELM; Petty and Cacioppo 1986) being the most widely used guides to studying the effects of the relationship. In particular, the ELM specifies that in high elaboration likelihood situations when both the motivation and ability of a message recipient to process a message is high, persuasion is more likely to occur via the central route, with message recipients processing information in a systematic manner and basing judgments on thorough analyses of the contents of the arguments put forth in the message. However, in low elaboration likelihood situations when either the motivation or ability (or both) to process a message is low, persuasion is instead more likely to occur via the peripheral route, with message recipients forming heuristic judgments based on peripheral cues rather than on systematic processing of arguments presented.

Prior studies have typically examined the motivation of message recipients to process messages by varying the level of personal involvement of messages to those recipients. In those studies, the personal relevance of messages was manipulated by presenting participants with messages which were either of “intrinsic importance” (Sherif and Hovland 1961) or of high “personal meaning” (Sherif et al. 1973). In the context of my study, all participants were told to take on the role of potential investors assessing the earnings prospects of a fictitious firm based on financial and earnings call information from the firm’s performance in the latest quarter. Given that participants were placed in a situation where they were to make an imminent personal investment decision, they were likely to have regarded the context of the study to be of relatively high personal involvement. As such, motivation for all participants in my study to process messages is likely to have been high.

At the same time, prior research has also examined factors influencing the ability of participants to process arguments. In this regard, Sparks et al. (1998) examined the effects of language power on persuasion as a function of the mode of communication (written vs. audio vs. video) and found that whereas language power did not have any effect (or had a weak effect) on persuasion when a message was communicated in written form, it had a significant effect on persuasion when the same message was communicated in both audio and video forms. Following from the ELM, they attributed this to the fact that written transcripts enhanced participants’ abilities to process messages received. Accordingly, participants were then able to process information via central route processes and make judgments of received messages based on through analysis of the arguments put forth while ignoring the

speaker's use of powerless language cues (which were regarded as being irrelevant in judging the merits of the presented arguments).

On the other hand, audio and video recordings had the effect of reducing participants' abilities to process messages received. Consequently, participants were more likely to process information via peripheral route processes and make heuristic judgments of received messages based on their judgments of the personal characteristics of the speaker, which were in turn negatively influenced by the extent of his use of powerless language in his speech.²

Although Areni and Sparks (2005) later found that language power influenced persuasion not only when messages were communicated using video recordings but also when written transcripts were used, they were unable to provide conclusive evidence that powerless language cues had functioned as biasing cues and had a (negative) biasing effect on systematic processing of arguments contained in the written transcripts, as they had predicted based on the ELM. In fact, it should be noted that various other prior studies examining persuasion within the framework of the ELM have concluded that effortful processing of arguments often "overwhelmed the impact" of potential biasing cues (Petty et al. 1998) or caused participants to examine the potential biasing cues as a piece of issue-relevant information (i.e., treating it as an argument) thus making them realize that such cues were irrelevant to their judgments (Petty et al. 1994).

Instead, prior studies examining the effects of language power and communication mode on persuasion leave open the possibility that peripheral route processes could have had an unexpectedly large influence on persuasion, because participants might

² The personal characteristics of the speaker were rated on dimensions such as aggressiveness, honesty, credibility, and strength.

have had lower levels of motivation to process information despite having the ability to do so. These possible effects of peripheral route processes occurring when messages were presented as written transcripts are arguably less likely to be observed in my current earnings call setting where participants, taking on the roles of potential investors in a target firm, are expected to be relatively more motivated, due to the higher personal involvement of the experimental task.

As such, it is likely that when participants receive messages as written transcripts and have both the ability and motivation to process arguments (as in my study), systematic processing of the merits of presented arguments will dominate judgment. Consequently, powerless language cues (whether functioning as peripheral or biasing cues) should not be expected to have substantial effects on judgments.

Therefore, drawing on the ELM, I predict that when earnings call information is communicated as a written transcript and investors have both the motivation and ability to process earnings call information, central route processes will dominate, and investors will base their judgments of the manager's speech substantially on systematic analyses of the merits of the arguments made by the manager.

Consequently, when earnings call information is communicated as a written transcript, language power will be regarded as irrelevant or less important in assessing the merits of arguments put forth by the manager, resulting in language power having little or no effect on investor judgments of the company as an investment opportunity.

On the other hand, when earnings call information is communicated as an audio recording and investors lose the ability to systematically process earnings call information (due to, among other factors, the "real time" nature of audio

communication), peripheral route processes will dominate and investors will base their judgments on heuristic judgments of the manager's personal attributes. In this situation, investors are likely to use the language power cues in the manager's speech as peripheral cues in judging his or her personal attributes, and would in turn form the basis for the message recipients' heuristic judgments about the message itself. Consequently, when earnings call information is communicated as an audio recording, investors are expected to form less favorable attitudes towards the company as an investment opportunity when the manager uses powerless language than when he or she uses powerful language.

While prior studies such as Sparks et al. (1998) have examined similar issues, my study provides further insights into the effects of language power and communication mode on judgment in various ways. First, my study looks at the effects of language power in the unique context of the Q&A session of earnings calls. This represents a natural setting which routinely occurs in practice, where a large number of firms regularly communicate earnings call information via written transcripts and audio recordings, and where participants are arguably more comfortable and familiar with receiving information in either communication mode. This contrasts with prior studies which have examined these effects in a variety of other contexts—including a witness providing a court testimony (Erickson et al. 1978), a person providing a testimonial about a computer product (Areni and Sparks 2005; Sparks and Areni 2008), a sales trainee giving a presentation during a training program (Sparks and Areni 2002), and a marketing representative from a management company giving a presentation about privatizing a campus resident hall (Sparks et al. 1998)—where it is fairly unusual for information to be presented in verbatim text form in practice.

Areni and Sparks (2005), who observed an effect of language power on persuasion when messages were transmitted via written transcripts, described powerless language cues as “attractor(s) of attention” which can “render otherwise persuasive elements impotent” and “weaken the effects of central arguments.” Arguably, these characteristics of powerless language are likely to have been magnified in the various prior studies examining its effects in unfamiliar settings where messages are seldom transcribed in practice. In those unfamiliar settings, powerless language cues are likely to have been unexpected, and to have thus stood out even more to participants and weakened their abilities to systematically process arguments. Conversely, examining language power in the more familiar context of the Q&A segment of an earnings call was likely to have reduced the influence of powerless language cues when messages were transmitted via written transcripts. In particular, investors, who as a group, are regularly exposed to transcribed earnings calls in practice, could be expected to have been more adept at filtering out and ignoring (the irrelevant) powerless language cues in systematically analyzing presented arguments.³

Second, the Q&A session of an earnings call also represents a setting where analysts are allowed to ask questions of managers who are then expected to respond spontaneously. This expectation which message recipients have of managers speaking off the cuff is an important difference from prior studies which have generally examined the effects of language power in settings where the speaker is expected to have had the chance to prepare his or her speech beforehand. This is especially so given that prior studies have found that listeners'

³ Consistent with the expectation that participants in my study are broadly representative of actual investors, 48.50% of them indicated that they had made investments (in bonds, stocks, etc) and 57.40% of them indicated that they expected to make such investments in the next twelve months

judgments of disfluencies in speech can be affected by contextual factors such as whether a speech is presumed to be spontaneous or read (Dejoy and Jordan 1988). Specifically, Dejoy and Jordan (1988) found that listeners tended to rate read speech as being less “skilled” than spontaneous speech at certain (lower) levels of “interjections.” This led to their conclusion that such differences in judgments of spontaneous and read speech could have occurred because disfluencies in spontaneous speech are such common paralinguistic phenomena that listeners learn to tolerate or are not even aware of many of them. On the other hand, interjections in oral readings (i.e. read speech) may be more unexpected, thus calling the listener’s attention to the individual’s speech.

At the same time, however, it should be noted that although Dejoy and Jordan (1988) found that listener judgments of read speech were more negative than those of spontaneous speech, their findings also showed that listener judgments of spontaneous speech also started to become “generally negative” when the specified frequencies of interjections in speech reached 10% of possible juncture points in their experimental material. This threshold is slightly higher than the 5% frequency level that has been established in the literature as being the reported normative frequency for the adult population (Craven and Ryan 1985).

Therefore, given the unique situations that managers hosting Q&A sessions on earnings calls find themselves in, where they are expected to speak spontaneously while at the same time also expected to be fully knowledgeable of all aspects of their business (i.e. regarded as not read speech but also not fully spontaneous), it is uncertain how potential investors will react to their use of powerless language in their speech in the current context.

Third, unlike many prior studies, I examined two separate manipulations of powerless language pertinent to the unique circumstances of my study. Specifically, one manipulation included hedges, verbal hesitations, and non-verbal hesitations while the other manipulation included only hedges and verbal hesitations.⁴

Examining these two separate manipulations of powerless language allowed me to further analyze the specific effects of non-verbal hesitations on judgments in the earnings call setting. In this regard, prior studies such as Brennan and Williams (1995) have found evidence to suggest that a speaker's use of non-verbal hesitations (termed as "filled pauses" in their study) in providing spontaneous answers to questions can increase listeners' "feeling-of-another's-knowing" (FOAK) ratings of the speaker in certain contexts because, in using non-verbal hesitations, the speaker is perceived to be expending effort in searching for the correct answer to a question.⁵ As such, in the setting of my study where the manager is expected to respond extemporaneously to questions, non-verbal hesitations may, instead of having the predicted negative effects on judgment, be perceived by participants as being a positive sign of the manager searching for an appropriate response.

I examined these issues in an experimental setting. A laboratory experiment is particularly appropriate in the context of my research question because it allows for the manipulation of language power in the manager's speech while keeping other aspects of his or her speech constant across conditions. Additionally, an experiment

⁴ While the manipulation including only verbal hesitations and hedges was used in the main study, the other manipulation which additionally included non-verbal hesitations was examined in the Further Analysis section. These two separate manipulations of language power were included to better reflect actual practices which firms undertake in communicating earnings call information via written transcripts and audio recordings. This is discussed in further detail in the Method section.

⁵ In Brennan and Williams (1995), participants listened to a speaker spontaneously responding to a series of questions asked of him. Participants were then asked to assess their feelings that the speaker knew the correct answer to the questions (FOAK ratings) based on his responses which, depending on the experimental condition, either contained or did not contain non-verbal hesitations.

also allows for the manipulation of the mode by which participants accessed the earnings call which would be difficult to determine in an archival study.

In the experiment, participants assumed the roles of potential investors in a fictitious company. All participants were given background information about the company and summary financial statements from its most recent quarter. They were randomly assigned to experimental conditions where communication mode was manipulated by having them receive a speech that the CEO of the company had made during the Q&A segment of an earnings call either as a written transcript or as an audio recording. Further, language power was manipulated by presenting a CEO speech that either contained powerless language cues or which contained no such cues (i.e. powerful language) while keeping all other aspects of the speech constant (e.g. tone, pitch, speed, etc).⁶

I then elicited participant judgments of the company as an investment opportunity using four dependent variables. In addition, participants listed down all thoughts that they had while listening to the earnings call which were subsequently computed to create indices representing the extent of their speaker and argument-related thoughts. Participants were also asked a range of questions about both their perceptions of the personal characteristics of the CEO and their perceptions of the arguments put forth by the CEO.

