Textual Analysis of Management Tone during Conference Calls and the Impact on Capital Markets

James William Penner

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W. Patrick Fan (Chair)
Robert M. Brown
C. Bryan Cloyd
Ozgur Ince
John J. Maher

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ABSTRACT:

This study examines the tone of management disclosures and their impact on capital markets. In particular, I examine the positive and negative tone, as defined by the Harvard IV-4 Dictionary, during conference calls and the impact on analyst accuracy, dispersion of analysts' estimates, cumulative abnormal returns, abnormal trading volumes, and the number of days after the end of the quarter. Results indicate that pessimism is significantly related to decreased analyst accuracy. A one percent increase in the pessimism of a conference call results in a decrease in analyst accuracy by approximately 10%. In addition, an increase in pessimism is associated with an increase in the dispersion of analysts' estimates. Pessimism is related to negative abnormal returns in the 30 days after the end of the conference call and also to increased trading volume in the three days after the conference call. A one percent increase in the pessimism of a conference call is related to a negative abnormal return of approximately .4%. These findings are consistent with the theory that the positive and negative tone of a conference call provides incremental information to the capital markets. I am unable to find significant results for an increase in the number of days between the end of the quarter and the conference call date. These results are robust to using a more financially oriented dictionary created by Loughran and McDonald (2011)

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Table of Contents

List of Figures

List of Tables

1. Introduction

Management disclosures are an important source of information used by market participants and have been studied extensively in accounting research (Healy and Palepu 2001). How this information is presented can have far-reaching effects. Early research on conference calls revealed mixed results on their importance in relation to the overall information available to a company as measured by analyst accuracy (Bowen et al. 2002; Francis et al. 1997). Researchers have established that new information is presented during conference calls as evidenced by increased trading volume and elevated return volatility (Frankel et al. 1999; Francis et al. 1997). It has also been found that the post earnings announcement drift decreases following the initiation of quarterly conference calls which suggests that information presented during the call is used by the market (Kimbrough 2005). This finding was found to be most significant in smaller, less traded firms. This paper expands upon the existing literature by examining the tone of the information presented by management and the impact on analyst accuracy, abnormal returns, abnormal volume, and the dispersion of future estimates.

Does the tone of the information presented in a conference call provide additional information to analysts and participants on the call? More specifically, (1) is the accuracy of analysts' forecasts impacted by the overall positive or negative tone of conference calls in the prior quarter? (2) Are future abnormal returns related to the tone of the conference call? (3) Are future abnormal volumes related to the positive and negative information conveyed in a conference call? (4) Does the tone of the call impact analyst dispersion? (5) Does the length of time after the end of the quarter provide additional information to analysts and users? Researchers can see the importance of examining these questions by studying the increasing number of studies that examine analyst accuracy (Barron et al. 2002; Bowen et al. 2002), the

1

effect of meeting or beating expectations (Bartov et al. 2002; Koh et al. 2008), the growing focus on conference calls (Frankel et al. 2010; Price et al. 2012), and the use of qualitative information in academic research (Tetlock 2007; Tetlock et al. 2008; Li 2008).

Conference calls are a unique medium through which information can be dispersed to the market. Three particular features of conference calls make them especially worthy of study. First, conference calls allow management the opportunity to present their quarterly earnings in a more informal manner than other disclosure methods. The call is generally broken into two sections, a presentation of the company's results usually given by the CEO, CFO, or other high ranking member of management, and a question and answer section. Analysts and investors use this opportunity to delve deeper into the results of the company by asking questions about future growth, earnings, expense rates, possible acquisition plans, dividends or share repurchases. Second, according to the information richness theory of psychology research, the way in which information is presented in conference calls differs from other disclosure methods (Daft and Lengel 1986). In this instance, management takes an active role. Instead of merely handing out prepared documentation, managers verbally present the information and answer live questions (Daft and Lengel 1986). Third, the timing and nature of the conference call provides an opportunity for management to also disclose qualitative results from the first several weeks of the subsequent quarter. This unique and informal disclosure method can improve both the richness and quantity of qualitative information presented.