My results indicate that language power in a manager's speech has no influence on investor judgments of a target company when earnings call information is transmitted via written transcripts. In contrast, when earnings call information is transmitted via

⁶ I used two manipulations of powerless language in my experiment. In the main experiment, I present the results for the manipulation of powerless language which contains verbal hesitations and hedges. To obtain additional insights into the effects of non-verbal hesitations on investor judgments, I examine a separate manipulation of powerless language containing non-verbal hesitations, verbal hesitations, and hedges. Refer to the Method section for more details.

audio recordings, investor judgments is more negative when the manager speaking on the call uses powerless language than when he uses powerful language. This negative influence of language power on investor judgments when earnings calls are transmitted via audio recordings could be attributed to the effects of language power on speaker-related thoughts. Specifically, I found that when earnings calls were transmitted via audio recordings, the valence of participants' speaker-related thoughts were more negative when the manager used powerless language in his speech than when he used powerful language. Further, the results also showed that the effects of language power on investor judgments were mediated by the valence of participants' speaker-related thoughts when earnings calls were transmitted via audio recordings.

In addition, further analysis suggests that non-verbal hesitations might compensate for the negative effects of other powerless language cues (i.e. verbal hesitations and hedges) on investor judgments when earnings calls are transmitted via audio recordings. When earnings calls were transmitted as audio recordings, there were no significant differences between participants' judgments when the manager used powerful language and powerless language which included non-verbal hesitations. Participants' judgments when the manager used powerless language that did not contain non-verbal hesitations were also significantly lower than judgments when he used powerless language that contained non-verbal hesitations.

The findings in my study contribute to academic research and to practice in several ways. Firstly, my study complements the extent research on the information content of qualitative aspects of disclosure. In particular, prior studies have established that qualitative verbal and non-verbal information in disclosures influence market reactions (Tetlock 2007; Mayew and Venkatachalam 2012; Price et al. 2012). Other

studies have also employed experiments to examine specific aspects of disclosure related to linguistics, with recent research looking at the readability (Tan et al. 2015; Rennekamp 2012) and vividness (Hales et al. 2011) aspects of language contained in disclosure. This study extends the literature on linguistic analysis by using an experiment to hold constant other aspects of a manager's speech (e.g. tone, rate of speech etc), and showing that language power plays an incremental role in influencing investor judgments.

Secondly, while prior studies have examined the relative effects of video and text based disclosures on investor judgments (Elliott et al. 2011), my study is the first to examine the relative effects of audio and text based disclosure on investor judgments. Given that technological advances have led to an increasing prevalence of companies making both audio and written versions of their earnings calls publicly available on their websites, my findings are particularly important for managers and investors in understanding how information communicated via these modes can differentially influence investor judgments.

The rest of my paper proceeds as follows. Section 2 describes the research setting and develops my hypotheses. Section 3 reports the method that I used to test the hypotheses. Section 4 presents the results while Section 5 conducts further analysis to provide additional insights into the findings. Finally, Section 6 concludes with a summary and a discussion of the results.

2. Background and Hypothesis Development

2.1. Communication modes in earnings calls

Over the past decade, earnings calls, frequently held in conjunction with an earnings release, have become increasingly common (Matsumoto et al. 2011). There are several ways by which investors and other stakeholders can access a firm's earnings call. Most directly, they can dial in to such earnings calls and listen in "live" as managers conduct the calls. Often, companies also choose to upload audio recordings and/or written transcripts of earnings calls onto their websites shortly after the event for investors to access at their convenience. These recordings and transcripts are usually uploaded with a time lag of about one day from the "live" calls.

Despite the time lag between "live" calls and the availability of audio recordings and transcripts of the calls on company websites, there is evidence to suggest that audio recordings and transcripts remain important sources of information for many investors and stakeholders. The media company, PR Newswire, recently conducted an investor survey of institutional investors, individual investors, and the financial media (Shareholder Confidence 365 Study 2013). Responses to the survey indicate that while 25.4% of respondents listened to earnings calls "live," 34.9% of respondents listened to earnings calls as a re-play from a company's investor relations website. Further, 47.9% of respondents said that they read transcripts of a company's earnings call.

2.2. Language power in earnings calls

During earnings calls, managers typically start with prepared (scripted) presentations during which they reiterate and expand on information contained in prior press releases. This is usually followed by a Q&A segment where analysts are free to ask questions of management (Price et al. 2012). While managers often read from (or even pre-record) scripts in the prepared presentation segments of earnings calls, the Q&A segments are often more free flowing, with analysts allowed to pose a wide range of questions to managers who frequently find themselves having to respond extemporaneously. In this respect, Mayew and Venkatachalan (2012), in examining audio recordings of earnings calls to determine managerial affective state (using voice detection software), described the opening segment of earnings calls as “mundane” and with “little cognitive investment” on the part of speakers. In contrast, they described the Q&A segment as the portion of the earnings call where speakers speak more naturally and which gives “the best chance of capturing affective states.”

Correspondingly, in this study, I examine the use of powerful and powerless language in the context of the Q&A session of an earnings call which is where variations in language power are likely to be most apparent.

Indeed, despite the inherent unpredictability associated with the questions that are asked during Q&A segments of earnings calls, only 76% of respondents in a 2011 National Investor Relations Institute (NIRI) survey indicated that they prepared scripted answers to anticipated Q&A questions, and only 75% said that they rehearsed earnings calls before the actual event (NIRI 2011). Given prior research findings that “hesitation disfluencies” in speech are more likely to occur when the topic is unfamiliar to the speaker (Bortfeld et al. 2001; Merlo and Mansur 2004), one

implication of the results of the NIRI survey for the current study is that less well prepared managers (comprising about a quarter of respondents) could perhaps be more likely to lapse into using powerless language than better prepared managers when answering questions (because they are less familiar with questions being asked, etc). This, coupled with the expectation of a pre-existing disparity in managers' natural tendencies to use powerless language in speech (i.e. eloquence), would suggest that there should be a fairly wide variation in terms of the language power displayed by managers during Q&A sessions.

Language power in speech can be classified as being powerless or powerful. O'Barr (1982) first studied a variety of powerless language cues in the context of witness testimonies in the courtroom. Subsequent research identified non-verbal hesitations (e.g. "umm," "ehhh"), verbal hesitations (e.g. "well," "you know," "I mean"), hedges (e.g. "I guess," "kind of," "sort of"), and tag questions (e.g. "that's how it happened, isn't it?") as being the strongest cues of powerless language (e.g. Bradac and Mulac 1984a; 1984b). Powerful language, on the other hand, has been characterized by the absence of such language cues.

Prior research has documented that speakers exhibiting powerful language are evaluated more positively than speakers exhibiting powerless language with respect to a wide range of personal attributes including social power, sociability, credibility, competence, attractiveness, and intelligence (Erickson et al. 1978; O'Barr 1982; Gibbons et al. 1991).

My study looks specifically at the persuasive effects of three categories of powerless language cues in managers' speech during the Q&A segments of earnings calls – (1) verbal hesitations, (2) non-verbal hesitations, and (3) hedges. These powerless

language cues are pertinent to the current research because, in preliminary analysis that I conducted on the Q&A segments of recent earnings calls hosted by a sample of US listed firms, non-verbal hesitations, verbal hesitations, and hedges were among the most frequently used powerless language cues among managers. Other forms of powerless language such as tag questions were only very rarely employed.⁷ Hence, the use of these cues in my study would best reflect how managers actually speak.

2.3. Effects of language power on persuasion

The elaboration likelihood model (ELM; Petty and Cacioppo 1986) has been widely used in the literature as a framework to study the relationship between language power, communication mode, and persuasion (e.g. Gibbons et al. 1991; Sparks et al. 1998; Areni and Sparks 2005).⁸ It makes reference to a continuum of persuasion processes, with the central route to persuasion on one end of the continuum and the peripheral route to persuasion on the opposite end. When both the motivation and ability of a message recipient to process a message is high (i.e. high elaboration likelihood), persuasion is more likely to occur via the central route. In such situations, message recipients process information in a systematic manner, and form judgments based on thorough analyses of the contents of the arguments put forth in the message.

In contrast, when either the motivation or ability (or both) to process a message is low (i.e. low elaboration likelihood), persuasion is likely to instead occur via the

⁷ Refer to appendix A for details on actual earnings call practices

⁸ The ELM is one of several dual-process theories that have been developed to represent the idea that cognitive operations can be partitioned into those which are quick and associative (“intuition”) and those which are slow and governed by rules (“reason”; Kahneman and Frederick 2005). For example, in the “system 1” and “System 2” processes first proposed by Stanovich and West (2000), System 1 operations have been described as “fast, automatic, effortless, associative, and difficult to control and modify” while those of System 2 have been described as “slower, serial, effortful, and deliberately controlled” (Kahneman 2002).

peripheral route. In such situations, message recipients form judgments of messages based on peripheral cues (i.e. heuristic judgments) rather than on systematic processing of arguments presented.

It should also be noted that the ELM suggests that elaboration likelihood exists on a continuum where persuasion via the central and peripheral routes can co-occur at varying levels such that as persuasion progresses along this continuum, there is a continuing “tradeoff between the impacts of argument elaboration and peripheral route processes on attitude” (Petty and Cacioppo 1986; see postulate 6).

At the same time, the ELM also specifies the ways by which communication variables, such as language power, can influence persuasion. Specifically, when elaboration likelihood is low, powerless language cues can function as peripheral cues, forming the basis for heuristic judgments. In this respect, previous research has clearly documented that powerless language cues can function as peripheral cues when the ability to process message details is low (i.e. low elaboration likelihood). Various studies (e.g. Sparks et al. 1998; Sparks and Areni 2002; Sparks and Areni 2008) have found that when a message is delivered as an audio recording, which limits the ability to process message details, message recipients are less likely to be able to systematically process presented arguments to reach carefully reasoned judgments.⁹ Instead, message recipients would be more likely to use the language power cues in a communicator’s speech as peripheral cues in judging his or her personal attributes (e.g. the use of powerless language leads to message recipients’ perceptions that a speaker lacks confidence, has low credibility, is

⁹ The effects of communication mode on elaboration likelihood are discussed in further detail in the next section.

incompetent, etc). Such judgments about the communicator would, in turn, form the basis for the message recipient's heuristic judgments about the message itself.

In contrast, when elaboration likelihood is relatively high, message recipients are more likely to rely on central route processes and make judgments by systematically processing arguments contained in messages. For instance, Sparks et al. (1998) and Gibbons et al. (1991) observed that language power had no effect on persuasion when the ability to process arguments was high (when messages were presented in written form). This was attributed to message recipients' abilities to ignore "irrelevant" language power cues (that were unrelated to the substance of the arguments made) when they had the ability to systematically process messages and make judgments based on the merits of arguments presented in the messages. Similarly, Erickson et al. (1978) found that while language power influenced the amount of damages awarded to a plaintiff in a mock jury trial when a witness testimony was presented as an audio tape, it did not affect the amount of damages awarded when the same testimony was presented as a written transcript.

While the ELM makes clear predictions, as described above, of how powerless language cues are likely to be ignored by message recipients when elaboration likelihood is high, it should be noted that the ELM also provides for the possibility that powerless language cues can influence judgments by functioning as biasing cues when elaboration likelihood is high. Specifically, when elaboration likelihood is high (as in the context of a written transcript), the ELM predicts that powerless language cues can still possibly influence persuasion by functioning as "biasing cues" which bias the valence of systematic processing.¹⁰ However, despite finding that language

¹⁰ Biasing can occur when the negative perceptions that a message recipient forms of a speaker (e.g., lack of confidence, etc) due to his use of powerless language are incorporated into the systematic processing of

power can sometimes influence persuasion even when elaboration likelihood is presumably high (Areni and Sparks 2005), the extent research has not found strong evidence to support this biasing effect of powerless language cues. Specifically, in predicting that language power would have a biasing influence on persuasion when messages were presented as written transcripts, Areni and Sparks (2005) hypothesized that when participants received messages as written transcripts, (1) they would form less favorable attitudes towards the message when the speaker used powerless language than when he used powerful language, (2) they would generate more negative argument-related thoughts when the speaker used powerless language than when he used powerful language, (3) they would generate more negative speaker-related thoughts when the speaker used powerless language than when he used powerful language, and (4) the effects of language power on persuasion would be mediated by the valence of argument-related thought and not speaker-related thought.

However, Areni and Sparks (2005) found equivocal results, with only the first two hypotheses supported by the results. These findings are consistent with various other prior studies, examining the effects of potential biasing cues within the framework of the ELM, which have observed that “effortful processing appears to eliminate the effects of certain “biasing” variables” (Petty et al. 1998). Specifically, in explaining the lack of impact of biasing cues, it has been suggested that effortful processing of arguments could have “overwhelmed the impact” of the potential biasing cues (Petty et al. 1998) or caused participants to examine the potential biasing cues as a piece of issue-relevant information (i.e., treating it as an argument)

arguments made by the speaker to produce judgments that are more negative than they would have been if the speaker had used powerful language (Areni and Sparks 2005; Sparks and Areni 2008).

thus making them realize that such cues were irrelevant to their judgments (Petty 1994).

Instead, one possible alternative explanation for the observed effects of language power on persuasion even when messages were presented as written transcripts could be that the specific experimental contexts employed in Areni and Sparks (2005) created comparatively low levels of motivation for participants to process presented messages to the extent that elaboration likelihood was reduced. In this respect, it has been acknowledged that while experimental manipulations of “high” versus “low” motivation in such studies necessarily correspond to two points on the ELM continuum (where central and peripheral route processes continue to co-occur but at different levels), it is not possible to equate conditions across different studies (Areni and Lutz 1988), and the levels of motivation to process messages can be expected to differ.

In this regard, prior studies have suggested that the motivation to process messages can be influenced by factors such as the perceived personal relevance of the issue (Petty and Cacioppo 1979), the general enjoyment of thinking (Cacioppo et al. 1996), and the personal involvement in issues being discussed (Petty and Cacioppo 1979). In particular, issues of high personal involvement have been described as being of “intrinsic importance” (Sherif and Hovland 1961) or of high “personal meaning” (Sherif et al. 1973) to participants. In examining the effects of the personal involvement of an issue being discussed on the motivation to process arguments, various studies have manipulated the personal involvement of participants by varying the issues presented. For example, in Dean et al. (1971), participants (in California) in the high personal involvement condition received a message about supporting a particular candidate to be the new United States Senator for California while

participants in the low involvement condition received a message condemning the practice of getting an annual chest x-ray as a means to detect tuberculosis. In Rhine and Severance (1970), participants (who were students in a university) in the high personal involvement condition received a message about increasing tuition fees in their university while participants in the low personal involvement condition received a message about increasing park acreage in a distant city.

In the Areni and Sparks (2005) study, participants in the written transcript conditions were told that they would read a “verbatim transcript of a person giving a testimonial about a computer product,” and would evaluate the testimonial on a number of different dimensions. There was no mention of how their ratings of the testimonial would affect them or have any impact on their lives. Thus, despite participants in the experiment ostensibly being assigned to high elaboration likelihood (written transcript) conditions, the experimental material did not create a strong motivation for them to deeply process messages because the context of the material did not create strong personal involvement for participants. Consequently, persuasion might inadvertently have occurred at a point on the ELM continuum where, due to participants’ relatively low levels of motivation to process the message, peripheral route processes continued to exert a substantial level of influence on persuasion. Correspondingly, central route processes exerted a lesser influence than expected, resulting in language power continuing to exert a noticeable influence on persuasion through peripheral route processes (Chaiken and Maheswaran 1994; Petty et al. 2002), thus accounting for the observed effects of language power on persuasion. Consistent with this argument, Areni and Sparks (2005) found that argument-related thoughts did not mediate the relationship between language power and persuasion.

In contrast, the Sparks et al. (1998) study, which found little or no effect of language power on persuasion when messages were transmitted via written transcripts, employed an experimental context which required participants (who were students in a university) to “evaluate a presentation by a marketing representative from a property management company that wished to privatize the campus residence halls and take over their operations.” In this experimental context, the personal involvement of participants was arguably higher than in the Areni and Sparks (2005) study as a large number of participants here would presumably have been personally affected by any changes to the operations of their campus residence halls. Similarly, in my current study, the experimental task that participants undertook was likely to have been one that was of relatively high personal involvement because in assuming the roles of potential investors in a target company, they would have expected to make personal investment decisions based on information provided.

As such, in both the Sparks et al. (1998) and my current study, participants who received messages via written transcripts were likely to have experienced higher levels of personal involvement resulting in a higher level of motivation to process message contents compared to participants in Areni and Sparks (2005), resulting in them having both the motivation and ability (when messages were communicated via written transcripts) to process messages and form judgments substantially based on central route processes, with language power having little or no effect on persuasion.

2.4. Effects of communication mode on persuasion

Within the ELM framework, it has been found that the roles of powerless language cues in influencing persuasion depend heavily on the mode (audio recordings versus written transcripts) by which messages are transmitted. This is attributable to the fact

that communication mode is an important determinant of elaboration likelihood. In particular, prior research has shown that “communication modality affects the degree to which an audience comprehends the content of a persuasive message,” and that message comprehension (i.e. the ability to process messages) influences whether message processing is more likely to be skewed towards central or peripheral route processing (i.e. elaboration likelihood, Sparks et al. 1998).

Prior studies have provided evidence that the cognitive processing of written and audio messages is distinct in a number of ways (e.g. Long 1989). Specifically, message recipients are likely to have a stronger ability to systematically process messages when they are presented in written form (versus audio form), thus increasing evaluation likelihood and the impact of central route processes on persuasion (Sparks et al. 1998). In written form, a message often contains paragraphs or other textual characteristics (e.g. punctuations, formatting, etc.) which allow a reader to readily detect word and sentence boundaries, and “chunk” information together, thus facilitating comprehension and persuasion via central route processes (Chaiken and Eagly 1976; Furnham et al. 1990). Moreover, reading is self-paced and allows the message recipient to process information at a rate that he or she is most comfortable with. As such, these characteristics of written communication which enhance a message recipient’s ability to systematically process messages serve to encourage central route processes, and decrease his or her reliance on peripheral route processes when making judgments.

On the other hand, messages presented in audio form do not possess the aforementioned characteristics which increase recipients’ abilities to systematically process messages. Instead, the “real time” nature of audio messages is likely to attenuate message recipients’ abilities to process and comprehend presented

arguments (MacInnis et al. 1991). Given that “listening text exists in time rather than space,” message recipients must comprehend the message as it is uttered (Flowerdew 1994). Further, in processing audio messages, message recipients must phonologically recognize unit boundaries and punctuate a flow of speech by recognizing irregular pauses, false starts, and stress and intonation patterns. This lack of ability to systematically process arguments hence decreases message recipients’ reliance on central processes and enhances the use of peripheral route processes in making judgments (Sparks et al. 1998).

Therefore, in the current research setting, where investors (who, in evaluating their investment options, are motivated to process messages from the manager) receive and evaluate information from the Q&A segment of an earnings call, the ELM posits that the mode by which messages are communicated will influence the extent to which central or peripheral route processes will dominate judgments.

When earnings call information is presented as written transcripts, central route processes, where investors systematically process arguments made by the manager in the call, are likely to exert a stronger influence than peripheral route processes. In this situation, in systematically processing arguments, investors are likely to ignore the manager’s language power, deeming it to be irrelevant to the substance of the arguments. Even if the powerless language cues that the manager uses in his speech were to play a part in influencing persuasion as biasing cues, overall investor judgments are still likely to be dominated by systematic processing, and, despite any biasing effect, to be substantially based on the overall merits of arguments put forth. This would result in language power having little or no influence on persuasion and investor judgments.

This leads to H1:

H1: When earnings call information is transmitted via a written transcript, investor judgments of the company will not be influenced by language power

On the other hand, when investors receive earnings call information via audio recordings, peripheral route processes, where investors rely on heuristic judgments in making overall judgments about the message delivered by the manager in the call, are likely to exert a stronger influence on persuasion than central route processes. Consequently, persuasion and investor judgments are likely to be directly influenced by the language power cues that the manager uses on the call.

This leads to H2:

H2: When earnings call information is transmitted via an audio recording, investors will form less favorable attitudes towards the company when the manager uses powerless language than when the manager uses powerful language

Figure 1 provides a graphical depiction of predicted investor judgments as hypothesized in H1 and H2. From H1 and H2, it is clear that the effects of language power on investor judgments are expected to be stronger when earnings calls are transmitted via audio recordings than when they are transmitted via written transcripts. As such, the lines representing investor judgments when earnings calls are transmitted via audio recordings and written transcripts in Figure 1 are not expected to be parallel to each other. The line representing audio recordings is expected to be substantially steeper than the line representing written transcripts.

Further, prior studies (Chaiken and Eagly 1983; Sparks et. al. 1998) have suggested that the “vividness” effect inherent in audio messages can enhance the salience of

the personal characteristics of a speaker (relative to written messages), leading to powerless language cues having a disproportionately large negative impact on attitudes or judgments when messages are transmitted via audio recordings. Hence, when the manager uses powerless language in my study, it will have a disproportionately large negative effect on the judgments of investors who receive the earnings call information via audio recordings. In comparison, powerless language cues are not expected to have any effects on the judgments of investors who receive earnings call information via written transcripts because they are likely to form judgments based substantially on the systematic processing of arguments presented. Consequently, when the manager uses powerless language in his speech, investors' judgments of the company are likely to be higher (i.e. better) when they receive earnings call information via written transcripts than when they receive that information via audio recordings.

On the other hand, when the manager uses powerful language in his speech, investor judgments are expected to be fairly similar regardless of whether earnings call information is transmitted via written transcripts or audio recordings. This is because when earnings call information is transmitted via written transcripts, investor judgments will continue to be based primarily on the systematic processing of arguments that are presented. However, when earnings call information is transmitted via audio recordings, there is not expected to be a corresponding disproportionately large positive "vividness" effect (such as that seen when powerless language is used) that causes investor judgments here to be substantially more positive than when earnings call information is transmitted via written transcripts. This is expected to be the case given that Ng and Bradac (1993) have suggested that powerful language is generally perceived by message recipients as a

neutral (and not positive) form of speech (because powerful language is defined by the absence of negative powerless language cues rather than by the presence of any positive language cues).

Therefore, as presented graphically in Figure 1, the lines representing investor judgments when earnings calls are transmitted via audio recordings and written transcripts are not expected to intersect. This suggests that an ordinal interaction (i.e. a non-symmetric pattern of cell means) would be observed when examining the effects of H1 and H2 (Buckless and Ravenscroft 1990).

Figure 1: Participants' predicted judgments of the target company

This figure shows predicted investor judgments as hypothesized in H1 and H2

The judgments of the company that investors are predicted to make in H2 are expected to be based on their heuristic judgments of the manager's personal attributes, which are directly influenced by his use of powerless language in his

speech. Consequently, the language power that the manager adopts in his speech is likely to directly influence investors' perceptions of him, which will in turn influence investors' attitudes towards the company. H3 to H5 builds on this to make predictions, based on the peripheral route processes that are expected to predominate, when earnings calls information are transmitted via audio recordings.