This paper builds on the methodology and findings in Bowen et al. (2002) and explore information presented during conference calls to determine if analysts use the increased disclosures to obtain additional information about the company and its future earnings. The ability of analysts and investors to incorporate this information is important because it allows

them to efficiently and accurately estimate future earnings per share. The sample selected for this paper consists of approximately 45,000 conference calls ranging from 2002 to 2008.[1] All calls took place after the passage of Regulation Fair Disclosure (Reg. FD), which prohibits companies from disclosing any material information in private communications with investors or analysts. The average (median) conference call is approximately 7,800 (7,700) words long, conducted by senior management, and occurs within 24 hours of the earnings release. There are, on average, 7.2 (6) analysts following one company.

This paper contributes to the accounting literature in five ways. First, this research will examine whether analysts can improve their accuracy in the subsequent quarters based upon management's choice of words during a conference call. This finding is important to analysts who can use the information to improve their accuracy of earnings forecasts for future quarters. It is also important to investors who can use the tone of the call to evaluate whether they estimate information uncertainty to be high or low. I find that increases in pessimistic tone during a conference call is positively associated with decreased accuracy of analysts' estimates Second, this paper expands on the prior research by showing the impact of positive and negative tone on abnormal returns. I find a significant relationship between abnormal returns and negative tone during a conference call. Third, this research examines the relationship between the tone of conference calls and abnormal trading volumes of companies. Fourth, it examines the difference between companies that conduct conference calls shortly after the end of a quarter and those companies that wait until closer to the filing deadline. If the length of time between the end of the quarter and the conference call provides additional information to analysts and market participants, then this shows that management is providing information on the quarter in

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[1] Transcripts to conference calls conducted before 2002 are unavailable.

progress. Lastly, this research explores whether the tone of a call impacts analyst forecast

dispersion. If so, investors and analysts can use this information to determine the overall

information asymmetry and uncertainty surrounding the company. I find a positive relationship

between the positive tone of a conference call and decreases in the dispersion of analysts'

estimates. The remainder of this dissertation is structured as follows. Chapter two presents the

literature review and hypothesis development. Chapter three describes the methodology.

Chapter four presents the sample. Chapter five discusses the results. Chapter six concludes with

the contributions and limitations of the paper.

2. Literature Review

Due to data limitations, the majority of accounting research explores the impact of quantitative guidance on abnormal returns, abnormal volume, analyst accuracy, and the dispersion of analyst estimates and has not focused on the qualitative information released by management. The type of information gathered for qualitative research is different from that used for quantitative research. Quantitative data is based on information that is readily available (revenue, earnings per share, or market cap), while qualitative research is based on information that is less accessible or even generated by researchers themselves through information given by management. Qualitative research has recently become more popular as computing power and the availability of information grows giving researchers a greater opportunity to explore new avenues. Qualitative researchers have used everything from complex, naïve Bayesian learning algorithms (Li 2009) to readability measures using the Fog Index (Li 2008) to proportions of words to create an overall tone (Tetlock 2007; Tetlock et al. 2008; Frankel et al. 2010). This study will follow the methodology of Frankel et al. (2010) to calculate whether there was a positive or negative tone to a conference call based on the number of positive and negative words used by management in proportion to the total words spoken. Qualitative research has focused on the tone of 10k's, press releases, and other corporate documents and researchers have used positive and negative word lists from the commonly available Harvard IV-4 Dictionary (Tetlock 2007; Feldman et al. 2010) This stream of research can be applied to conference calls and will provide insights into the choice of words used by the facilitators of the calls, thus giving researchers and investors additional information about the position of management.

In the past, conference call participants were often limited to analysts. However, the technological advances of the late 1990s and early 2000s have made the dissemination of conference call information to investors cheaper and more efficient. In addition, the Regulation

Fair Disclosure Act (Selective Disclosure and Insider Trading 2000), passed by the Securities

and Exchange Commission (SEC) in 2000, prohibits companies from providing selective

disclosure to analysts or influential investors, thus eliminating analyst only conference calls. If a

company releases new information, the disclosure has to be made publicly available.