Specifically, when earnings call information is transmitted via audio recordings, the manager's use of powerless language is expected to negatively influence investors' perceptions across a range of his personal characteristics. These negative perceptions of the manager's personal characteristics are then expected to form the basis of investors' heuristic judgments of the arguments that the manager makes in his speech.

This leads to H3 and H4:

H3: When earnings call information is transmitted via an audio recording, the valence of speaker-related thoughts generated by investors will be more negative when the manager uses powerless language than when the manager uses powerful language

H4: When earnings call information is transmitted via an audio recording, the effects of language power on investor attitudes towards the company will be mediated by the valence of speaker-related thoughts

When investors receive earnings call information as audio recordings, their judgments of the company are likely to be based on heuristic judgments of the manager's *personal* attributes, as predicted in H2, H3, and H4.

At the same time, due to the characteristics of audio communication, their abilities to systematically process arguments made in the message are likely to be attenuated,

resulting in little or no systematic processing of arguments regardless of the extent of the manager's use of powerless language. With little or no systematic processing of arguments when earnings calls are transmitted via audio recordings, investors are not expected to form substantially different thoughts about the argument presented by the manager. Hence, I expect language power to have no effect on argument-related thoughts formed by investors.

This leads to H5:

H5: When earnings call information is transmitted via an audio recording, there will be no difference in the valence of argument-related thoughts generated by investors both when the manager uses powerless language and when the manager uses powerful language.

3. Method

3.1. Participants

I conducted an experiment with 99 MBA students from three major universities in Singapore. The participants had a mean (standard deviation) age of 29.39 (3.82) years and mean working experience of 58.30 (40.52) months. Overall, 48.50% of participants indicated that they had experience in investing, and 57.40% of them intended to make investments in the next twelve months.

Each participant was either paid twenty Singapore dollars or the equivalent value in cash vouchers for participating in the experiment.¹¹

¹¹ Twelve (11.90%) of the participants were paid in cash vouchers. When payment mode was included as a covariate in the ANOVA analysis of the effects of language power and communication mode on the composite of the 4 dependent variables (*investment_judgment*), the effect of payment mode was not significant ($F=1.20$, $p=0.28$).

3.2. Design

I used a 2 X 2 between subjects design, with language power (*powerful* versus *powerless*) and communication mode (*written transcript* versus *audio recording*) as independent variables to test the hypotheses.

I operationalized powerless language by using a CEO speech, in the Q&A segment of an earnings call, containing powerless language cues which included verbal hesitations and hedges. Correspondingly, I operationalized powerful language by using a CEO speech containing no such cues. I operationalized communication mode by presenting the earnings call information either as an audio recording or as a written transcript to participants.

Table 1 presents a summary of the between subjects manipulations.

Table 1: Summary of 2x2 between subjects design

		Language Power	
		Powerful	Powerless
Communication Mode	Written Transcript	Condition 1	Condition 2
	Audio Recording	Condition 3	Condition 4

3.3. Procedure

I administered the experiment online, with participants accessing the experimental material by logging on to a specific website with a password. Participant responses were identified using unique “participant codes” given to each participant. In all cases, a research assistant was present throughout as participants took part in the experiment.

On arrival, participants were randomly assigned to one of four online experimental conditions. Upon logging on to the website, they were told to assume the role of potential investors assessing the earnings prospects of a firm. They were then provided with background information about Great Meals Corporation, a fictitious NYSE-listed firm operating in the foodservice retailing industry. This background information consisted of an introduction to the firm and a summary of the financial results of its most recent quarter.

Next, participants were informed, through a news article, that Great Meals had been the subject of a class action lawsuit filed in the past quarter. The lawsuit alleged that the firm was involved in a form of false advertising where it had claimed that the beef mixture used in its burgers was “premium beef” when it was in fact mixed with various fillers to the extent that it fell below the minimum standard set by regulators for it to be labeled as “beef.” Health concerns arising from the consumption of these fillers were also raised in the news article. Great Meals was reported to have denied the allegations in the article.

Following that, participants were told that Great Meal’s CEO had addressed the issue of the lawsuit in his most recent earnings call. Participants then accessed the relevant portion of the Q&A segment of the earnings call where the CEO discussed the lawsuit. The power of the language that the CEO used on the earnings call and the communication mode through which participants accessed the call varied according to the experimental condition that individual participants were assigned to.

After accessing the call, participants responded to a range of questions relating to their judgments of the firm, the CEO, and the arguments which he made on the call.

Manipulation checks and demographic information were also obtained from participants.

3.4. Independent Variables

3.4.1. *Language Power*

I manipulated the language power that the CEO used on the call by introducing verbal hesitations and hedges to his speech in the powerless language condition, and removing these powerless language cues from the powerful language condition of the experiment. Specifically, in the powerful language condition, the CEO's speech contained no powerless language cues, and was 349 words long.

In the *powerless* condition, powerless language cues that were used were (1) verbal hesitations ("well," "you know," and "I mean") and (2) hedges ("kind of" and "I think"). A total of 25 such cues were used, with 20 (80%) of them being verbal hesitations and 5 (20%) being hedges. This translated to a cue frequency of 6.3 cues/hundred words when presented as written transcripts and 7.9 cues/minute when presented as audio recordings. The proportion of verbal hesitations and hedges used in the CEO's speeches, and the corresponding cue frequencies are consistent with their usage in prior studies and with actual speech patterns (e.g. Conley et al. 1978).¹²

It should be noted that although managers typically use verbal hesitations, non-verbal hesitations, and hedges in their actual speeches, non-verbal hesitations are often edited out during the transcription of earnings calls. This results in written

¹² In their original work on language power, Conley et al. (1978) used speeches which contained hedges and hesitations. In their experiment, a 9 minute 30 second speech attributed to a female court witness contained 22 hedges (23.16%) and 73 hesitations (76.84%) resulting in a cue rate of 10.00 cues/minute while a 9-minute-39-second speech attributed to a male court witness contained 21 hedges (29.17%) and 51 hesitations (70.83%) resulting in a cue rate of 7.46 cues/minute.

transcripts often only containing verbal hesitations and hedges.¹³ Therefore, my manipulation of powerless language most closely reflects the kinds of powerless language cues that are commonly found when earnings call information is transmitted via written transcripts in practice.

3.4.2. Communication Mode

I manipulated the mode by which earnings call information was transmitted by manipulating whether participants accessed earnings calls as written transcripts or audio recordings. Regardless of communication mode, the earnings call that participants accessed consisted of the following parts: (1) an operator opening the Q&A segment of the call, (2) an analyst posing a question, (3) the CEO answering that question, and (4) the analyst thanking the CEO.

In the audio conditions, other than the CEO's language power, all other characteristics of the CEO's speech (pitch, rate, etc) were kept constant across audio conditions.¹⁴ The lengths of the CEO's speech ranged from 2 minutes 36 seconds in the powerful condition to 3 minutes 09 seconds in the powerless condition. This translates to a speech rate of between 126.03 and 134.23 words per minute across language power conditions.¹⁵

When presented as written transcripts, participants viewed the transcripts as timed slideshows where they were not able to control slide changes in any way. Instead, the timed slide changes were synchronized with the audio conditions such that participants progressed through the earnings call at the same pace regardless of

¹³ In contrast, audio recordings often contain verbal hesitations, non-verbal hesitations, and hedges in practice.

¹⁴ The same professional voiceover artists were engaged to record the speeches used across all audio conditions. The voiceover artist who recorded the CEO's speech was instructed to only vary his use of powerless language cues while keeping all other aspects of his speech constant across conditions.

¹⁵ This speech rate falls within the range of normal speech which is classified as being between 120 and 180 words per minute in prior studies (e.g. Miller et al. 1976)

communication mode. This ensured that participants across communication mode conditions had the same amount of time to process the same amount of information.

Note that the CEO's speech in the powerful condition was shorter than in the powerless condition (2 minutes 36 seconds versus 3 minutes 09 seconds). This difference occurred due to the additional powerless language cues in the powerless condition that were not present in the powerful conditions. Such differences in CEO presentation times across conditions could give rise to various possible alternative explanations for the effects predicted in the experiment. Hence, to ensure that total presentation times were consistent across language power conditions, an additional closing speech by the call operator was added to the ends of the recordings/transcripts in the powerful conditions.¹⁶

This closing speech was designed to be uninformative, and was provided with the sole purpose of equalizing presentation times across conditions.¹⁷ As such, it is not expected to influence participants' judgments in any way. With this addition, total presentation times across all conditions and presentation modes were between 4 minutes 01 seconds and 4 minutes 09 seconds.

3.5. Dependent Variables

I used four main dependent variables in the experiment to capture participants' judgments of Great Meals as an investment opportunity. These measured the extent of participants' agreement that: (1) Great Meal's earnings performance would recover in the near future, (2) Great Meals was a good long term investment, (3)

¹⁶ As such, earnings calls in the powerful condition consists of: (1) an operator opening the call, (2) an analyst asking a question, (3) the CEO answering the question, (4) the analyst thanking the CEO, and (5) the operator closing the call. Earnings calls in the powerless conditions consist of (1) an operator opening the call, (2) an analyst asking a question, (3) the CEO answering the question, and (4) the analyst thanking the CEO.

¹⁷ In the closing speech, the operator announced the end of the call, thanked everyone, and instructed them to disconnect from the call.

Great Meals would recover from its current setback, and (4) Great Meal's stock price would appreciate in the near future. These dependent variables captured the relative persuasion effected in each experimental condition.

Next, participants were also given two minutes to list down all thoughts that they had while listening to the earnings call. These thoughts were subsequently coded into the following categories: (1) positive argument-related thought, (2) negative argument-related thought, (3) positive speaker-related thought, (4) negative speaker-related thought, (5) other positive thought, (6) other negative thought, and (7) other thoughts.

The coding of participant thoughts to each category was performed by two researchers who independently coded each thought into one of the above seven categories and resolved any discrepancies between the two sets of coding through discussion.

Indices of the valence of speaker-related thoughts and argument-related thoughts were then computed for each participant. Following prior studies (e.g. Greenwald 1968; Sparks and Areni 2008), the valence of speaker-related thoughts was computed by calculating the difference between the number of positive speaker-related thoughts and the number of negative speaker-related thought for each participant, while the valence of argument-related thoughts was computed by calculating the difference between the number of positive argument-related thoughts and the number of negative argument-related thought for each participant. These indices allow for analyses into the effects of language power on speaker and argument-related thoughts under different modes of communication, and possible mediating effects on participant assessments of the firm.

Additionally, I asked participants a range of questions about their perceptions of the personal characteristics of the CEO (e.g. confidence, credibility, etc) and also about their perceptions of the arguments put forth by the CEO (e.g. logical, strong, etc).

4. Results

4.1. Manipulation Checks

To check whether presentation mode influenced participants' judgments, I asked participants to indicate in the post-experimental questionnaire if they had received the earnings call information via a written transcript or an audio recording.

Approximately 89.6% of participants in the written transcript conditions correctly indicated that they received earnings call information via a written transcript, while 93.9% of participants in the audio conditions correctly indicated that they received earnings call information via an audio recording. This suggests that participants in both the transcript conditions ($\chi^2=26.27$, $p=0.00$) and the audio conditions ($\chi^2=37.74$, $p=0.00$) were able to identify the correct presentation mode of earnings call information at a rate that is greater than chance. Hence, the manipulation of presentation mode in the experiment was successful.

The effectiveness of the manipulation of language power in the experiment was assessed by examining participants' ratings of the extent to which the CEO used "filler words" in his speech during the earnings call.¹⁸ Participants' ratings of the CEO's use of "filler words" in the *powerless* condition (mean=4.24) were significantly higher than in the *powerful* condition (mean=0.19, $t=5.06$, two-tailed $p=0.00$). These

¹⁸ Participant ratings were made along a fifteen-point scale, with -7 corresponding to "Not at all frequently" and +7 corresponding to "Very frequently."

findings indicate that the manipulation of language power in the experiment was successful.

4.2. Tests of Hypotheses

I used four main dependent variables to test the effects of language power and communication mode on investor judgments. These dependent variables represent participants' judgments of the company. Specifically, I asked participants to rate the extent to which they agreed that the company (1) would see its earnings performance recover in the near future (*earnings_recover*), (2) was a good long term investment (*longterm_buy*), (3) would recover from its current setback (*recover_setback*), and (4) would see its stock appreciate in the future (*stock_appreciate*). Participants rated the company in the above four areas along a fifteen-point scale (with -7 corresponding to "Strongly Disagree" and +7 corresponding to "Strongly Agree").

A factor analysis of the four dependent variables indicates that they load onto a single factor that captures 79.67% of the variance in the variable. A reliability analysis also reveals a high Cronbach's alpha of 0.92, suggesting that the single identified factor measures the underlying construct with a high degree of consistency. As such, I computed an index, comprised of each participant's average rating of the four variables, to represent participants' judgment of the company (*investor_judgment*).

H1 predicts that when earnings call information is transmitted via written transcripts, variations in language power will not influence investor judgments. H2 predicts that when earnings call information is transmitted via audio recordings investors will form

less favorable judgments when the speaker uses powerless language than when he uses powerful language. Panel A of Table 2 present the descriptive statistics of the computed index of investor judgments (*investor_judgment*). Panel B presents the conventional analysis of variance (ANOVA). The ANOVA results show that while the main effect of communication mode on *investor_judgment* is significant ($F=6.75$, $p=0.01$), the corresponding main effect of language power is not significant ($F=2.53$, $p=0.12$). In addition, the interaction effect of language power and communication is also not significant ($F=1.75$, $p=0.19$).

Panel C is most pertinent to my purpose, and presents the main and interaction effect contrast predicted in H1 and H2 as well as follow-up simple main effects tests. Because I predict a non-symmetric pattern of cell means (i.e. an ordinal interaction), contrast coding is the most appropriate and powerful means of testing my hypotheses (Buckless and Ravenscroft 1990). Consistent with my predictions, contrast weights are +1 in the two written transcript conditions, -3 in the powerless language/audio recording condition, and +1 in the powerful language/audio recording condition. These contrast codes allow for the specific type of interaction between language power and communication mode that I predicted.

As shown in Panel C, the planned contrast is statistically significant ($F=3.76$, $p=0.01$), consistent with the effects predicted in H1 and H2. Follow-up tests also show that when earnings calls are transmitted via written transcripts, the effect of language power on *investor_judgment* is not significant ($F=0.03$, $p=0.86$). In contrast, when earnings calls are transmitted via audio recordings, the effect of language power on *investor_judgment* is significant ($F=4.78$, $p=0.03$).

In addition, mean investor ratings (represented by *investor_judgment*) in the *powerless/audio recording* condition (mean=-2.14) were significantly lower than ratings in the *powerful/written transcript* (mean=0.34, $t=2.61$, $p=0.01$), *powerless/written transcript* (mean=0.18, $t=2.62$, $p=0.01$), and *powerful/audio recording* (mean=-0.41, $t=2.19$, $p=0.03$) conditions. At the same time, mean ratings in the *powerful/written transcript* (mean=0.34) and *powerful/audio recording* (mean=-0.41, $t=0.96$, $p=0.34$) conditions were not significantly different. Overall, these effects are consistent with the predictions made in H1 and H2.

Table 2: Descriptive statistics and analysis of variance¹⁹

Panel A: Mean (standard Deviation) of *investor_judgment*

<u>Communication Mode</u>	<u>Language Power</u>	
	Powerful	Powerless
Written Transcript	0.34 (3.30) N=24	0.18 (2.77) N=23
Audio	-0.41 (2.10) N=26	-2.14 (3.45) N=26

Panel B: Conventional ANOVA

<u>Source</u>	<u>SS</u>	<u>DF</u>	<u>MS</u>	<u>F</u>	<u>p-value (two-tailed)</u>
Intercept	25.41	1	25.41	2.92	0.09
Communication Mode	58.77	1	58.77	6.75	0.01
Language Power	22.04	1	22.04	2.53	0.12
Communication Mode*Language Power	15.24	1	15.24	1.75	0.19
Error	826.89	95	8.704		

¹⁹ Similar results are obtained when the analysis conducted in Table 2 are restricted to participants who passed the manipulation checks.

Panel C: Overall tests using planned contrasts coding and follow-up simple effects tests

	<u>SS</u>	<u>DF</u>	<u>MS</u>	<u>F</u>	<u>p-value (two-tailed)</u>
Overall test:					
powerful/written transcript + powerful/audio recording + powerless/written transcript - 3 x powerless/audio recording = 0					
Contrast: (+1, +1, +1, -3)	98.15	3	32.72	3.76	0.01
Follow up simple effects test:					
Effect of powerful versus powerless language when earnings calls are transmitted via written transcripts	0.30	1	0.30	0.03	0.86
Effect of powerful versus powerless language when earnings calls are transmitted via audio recordings	38.94	1	38.94	4.78	0.03

This table presents descriptive statistics, conventional ANOVA, contrast-coded ANOVA, and simple effects tests for *investor_judgment* which is computed from average participant ratings of the company in the following four areas in my experiment: (1) Great Meal's earnings performance would recover in the near future, (2) Great Meals was a good long term investment, (3) Great Meals would recover from its current setback, and (4) Great Meal's stock price would appreciate in the near future. The experiment manipulated (1) whether the CEO used powerful or powerless language in his speech during the Q&A segment of an earnings call, and (2) whether participants received the information via written transcripts or audio recordings.

4.2.1. Powerless language cues as peripheral cues

Following the arguments made in developing H2, H3, H4, and H5 were made based on the expectation that powerless language cues will act as peripheral cues in influencing investor judgments, when earnings call information is presented as an audio recording. H3 predicts that when earnings call information is transmitted via an audio recording, speaker-related thoughts generated by investors will be more negative when the speaker uses powerless language than when the speaker uses

powerful language. Consistent with the predictions made in H3, results (untabulated) indicate that when earnings call information is transmitted as an audio recording, the valence of speaker-related thoughts of participants in the *powerless* condition (mean= -1.85) are significantly more negative than the valence of speaker-related thoughts of participants in the *powerful* condition (mean= -1.00, mean difference=0.85, standard error=0.38, $p=0.03$).

Further, in line with the predictions made in H5, results (untabulated) show that when earnings call information is transmitted as an audio recording, the valence of argument-related thoughts of participants in the *powerless* (mean= -0.85) are not significantly different from the valence of argument-related thoughts of participants in the *powerful* condition (mean= -0.50, mean difference= -0.35, standard error=0.25, $p=0.17$).

Therefore, the above results support H3 and H5 for comparisons between the *powerful* condition and *powerless* condition when earnings call information is transmitted via an audio recording.

4.2.2. Mediation Analysis

H4 predicts that when earnings call information is transmitted via an audio recording, the effects of language power on investor attitudes towards the company will be mediated by the valence of speaker-related thoughts.²⁰ I conducted the mediation analysis following the four-step procedure specified by Baron and Kenny (1986).

Table 3 provides summary results of this mediation analysis.

²⁰ Analysis for (1) the number of thoughts and (2) the corresponding valences of speaker and argument related thought by experimental condition is presented in Appendix B.

Table 3: Mediation Analysis (for Audio Conditions)

Panel A: Mediation analysis using the 4-Step Procedure – For All Audio Conditions

	Step 1		Step 2		Step 3		Step 4	
	Language Power effect on DV		Language Power effect on mediator (valence of speaker-related thought)		MV effect on DV, controlling for language power		Language Power effect on DV, once mediator is included	
Dependent Variable	F-Stat	p-value	F-Stat	p-value	F-Stat	p-value	F-Stat	p-value
<i>investor_judgment</i>	4.78	0.03	4.50	0.04	7.29	0.01	2.09	0.15

This table summarizes tests of the mediating role of the valence of speaker-related thought between language power and investor judgments when earnings call information is transmitted via audio recordings.

With respect to step one, language power is significantly positively associated with *investor_judgment* ($F=4.78$, $p=0.03$). Step two indicates that language power is significantly associated with the valence of speaker-related thoughts ($F=4.50$, $p=0.04$). Step three confirms that the valence of speaker-related thoughts is significantly related to *investor_judgment* ($F=7.29$, $p=0.01$) even after controlling for language power. Finally, step four supports mediation of the relationship as the effect of language power on *investor_judgment* becomes insignificant when the valence of speaker-related thoughts is included in the regression (from $F=2.09$, $p=0.15$).

Overall, these results are consistent with the valence of speaker-related thoughts mediating participants' judgments of the company when earnings call information is transmitted as an audio recording hence supporting H4.²¹

²¹ The Sobel test indicates that the mediation effect of speaker-related thoughts on the relationship between language power and *investor_judgment* is marginally significant ($p=0.08$).

Further, Table 4 presents the summary results of the analysis examining, using the four-step procedure specified by Baron and Kenny (1986), whether the effects of language power on investor attitudes towards the company were mediated by the valence of argument-related thoughts for participants in both the *powerful* and *powerless* conditions who received earnings call information via audio recordings. Although steps 1 supports the mediation effect of the valence of argument-related thought, with language power being significantly positively associated with *investor_judgment* ($F=4.78$, $p=0.03$), steps 2 and 3 do not support the mediation effect. Specifically, language power is not significantly associated with the valence of argument-related thoughts ($F=1.56$, $p=0.22$) and the valence of argument-related thoughts are not significantly related to *investor_judgment* ($F=1.69$, $p=0.17$) after controlling for language power. Hence, these results, which provide evidence that the valence of argument-related thoughts did not mediate the relationship between language power on investor attitudes towards the company under audio conditions, are consistent with my theory that when participants were presented with audio recordings, their judgments were influenced by peripheral route processes rather than central route processes.

Table 4: Mediation Analysis (for Audio Condition)**Panel A: Mediation Analysis using the 4-Step Procedure – For All Audio Conditions**

	Step 1		Step 2		Step 3		Step 4	
	Language Power effect on DV		Language Power effect on mediator (valence of argument-related thought)		MV effect on DV, controlling for language power		Language Power effect on DV, once mediator is included	
Dependent Variable	F-Stat	p-value	F-Stat	p-value	F-Stat	p-value	F-Stat	p-value
<i>investor_judgment</i>	4.78	0.03	1.56	0.22	1.69	0.17	7.71	0.01

This table summarizes tests of the mediating role of the valence of arguments-related thought between language power and investor judgments when earnings call information is transmitted via audio recordings.

5. Further Analysis

5.1. Non-verbal hesitations in manager's speech

In the main experiment, my manipulation of powerless language involved providing participants with a speech made by the CEO containing verbal hesitations and hedges. Given that firms often edit out speakers' use of non-verbal hesitations during the transcription of earnings calls, this manipulation of powerless language closely represents the form of powerless language that is most often contained in actual written transcripts that firms provide. However, audio recordings of earnings calls that firms provide are typically unedited, and frequently contain the speaker's use of non-verbal hesitations (in addition to his or her use of other forms of powerless language).