Researchers have explored the importance of conference calls in relation to analyst accuracy, and

whether conference calls could be used to reduce information asymmetry, and as a result, a

measure of the cost of capital (Tasker 1998; Brown et al. 2004). Previous research has found

mixed results regarding changes in analyst accuracy following a call. While Francis et al. (1997)

found no evidence that forecasts are more accurate or the range of estimates less dispersed, as a

result of the conference call, their study does show a positive abnormal volume and larger stock

reactions following presentations to security analysts. Conversely, Bowen et al. (2002) found

increased analyst accuracy and decreased dispersion of analyst estimates. Conflicting results

from these early studies into management disclosures provide an interesting research question

about how information presented during conference calls is used by market participants.

2.1 Textual Analysis Research in Capital Markets

Prior research has focused on the tone of 10ks, press releases, and other documents using

the Harvard IV-4 Dictionary (Feldman et al. 2010; Tetlock et al. 2008; Davis et al. 2006). While

this dictionary is used extensively in the research, recent studies have begun to question the use

of a non-business dictionary in a corporate environment. For instance, while "tax" and "mine"

are classified as negative words in the Harvard IV-4 Dictionary, they often have a neutral

connotation in corporate documents. Because of this, Loughran and McDonald (2011) compiled

a list of positive and negative financial terms by scanning thousands of corporate disclosures and

generating a list of words found in at least five percent of the documents and labeled them

appropriately. This research will follow the methodology of classifying a positive and a negative

tone during a particular conference call, based upon the proportion of positive and negative spoken words.[2] Following prior literature, the positive or negative tone of the conference call will be calculated as the number of times a positive or negative word is used divided by the total number of words in the conference call (Frankel et al. 2010). The Loughran and McDonald (2011) word list is used in robustness tests.

Tetlock (2007) found that the proportion of negative words in the *Wall Street Journal* column, "Abreast of the Market," predicted downward pressure on a stock the next trading day, which was followed by a reversion to fundamentals in subsequent days. Tetlock used the Harvard IV-4 Dictionary to measure the pessimistic tone of the article. He indicates that unusually high or low pessimism predicted high trading volume for the next day. In his research, Tetlock found little support for the importance of positive terms in predicting market reaction. However, unusually high trading volume was associated with higher optimism.

Researchers have also examined whether news stories can be used to learn about firm fundamentals. By looking at the proportion of negative words in all *Wall Street Journal* articles and the *Dow Jones News Service*, Tetlock et al. (2008) determined that a more pessimistic tone indicates low firm earnings. Next, they found that stock prices briefly under-react to negative information depicted in news articles. Negative words impact stock price most significantly when the news story focused on firm fundamentals. Media perceptions of firm fundamentals and characteristics effectively captured negative information about a company. This result suggests that it is possible to obtain a measure of a company's success by examining the tone of financial news in the *Wall Street Journal*.

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[2] The Harvard IV-4 dictionary (*Harvard IV-4 Dictionary*) has approximately 2,293 negative words and 1,914 positive words.

Companies with better, more persistent earnings have an incentive to ensure that users of its financial statements can easily understand and recognize their worth. To test this hypothesis, Li (2008) reviewed the management discussion and analysis (MD&A) section of public companies' reports to determine if they alter the language in financial statements to make them either easier to understand or, possibly, to confuse investors. Li's findings support that companies with lower earnings released financial reports that were difficult to read, while firms with more persistent earnings have clearer, less complex, MD&A sections of their financial statements. Firms with lower earnings understandably want to make it more difficult for investors to properly evaluate their results. As such, they are motivated to create a set of complex financial statements. The decision to change the readability of these statements can be extrapolated to the less formal conference call where management has an opportunity to present an optimistic or pessimistic view of the company and its results.