Although there has been little prior research examining the specific effects of non-verbal hesitations, the majority of prior studies looking at the effects of other individual powerless language cues (e.g. hedges, hesitations, tag questions, etc)

have generally found them to have had similarly negative effects on various participant judgments (Durik et al. 2008; Blankenship and Holtgraves 2005). To the extent that non-verbal hesitations have similar effects as other powerless language cues on investor judgments, my findings in the main experiment would be reflective of the influence of the speaker's use of powerless language on earnings calls when such earnings call information is transmitted via audio recordings.

However, studies such as Brennan and Williams (1995) have suggested that a speaker's use of non-verbal hesitations when providing spontaneous answers to questions can increase listeners' "feeling-of-another's-knowing" (FOAK) ratings of the speaker in certain contexts because non-verbal hesitations can be perceived in the positive light of the speaker expending effort to search for the correct answer to a question. Consistent with this, several prior studies (e.g. Smith and Clark 1993; Clark and Fox Tree 2002) have proposed that non-verbal hesitations (specifically "uh" and "um"), depending on the specific context that they are used, can sometimes be interpreted in a neutral or positive light (rather than in a strictly negative light).

Specifically, Smith and Clark (1993) suggest that fillers (like the powerless language cues that I examine in my study) in spontaneous speech can be viewed by message recipients as tools that speakers use for "self-presentation." This interactive view of speech contends that if a speaker judges that he knows the answer to a question but from the outset feels that he may take a long time to retrieve the answer, he might account for or signal the extended delay using non-verbal hesitations like "uhh" (anticipation hypothesis). Alternatively, in other circumstances, the speaker may judge that he has already delayed his answer for too long while trying to retrieve it (i.e. an unfilled pause), and consequently fills the pause with non-verbal hesitations to signal that he is still searching for an answer (reactive hypothesis). In such

situations, the use of non-verbal hesitations can communicate to listeners that the speaker is searching for an appropriate word, is deciding what to say next, or wants to keep the floor (i.e. has not completed his answer, and still intends to continue with answering the question). In contrast, a speaker's use of other verbal cues, such as verbal hesitations and hedges, is unlikely to convey the same signals predicted by the anticipation and reactive hypotheses, and is instead likely to be viewed by message recipients as a means used by the speaker to mark his lack of confidence or uncertainty in his answer.

As such, in the setting of my study where the manager is expected to respond extemporaneously to questions, it is not a foregone conclusion that his use of non-verbal hesitations (which will only appear to investors who listen to audio recordings of earnings calls) will continue to have the predicted negative effects on investor judgments.

Therefore, to gain further insight into the effects of non-verbal hesitations in my study, I designed two supplemental experimental conditions where I introduced a separate manipulation of powerless language containing non-verbal hesitations, verbal hesitations, and hedges (*powerless-with NVH*), which I administered on a group of participants who received the CEO's speech via written transcripts and audio recordings.

Specifically, these two supplemental experimental conditions were administered at the same time as the main experiment, with 49 MBA students from the same three universities.²² The experimental procedure and material was similar to that followed

²² The profiles of these 49 participants were similar to participants in the main study. Specifically, 68.0% of these participants were male and 32.0% were female. They had a mean (standard deviation) age of 28.60 (3.83)

in the main experiment, with the only difference being that participants were provided with written transcripts or audio recordings of the CEO's speech that contained powerless language cues including non-verbal hesitations, verbal hesitations, and hedges (i.e. *powerless-with NVH* condition). Consistent with the powerless language manipulation used in the main experiment, I used a total of 25 powerless language cues in the *powerless-with NVH* condition. This consisted of 9 (36%) verbal hesitations, 11 (44%) non-verbal hesitations ("uhh"), and 5 (20%) hedges. This translated to a cue frequency of 6.5 cues/hundred words in the written transcript condition and 7.7 cues/minute in the audio recording condition. The length of the CEO's speech in this condition was 3 minutes 15 seconds, similar to that of the powerless language condition in the main experiment.

Manipulation checks conducted on this group of participants indicated that the language power and communication mode manipulations were successful. Specifically, 86.4% of participants in the written transcript condition and 95.2% of participants in the audio recording condition indicated the correct mode by which they had received the earning call. This suggests that they were able to identify the correct communication mode at a rate greater than chance in both the written transcript ($\chi^2=11.64$, $p=0.00$) and audio recording conditions ($\chi^2=26.27$, $p=0.00$). Additionally, participants' ratings of the CEO's use of "filler words" in his in the powerless-with NVH condition (mean=3.12) were significantly higher than in the powerful condition (mean=0.19, $t=3.81$, two-tailed $p=0.00$).

Table 5 presents descriptive statistics of the computed index of investor judgments (*investor_judgment*) for participants in these two supplementary conditions (together

years. Further, 54.0% of these participants indicated that they had investing experience while 70.0% indicated that they intended to make investments in the next twelve months.

with the equivalent statistics from the powerful and powerless conditions in the main experiment). When earnings calls were transmitted as written transcripts, there were no significant differences between participants' mean judgments in the *powerful* (mean=0.34) and *powerless-with NVH* conditions (mean=-0.96, $t=1.42$, $p=0.16$). This is consistent with participants systematically analyzing arguments presented in the CEO's speech and ignoring irrelevant powerless language cues in forming judgments when earnings calls were transmitted as written transcripts, as predicted in H1.

Table 5: Descriptive statistics and analysis of variance

Panel A: Mean (standard Deviation) of *investor_judgment*

<u>Communication Mode</u>	<u>Language Power</u>		
	Powerful	Powerless	Powerless-with NVH
Written Transcript	0.34 (3.30) N=24	0.18 (2.77) N=23	-0.96 (3.12) N=25
Audio	-0.41 (2.10) N=26	-2.14 (3.45) N=26	-0.27 (3.10) N=24

This table presents descriptive statistics, for *investor_judgment* from both the main and supplementary experiments, which is computed from average participant ratings of the company in the following four areas in my experiment: (1) Great Meal's earnings performance would recover in the near future, (2) Great Meals was a good long term investment, (3) Great Meals would recover from its current setback, and (4) Great Meal's stock price would appreciate in the near future. The experiment manipulated (1) whether the CEO used powerful or powerless language in his speech during the Q&A segment of an earnings call, and (2) whether participants received the information via written transcripts or audio recordings.

When earnings calls were transmitted as audio recordings, there were no significant differences between participants' mean judgments in the *powerful* (mean=-0.41) and *powerless-with NVH* (mean=-0.27, $t=0.19$, $p=0.85$) conditions. In addition, participants' mean judgments in the *powerless* condition (mean=-2.14) were

significantly lower than their judgments in the *powerless-with NVH* condition (mean=-0.27, $t=47.97$, $p=0.05$) when earnings calls were transmitted via audio recordings. These findings suggest that the speaker's use of non-verbal hesitations might possibly have had a positive influence on participants' judgment to the extent that it countered the negative effects of verbal hesitations and hedges which were also present in his speech when earnings calls were transmitted via audio recordings.²³

5.2. CEO Ratings

In the mediation analysis section, I found that the valence of speaker-related thoughts mediated participants' judgments of the company when earnings call information were transmitted via audio recordings. This is consistent with my earlier prediction that when earnings calls are transmitted via audio recordings, participants' judgments of the company are likely to be based on heuristic judgments of the CEO's personal characteristics, which are in turn influenced by the language power in his speech.

To examine the issue in further detail, I also asked participants in the experiment to rate the CEO along twelve personal characteristics.²⁴ These ratings of the CEO's personal characteristics were meant to provide further insights into how language power in the CEO's speech influenced participants' judgments of his personal characteristics, and how these judgments consequently influenced judgments of the company. In particular, I focus, in this section, on participant judgments of these

²³ While it might also be possible that this was due to the reduction in the number of verbal hesitations (rather than due to the increase in the number of non-verbal hesitations) in the *powerless-with NVH* condition (compared with the *powerless* condition), prior studies such as Sparks and Areni (2008) have also used similar manipulations of powerless language (43% verbal hesitations) to what I have in *powerless-with NVH* (36% verbal hesitations). In Sparks and Areni (2008) participants exposed to this manipulation of powerless language (in audio conditions) produced judgments that more negative than those exposed to the manipulation of powerful language.

²⁴ Participants rated each personal characteristic on a fifteen-point scale (ranging from -7 to +7).

twelve personal characteristics of the CEO in both the *powerless* and *powerless-with NVH* conditions to gain further insights into the specific aspects of the CEO's personal characteristics that were influenced by his use of non-verbal hesitations in his speech when earnings calls were transmitted as audio recordings.

Table 5 presents pairwise comparisons, for each of these twelve CEO personal characteristics, between participants in the *powerless* and *powerless-with NVH* conditions when earnings call information was transmitted as audio recordings. The pairwise comparisons indicate that all twelve CEO characteristics were rated numerically higher (i.e. better) by participants in the *powerless-with NVH* condition than by participants in the *powerless* condition (when the earnings call was transmitted as an audio recording), but the differences were significant only for ratings of the CEO's composure ($p=0.01$) and marginally significant for ratings of the CEO's ability to wield power ($p=0.07$). Further, analysis (untabulated) also indicates that participant ratings of the CEO's composure ($F= 1.98$, $p=0.04$) and his ability to wield power ($F=5.38$, $p=0.00$) were both significantly associated with *investor_judgment* in the audio conditions.

Table 5: Contrast Tests of Ratings of CEO Characteristics (powerless-with NVH versus powerless-no NVH)¹

CEO Characteristic	Mean Rating (Powerless-with NVH)	Mean Rating (Powerless –no NVH)	Mean Difference ²	Standard Error	P-Value (Two-Tailed)
Wields Power	-0.76	-2.96	2.20	1.18	0.07
Aggressive	-2.90	-4.16	1.26	1.17	0.29
Confident	-2.81	-4.24	1.43	1.08	0.19
Credible	-3.00	-4.24	1.24	1.00	0.22
Trustworthy	-3.24	-4.04	0.80	0.99	0.42
Likable	-2.76	-3.72	0.96	0.86	0.27
Competent	-1.86	-3.20	1.34	0.96	0.17
Effective Leader	-3.57	-4.16	0.59	0.95	0.54
Composed	-1.14	-3.80	2.66	1.00	0.01
Self-Control	-1.90	-3.12	1.22	0.97	0.21
Planned the Communication	-2.86	-3.12	0.26	1.25	0.83
Strategic	-2.62	-3.76	1.14	1.13	0.32

¹Contrast test between participants in the powerless-with NVH and powerless-no NVH conditions when earnings call information is transmitted as an audio recording

²Calculated as [Powerless-with NVH – Powerless-no NVH]

This suggests that the CEO's use of non-verbal hesitations in the *powerless-with NVH* condition improved participants' ratings of his composure and ability to wield power compared to when the CEO used only verbal hesitations (in addition to hedges) in the *powerless* condition.

Overall, these findings indicate that, in the earnings call setting, the CEO's use of non-verbal hesitations (in combination with verbal hesitations and hedges) in his speech when earnings call information was transmitted via an audio recording did not significantly damage participants' perceptions of his composure and ability to wield power compared to when he only used verbal hesitations (in combination with hedges). One reason for this could perhaps be because participants were aware that the CEO, in the Q&A segment of the earnings call, was responding to unscripted analyst questions "live," and that his use of non-verbal hesitations was more

acceptable in such circumstances. This is consistent with prior studies which suggest that listeners' judgments of disfluencies in speech can be affected by contextual factors such as whether or not a speech is presumed to be spontaneous or read (e.g. DeJoy and Jordan 1988).