Qualitative researchers have gone beyond the analysis of textual contexts through the use of voice recognition software that determines the level of emotion or vocal cues given by managers during conference calls (Mayew and Venkatachalam 2011). Mayew and Venkatacham found that vocal cues (emotional states) are good indicators of future firm fundamentals and stock returns. They determined that there is a positive relationship between positive vocal cues and changes in stock recommendations from analysts. Researchers also indicate the relationship between positive words and low analyst estimates is marginally significant. Mayew and Venkatachalam (2011) examined vocal cues during conference calls and found firms with high levels of positive affective vocal cues (emotional states from the conference call deciphered using a proprietary software) had positive abnormal returns in the period after conference calls. Frankel et al. (2010) expanded the accounting literature focused on conference calls by exploring

the effect of missing earnings by one cent on the characteristics of the call including the length, tone, and earnings forecasting accuracy. Conference calls have been shown to increase in length when companies miss their earnings target by one cent. This paper will extend the qualitative research around conference calls by examining whether the positive or negative tone of the conference call is associated with the accuracy of analyst predictions, the dispersion of analyst estimates, the cumulative abnormal returns, and abnormal trading volumes.

2.2 Analyst Forecast Accuracy

For over 30 years, researchers have explored the importance of analyst estimates. Initial research found that analyst estimates were more accurate than time series models (Fried and Givoly 1982; Brown and Rozeff 1979). In addition, other researchers reported that analysts' earnings forecasts affected stock prices (Givoly and Lakonishok 1979). Analysts tended to follow firms with better disclosures, and the dispersion of estimates and volatility of revisions decreases when disclosures are more informative (Lang and Lundholm 1996). Managers also realize the importance of analyst estimates. The majority of managers (79.9%) would advocate decreasing discretionary expenditures in order to meet earnings expectations, while 73.5% of CFOs contend that analyst consensus estimates are important when reporting a quarterly earnings number (Graham et al. 2005). Additionally, analyst estimates can significantly affect financial markets as indicated by the meet or beat premium and the impact of incorrect estimates (Bartov et al. 2002; Matsumoto 2002). The importance of analysts' estimates was also evidenced by management's willingness and ability to manage earnings through real activities, even if it may negatively impact the company in future quarters (Roychowdhury 2006), thus decreasing management's intentions to guide analyst expectations lower to meet expectations

(Dechow et al. 1995; Burgstahler and Dichev 1997; Graham et al. 2005; Degeorge et al. 1999). Analysts' estimates are a significant source of information for many market participants and play an important role in creating efficient markets.

Research surrounding information used by analysts to develop earnings forecasts and recommendations is important to the accounting literature. Analysts use financial information (Brown and Rozeff 1979), non-financial information (Bowen et al. 2002), and guidance from management in calculating their estimates (Waymire 1986). Rogers and Grant's (1997) analyzed the sources of information that analysts use and showed that 26% of the data is gathered from the financial statements, while an additional 26% is gathered from the narrative sections of the annual report. The remaining 48% came from sources outside of the financial reporting process including: press releases, industry fundamentals, or conference calls. Examining analyst pronouncements, Lev and Thiagarajan (1993) generated a search of analysts pronouncements and found that 12 fundamentals-based earnings persistence indicators were commonly used by analysts. By looking at each of the sources of information used by analysts to make estimates, researchers can get a better understanding of what was deemed important in the decision-making process of analysts and what was largely ignored.

The effect of non-financial information on analysts' accuracy has also been extensively studied. Analysts used substantial amounts of non-financial information when generating estimates (Rogers and Grant 1997). Accounting researchers have examined the relationship between quality of disclosures and analyst accuracy (Barron et al. 1999) and found that higher quality MD&A sections provide more information to analysts who, subsequently, are more accurate in estimating future quarter results. Analysts also consider company risks and concerns when making recommendations (Previts et al. 1994). Researchers have also focused on the

creation of new information by analysts from either public or private sources. One such public source of information is conference calls, which are important to analysts when creating new information. Research on the impact of conference calls on analyst accuracy is mixed. Through the use of an indicator variable on whether a company has had a conference call, Bowen et al. (2002) found conference calls increased analysts' estimate accuracy while decreasing dispersion. Other researchers found presentations to analysts had no effect on forecast accuracy or dispersion (Francis et al. 1997). Due to data limitations at the time, the authors of these two studies were unable to explore the conflicting results. With increased disclosure in the years after Reg. FD, it is now possible to explore the relationship between the information presented during conference calls and analyst accuracy.