6. Conclusion

In my study, I examined the effects of language power used by managers during the Q&A segments of earnings calls and the mode by which such earnings call information was transmitted on investor judgments. I used a controlled experiment to provide insights into this research question. In my main experiment, participants received versions of a CEO's speech which either did not contain any powerless language cues (i.e. the *powerful* condition) or which contained powerless language cues including verbal hesitations and hedges (i.e. the *powerless* condition). This manipulation of powerless language included powerless language cues commonly found in managers' speech both in written transcripts and audio recordings. However, it did not include non-verbal hesitations which are generally only found in audio recordings of earnings calls because these cues are edited out when earnings calls are transcribed.

I found that when the CEO's speech was transmitted to participants via written transcripts, language power did not influence investors' judgments. This finding is consistent with my prediction that when earnings calls are transmitted as written transcripts, participants will form judgments based on systematic analysis of presented arguments and ignore irrelevant powerless language cues. In contrast, when the CEO's speech was transmitted via audio recordings, investors' judgments were higher when the CEO used powerful language than when he used powerless

language. I also found that when earnings calls were transmitted via audio recordings, the valence of participants' speaker-related thoughts were more negative when the CEO used powerless language than when he used powerful language. Consistent with the prediction that participants who received earnings calls via audio recordings would form judgments based on heuristic judgments of the CEO's personal characteristics, the valence of speaker-related thoughts were also found to mediate the relationship between language power and investor judgments for this group of participants.

Given that prior studies such as Brennan and Williams (1995) and Clark and Fox Tree (2002) have suggested that a speaker's use of non-verbal hesitations can be perceived by message recipients in a positive light in the context of spontaneous speech, I also introduced a supplementary powerless language condition which included powerless language cues such as non-verbal hesitation, verbal hesitations, and hedges (i.e. the *powerless-with NVH* condition). Consistent with my original prediction that when earnings calls are transmitted as written transcripts, participants will form judgments based on systematic analysis of presented arguments, I found that language power did not influence investors' judgments when earnings calls were transmitted via written transcripts. However, counter to the findings in the powerless (without non-verbal hesitations) condition, I found that when earnings calls were transmitted via audio recordings, investor judgments in the *powerful* condition did not differ from judgments in the *powerless-with NVH* condition. Further, investor judgments in the *powerless-with NVH* condition were found to be significantly higher than judgments in the original *powerless* condition. Subsequent pairwise comparisons of participant ratings of twelve personal characteristics of the CEO revealed that the CEO's composure and ability to wield power were rated more

highly by participants in the *powerless-with NVH* condition than in the *powerless* condition.

My study complements prior research examining the information content of qualitative aspects of disclosure. Earlier studies have examined aspects such as the readability (Tan et al. 2015; Rennekamp 2012) and vividness (Hales et al. 2011) of language contained in disclosure. Building on this, my study extends the literature on linguistic analysis by using an experiment to hold constant other aspects of a manager's speech (e.g. tone, rate of speech etc), and demonstrating that language power plays an incremental role in influencing investor judgments.

In addition, while prior studies such as Elliott et. al. (2011) have examined the effects of the use of video and text in disclosures on investor judgments, my study is the first to compare the relative effects of audio and text-based disclosures on investor judgments. My findings would be especially important for managers and investors in understanding how information communicated via these modes can differentially influence investor judgments.

One limitation of my study relates to the use of MBA students as participants, and whether they are representative of more sophisticated investors with experience in accessing earnings call information via the two communication modes under study. However, notwithstanding the above reservations, it has been suggested that MBA students do represent relatively informed individual investors (Maines and McDaniel 2000). A fairly large proportion of participants in my study also indicated that they either had investment experience or intended to make investments in the near future.

Another limitation relates to the highly contextualized nature of my study, and how the results might generalize to a broader group of recipients of earnings call

information. In particular, the ELM suggests that elaboration likelihood exists on a continuum where persuasion via the central and peripheral routes can co-occur at varying levels such that as persuasion progresses along this continuum, there is a continuing “tradeoff between the impacts of argument elaboration and peripheral route processes on attitude” (Petty and Cacioppo 1986; see postulate 6). The exact point along this continuum where elaboration likelihood takes place is influenced by both the ability and motivation of message recipients to process information received.

In my experiment, I attempted to influence elaboration likelihood (and hence the point on the continuum where elaboration likelihood took place) by varying participants’ abilities to process information via the manipulation of the communication mode of earnings calls. However, it should be noted that the level of motivation that participants had to process information (which remained constant across conditions in my experiment) also played a part in influencing elaboration likelihood. In my study, participants took on the role of potential investors in the target company. This relatively high level of personal involvement that participants had in the specific context of the study was likely to have resulted in a correspondingly high level of motivation among participants to process information presented.

In practice, however, there are many other groups of recipients of earnings call information who may, due to various contextual reasons, have different levels of motivation to process information than participants in my study. Therefore, given this possibility of substantial variations in the levels of motivation, and hence elaboration likelihoods, of different groups of recipients of earnings call information occurring in practice, the results in my study, particularly in the written transcript condition where

elaboration likelihood is assumed to be high, might not generalize to these other groups of recipients of earnings call information.

The results from my study suggest two interesting areas for future research. The first area involves examining the effects of specific powerless language cues on investor judgments. Prior studies have often assumed, at least implicitly, that various markers of powerless language are roughly equivalent, and have frequently used them in combination to create powerless messages (e.g. Areni and Sparks 2005; Sparks et al. 1998). However, Blankenship and Holtgraves (2005) suggest that different powerless language cues might have different effects on the persuasiveness of messages. In my study, I used two manipulations of powerless language, with one manipulation including verbal hesitations and hedges, and the other including non-verbal hesitations, verbal hesitations, and hedges. My subsequent analysis revealed that these two manipulations of powerless language had different influences on investor judgments in the specific context of an earnings call. Future research could build on these findings and examine the individual effects of specific powerless language cues on investor judgments.

The second area for future research involves examining the extent to which investors' judgments can be influenced by the quality of arguments contained in messages when earnings calls are transmitted via written transcripts. Specifically, the ELM suggests that powerless language cues can act also as distracting cues when elaboration likelihood is relatively high. Such distracting cues interrupt the flow of discourse in a communication setting and distract message recipients from processing message arguments (Bradac and Street 1990; Sparks and Areni 2008). In such situations when powerless language cues act as distracting cues, message recipients' abilities to distinguish between high and low quality arguments that are

presented would then be correspondingly diminished. Focusing future research efforts in this area would have practical implications for managers and investors as it would shed light on how language power influences the importance of the quality of arguments presented by managers in earnings calls on investor judgments.

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Appendices

Appendix A: Analysis of audio recordings of managers' speeches in earnings calls of 20 US listed firm

Name	Exchange	Market Cap (USD, in Billions)	Sector	Call	VH	NVH	Hedges	Tag questions	Instances per min	Total time sampled
Accenture p.l.c.	NYSE	60.60	Technology	Q1 2013	17	28	3	0	8.07	0:05:57
Aceto Corp	NASDAQ	0.70	Basic Materials	Q1 2013	7	14	4	0	6.55	0:03:49
Analog Devices, Inc	NASDAQ	21.30	Technology	Q1 2013	12	12	11	0	11.35	0:03:05
BP p.l.c.	NYSE	217.10	Basic Materials	Q4 2012	3	20	8	0	5.67	0:05:28
Cisco Systems, Inc	NASDAQ	149.60	Technology	Q2 2013	1	26	15	0	5.53	0:07:36
Deere & Company	NYSE	32.00	Industrial Goods	Q1 2013	2	22	0	0	7.50	0:03:12
The Walt Disney Company	NYSE	137.30	Services	Q4 2012	6	10	6	0	7.59	0:02:54
Dun & Bradstreet Corp	NYSE	4.60	Technology	Q3 2012	1	13	6	0	6.63	0:03:01
Express Scripts Holding Com	NASDAQ	65.40	Healthcare	Q4 2012	18	3	13	0	4.31	0:07:53
Facebook, Inc.	NASDAQ	226.00	Technology	Q4 2012	6	22	16	2	9.62	0:04:47
Gannett Co.	NYSE	8.30	Services	Q4 2012	6	24	8	0	6.50	0:05:51
Google, Inc.	NASDAQ	368.30	Technology	Q3 2012	6	15	20	0	8.88	0:04:37
Interface, Inc.	NASDAQ	1.50	Industrial Goods	Q4 2012	7	9	7	0	9.65	0:02:23
Kaiser Aluminium Corporatio	NASDAQ	1.40	Basic Materials	Q4 2012	0	9	5	0	4.18	0:03:21
Kellogg Company	NYSE	22.30	Consumer Goods	Q4 2012	3	0	6	0	2.86	0:03:09
Red Robin Gourmet Burgers,	NASDAQ	1.20	Services	Q2 2013	11	12	19	0	10.37	0:04:03
Salesforce.com, Inc.	NYSE	48.50	Technology	Q3 2013	6	10	1	0	2.99	0:05:41
Texas Roadhouse, Inc.	NASDAQ	2.50	Services	Q4 2012	16	27	8	0	11.59	0:04:24
Time Warner, Inc.	NYSE	70.30	Services	Q4 2012	2	8	15	0	3.99	0:06:16
Whiting Petroleum Corp.	NYSE	6.70	Basic Materials	Q3 2012	2	13	5	0	4.49	0:04:27

Note: VH refers to verbal hesitations and NVH refers to non-verbal hesitations

Max instances per min	11.59
Min instances per min	2.86
Mean	6.92
Standard deviation	2.70
25th percentile	4.45
75th percentile	9.06

Appendix B: Analysis of the listing of participant thoughts by experimental conditions

Mean no of thoughts

	Positive argument related	Negative argument related	Positive speaker related	Negative speaker related	Other positive	Other negative	Other
Powerful + written	0.33	0.52	0.10	0.38	0.19	0.52	1.13
Powerless + written	0.33	1.05	0.10	0.90	0.19	0.14	0.33
Powerful + audio	0.10	1.14	0.19	1.19	0.00	0.24	0.33
Powerless + audio	0.09	0.70	0.09	1.96	0.04	0.13	0.04

Valance of speaker related thought					Valance of argument related thought				
LP					LP				
Powerful Powerles: Powerless-w nvh					Powerful Powerles: Powerless-w nvh				
Commode	Audio				Commode	Audio			
	Transcript	-1	-1.85	-1.67		Transcript	-0.85	-0.5	-0.08
		-0.29	-0.7	-0.84			-0.25	-0.65	-0.6

Appendix C: Experimental material – background information

Introduction

In this study, you are to assume the role of a potential investor assessing the **earnings prospects** of **Great Meals Corporation**, a US-based restaurant operator which has operations globally.

In the following pages you will be provided with relevant information related to the company to help you make your assessment. Note that throughout the study, you will only be able to move forward, and **will not** be able to revisit a page once you have moved on from it.

NEXT PAGE

About Great Meals Corporation

Great Meals Corporation is a US-based global foodservice retailer that is listed on the New York Stock Exchange (NYSE: GMC).

It operates more than 550 restaurants, serving approximately 750,000 people in 17 countries each day. The business is managed as distinct geographic segments that include the US, Europe, and Asia Pacific regions.

NEXT PAGE

Release of latest quarterly results

It is now 3 August 2013. Two days ago, on 1 August 2013, **Great Meals Corporation** announced its second quarter results for 2013.

Great Meals issued the following press release:

Great Meals Corporation Reports Q2 2013 Results

Aug. 1, 2013 /PRNewswire/ -- Great Meals Corporation today announced results for the quarter ended June 30, 2013, reflecting lower revenues, operating income and earnings per share compared with the prior quarter.

"Throughout the quarter we concentrated our efforts on enhancing our menus and modernizing the customer experience," said Great Meals' Chief Executive Officer John Bath. "Great Meals continued to focus on what matters most to our customers, although our results does reflect the impact of the challenging global operating environment."

Second quarter highlights included:

- *Global comparable sales decreased 3%, with the U.S. down 3.3%, Europe down 2.5% and Asia Pacific down 1.7%*
- *Consolidated revenues down 2%*
- *Consolidated operating income decrease of 0.95%*
- *Diluted earnings per share of \$6.44, down 2.6%*

John Bath concluded, "Moving forward, we remain focused on seizing the long-term opportunities in the global marketplace. We have a resilient business model, and the experience to navigate the current environment."

NEXT PAGE

Summary of Great Meals Corporation's Q2 2013 financial results

The table below summarizes Great Meal's financial performance.

FINANCIAL SUMMARY (In US\$ '000, except per share dollar)

FISCAL YEAR	Jun 30, 2013 (Unaudited)	Mar 31, 2013
<u>RESULTS OF OPERATION</u>		
Sales	\$501,831	\$519,929
Operating income	\$20,717	\$20,916
Net earnings	\$35,420	\$36,346
Net earnings per share (diluted)	\$6.44	\$6.61
<u>FINANCIAL POSITION</u>		
Total assets	\$4,256,978	\$4,303,199
Long-term debt	\$1,441,742	\$1,444,651
Stockholders' equity	\$1,971,479	\$1,985,855

NEXT PAGE

Class action lawsuit against Great Meals

During the quarter, a class action lawsuit was also filed against Great Meals Corporation in the US.

The following is a news report from *The New York Times* on the lawsuit:

Great Meals Sued over Beef That's Mostly Not Beef

By Jason Scott / The New York Times / June 5 2013

The NYSE-listed restaurant chain, Great Meals Corporation, has been accused of false advertising when it refers to "premium beef" used in its burgers in the US.

According to the lawsuit filed by New York based law firm Jones & Miles, the restaurant chain is using a meat mixture that contains binders and extenders, and does not meet the minimum requirements set by the U.S. Department of Agriculture (USDA) to be labelled as "beef."

Research conducted by the law firm found that Great Meals' meat mixture, which it dubs "premium beef", contained less than 25 % beef. The other 75% of the "beef" is made up of fillers such as water, soy lecithin, maltodextrin, silicon dioxide and anti-dusting agents. If these figures are correct, the product would fail to meet minimum requirements, set by the USDA, to be labelled as "beef."

According to registered dietician Lucy Smith, the use of such fillers could be a danger to the health of consumers. "Soy lecithin and maltodextrin are common allergens that are often added to processed foods as fillers because they are much less expensive than meat," she said. "Beyond being misleading, this form of false advertising also puts the consumer's health at risk."

Albert Doe, a spokesman for Great Meals Corporation, said the company denies that its advertising is misleading: "Great Meals prides itself on serving quality burgers with great value. We're confident that the millions of diners in the US we serve every week agree."

The verdict of the case has yet to be announced.

NEXT PAGE

Appendix D: Experimental material – earnings call transcripts

Full transcript for *powerful* condition

Operator: Good morning everyone, and thank you for joining us. With me on the call today are Chief Executive Officer, John Bath, and Chief Financial Officer, Grace Henson. At this time, we will begin the question and answer session. Our first question is from Chris Brown from Diamond Capital.

<Question> Chris Brown (Analyst): Thanks. Good morning everyone. My question is for John. John, the class action lawsuit filed against Great Meals in the US has significantly affected your earnings in the US. Could you provide some colour on how you are dealing with the lawsuit, and whether it might continue to impact earnings going forward?

<Answer> John Bath (CEO): Thank you Chris. Clearly, the publicity from the lawsuit against Great Meals had a negative impact on US sales. I was surprised by the magnitude and the sustained nature of the sales impact that this event had on us. This wasn't even a credible event. But the plaintiff's lawyers generated a ton of press coverage, giving press interviews containing statements about our product that were just that were just plain wrong.

It was a fundamentally false claim, and unfortunately for them and their lawyers, they picked the wrong corporate pocket and the Great Meals team we will we will stand us to this case. We will provide them and the court with statements from our suppliers and our labs, and I'm confident they will drop the case.

In terms of sales, we have not yet been able to reverse the negative trend in the US. If anything, sales have gotten weaker since the end of the quarter and it is difficult to say when we will break this trend. I am hopeful that the withdrawal of this lawsuit, which we anticipate will happen, will be the first step towards a sustained recovery for us.

Regardless, we're moving, moving forward. We've got a great vision for Great Meals in the US. It's 60% of our global profits and we are fundamentally bullish on this business.

And what we're going to do is we're going to get back, focused on listening and, and responding to the voice of the customer. What we're doing now is we're focused on running great restaurants, serving great products and just reassuring our customers about the quality and, and integrity at Great Meals.

We're looking at all of our options right now on how to deal with the situation. But the great news is that Great Meals is a great brand with no significant competitor in the US. And we're going to get back to just doing best what we do best, and that's selling our food and giving customers great service. And I'm optimistic that we will be able to get the business turned around.

Chris Brown (Analyst): Great thanks John for the update.

Operator: And at this time I'm showing no further question. Ladies and Gentlemen, this does conclude the Great Meals Corporation Second Quarter 2013 Earnings Conference Call. Once again,

we would like to thank you very much for your participation in the call this morning. At this time, all parties may now disconnect from the call. Have a great rest of the day ahead. Thank you.

Transcript of CEO speech in *powerless* condition

<Answer> John Bath (CEO): Thank you Chris. Clearly, the publicity from the lawsuit against Great Meals had, well, a negative impact on US sales. I was surprised by the magnitude and the sustained nature of the sales impact that this event had on us. This wasn't even, I mean, a credible event. But the plaintiff's lawyers generated, I mean, a ton of press coverage, giving press interviews containing statements about our product that were just, I mean, that were just plain, you know, wrong.

It was a fundamentally false claim, and unfortunately, I think, for them and their lawyers, they picked the, I mean, wrong corporate pocket and the Great Meals team we will, you know, we will stand us to this case. We will provide them and the court with statements from our suppliers and our labs, and I'm, you know, confident they will drop the case.

In terms of sales, we have not yet been able to reverse the negative trend in the US. If anything, sales have I mean gotten weaker since the end of the quarter and it is difficult to say, you know, when we will break this trend. I am kind of hopeful that the withdrawal, you know, of this lawsuit, which we anticipate, you know, will happen, will be the first step towards a sustained recovery for us.

Regardless, we're moving, you know, moving forward. We've got a great vision, I think, for Great Meals in the US. It's 60% of our global profits and we are fundamentally kind of bullish on this business.

And what we're going to do is we're going to get back, focused on listening and, I mean, and responding to the voice of the customer. What we're doing now is we're focused on running great restaurants, serving, I mean, great products and just reassuring, I think, our customers about the quality and, well, and integrity at Great Meals.

We're looking at all of our options right now on how to deal with the situation. But the great news is that Great Meals is a great, you know, brand with no significant competitor in the US. And we're going to get back to just doing best what we you know do best, and that's selling our food and giving customers great, you know, service. And I'm optimistic, you know, that we will be able to get the business turned around.

Transcript of CEO speech in *powerless-with NVH* condition

<Answer> John Bath (CEO): Thank you Chris. Clearly, the publicity from the lawsuit against Great Meals had, well, a negative impact on US sales. I was surprised by the magnitude and the sustained nature of the sales impact that this event had on us. This wasn't even uhhh a credible event. But the plaintiff's lawyers generated uhhh a ton of press coverage, giving press interviews containing statements about our product that were just, I mean, that were just plain uhhh wrong.

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Appendix E: Experimental material – key participant responses

Part 1 – Judgments of Great Meals

To what extent do you agree that Great Meal's earnings performance will recover in the near future?

Strongly Disagree -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 Strongly Agree

To what extent do you agree that Great Meals is a good long term investment?

Strongly Disagree -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 Strongly Agree

To what extent do you think Great Meals will recover from its current setback?

Definitely not recover -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 Definitely recover

To what extent do you think Great Meal's stock price will appreciate in the future?

Definitely not appreciate -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 Definitely appreciate

Part 2 – Participant thoughts

You have 3 minutes to list all thoughts you had while going through the earnings call. These thoughts can include things related to the speaker, the actual message, or anything else you might have thought about (including things completely unrelated to the earnings call). Begin each thought on a new line.

Part 3 – Judgments of CEO characteristics and argument strength

To what extent do you think that the CEO who spoke in the earnings call is in a position to wield power within Great Meals Corporation?

Not at all in a position to wield power -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 Very much in a position to wield power

To what extent do you think that the CEO who spoke in the earnings call has an aggressive personality ?

Not at all aggressive personality -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 Very aggressive personality

To what extent do you think that the CEO who spoke in the earnings call is credible?

Not at all credible -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 Very credible

To what extent do you think that the CEO who spoke in the earnings call is trustworthy?

Not at all trustworthy -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 Very trustworthy

To what extent do you think that the CEO who spoke in the earnings call is likable?

Not at all likable -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 Very likable

To what extent do you think that the CEO who spoke in the earnings call is competent?

Not at all competent -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 Very competent

To what extent do you think that the CEO who spoke in the earnings call is composed?

Not at all composed -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 Very composed

To what extent do you think that the CEO who spoke in the earnings call is confident?

Not at all confident -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 Very confident

To what extent do you think that the CEO who spoke in the earnings call has self-control over his actions?

Not at all in self-control over his actions -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 Very much has self-control over his actions

To what extent do you think that the the communication by the CEO who spoke in the earnings call was planned?

Not at all planned -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 Very much planned

To what extent do you think that the communication by the CEO who spoke in the earnings call was strategic?

Not at all strategic -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 Very much strategic

To what extent do you think that the CEO who spoke in the earnings call is an effective leader?

Not at all an effective leader -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 Very much an effective leader

To what extent do you think that the CEO's specific arguments about Great Meal's strategy to improve earnings that were made during the earnings call were valid?

Not at all valid -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 Very much valid

To what extent do you think that the CEO's specific arguments about Great Meal's strategy to improve earnings that were made during the earnings call were strong?

Not at all strong -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 Very much strong

To what extent do you think that the level of uncertainty surrounding the success of Great Meals Corporation's strategy to improve earnings in the next financial year is due to global macro-economic conditions?

Not at all due to global macro-economic conditions -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 Very much due to global macro-economic conditions

To what extent do you think that the level of uncertainty surrounding the success of Great Meals Corporation's strategy to improve earnings in the next financial year is due to competition from rival firms?

Very much due to competition from rival firms -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 Not at all due to competition from rival firms

To what extent do you think that the level of uncertainty surrounding the success of Great Meals Corporation's strategy to improve earnings in the next financial year is due to Great Meal's execution of strategy?

Not at all due to execution of strategy -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 Very much due to execution of strategy

Part 4 – Manipulation checks

To what extent do you think the CEO used filler words such as “I think”, “I guess”, “sort of”, “I mean”, etc frequently in his speech during the earnings call?

Not at all frequently -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 Very frequently

The conference call was presented to you via which one of these methods?

Written transcript

Audio recording