Management guidance has also been found to be a significant factor in the accuracy of analysts' estimates (Libby et al. 2006; Hirst et al. 2008). Prior to Reg. FD, it was common for analysts or influential stockholders to call a member of the management team and ask for earnings guidance or other types of private information for the upcoming quarter (Gintschel and Markov 2004). While the management team had incentives to provide accurate estimates to analysts and investors in public disclosures (Williams 1996), they are also motivated to lower earnings expectations of analysts, in order to help the company meet or beat the upcoming earnings targets (Baik and Jiang 2006). Cotter et al. (2006) indicated that 47% of analysts revised their forecasts within five days of a management guidance event. Researchers have found that issuing management guidance increased the likelihood of meeting or beating analyst estimates. When management provided point guidance, the company is 13% more likely to meet or beat earnings estimates compared to a firm that does not issue guidance. If members of the management team provided a guidance figure range, they were nine percent more likely to meet

or beat earnings estimates. If the management team provided guidance that is below the consensus earnings forecast, then the company is 28% more likely to meet or beat expectations. If analyst expectations are too optimistic, firms issued guidance more frequently in order to lower them (Cotter et al. 2006). Companies can issue three types of guidance in relation to consensus analyst estimates: lower than current estimates, higher than current estimates, or in line with current estimates. Intentions of management can vary when issuing these forms of guidance. Companies issue negative guidance for two related reasons. First, they may warn of a bad quarter in which they will miss earnings expectations significantly (Kasznik and Lev 1995). Second, as discussed previously, management may issue guidance in order to lower analysts' estimates to a beatable range (Cotter et al. 2006). After the accounting scandals of the early 2000s, managers have been less willing to manage earnings through earnings management although there is an increased use of expectations management (Koh et al. 2008). Rather than using negative guidance to lower expectations, managers can issue guidance to warn analysts when they expect to miss expectations by a wide margin. Management guidance was controlled for in the regression results.

Analysts have significant incentives to provide the most accurate estimates possible from higher prestige and ranking from the *Wall Street Journal* to longer employment and more access to management information (Mikhail et al. 1999). However, it has yet to be determined if the positive or negative tone of a conference call impacts analysts' estimate accuracy. As analysts are evaluated in many areas, including the accuracy of their estimates, they are highly motivated to be accurate (Hong et al. 2000). Prior accuracy of analysts' estimates has been found to be one of the most significant indicators of future accuracy (Brown 2001). As such, prior accuracy of analysts' estimates will be controlled for in the statistical models.

Researchers have also examined the effect of meeting or beating earnings estimates and the asymmetric reporting surrounding missing earnings by a penny based on the tone of the conference call. The management team changes the nature of the conference call depending on if they meet or beat earnings during the current quarter. Research has found a significant relationships between firms that miss earnings expectations by a penny and longer conference calls (Frankel et al. 2010). Researchers have also explored the effect of issuing guidance on just missing or just beating estimates in the current quarter. According to Cotter et al. (2006), firms that missed earnings were more likely to issue guidance. In addition, the researchers found firms were significantly more likely to issue estimates in the current quarter if they issued guidance in prior quarters.

Given this extensive stream of research and anecdotal evidence showing management's desire and ability to meet or beat earnings expectations, it is important to explore the qualitative information given by management regarding analyst expectations for the following reasons. Researchers have revealed how the management team has an incentive to make discretionary disclosures around large earnings surprises. Managers were more likely to release guidance when they are going to miss their earnings estimate by more than one percent of their stock price, and firms are more likely to issue warnings for permanent decreases in earnings. In addition, analysts' revisions to warnings were significantly more negative when there are changes in permanent earnings compared to large negative earnings surprises that were unaccompanied by warnings (Kasznik and Lev 1995). When anticipating a large negative revision, direct quantitative guidance forecasts could imply management's need for analysts to completely incorporate all of the information with more comprehensible guidance. If managers are also forecasting a negative quarter in which they are providing an earnings warning, the tone

of that warning is likely to be negative as managers may discuss the implications that caused them to miss earnings expectations. In addition, if analysts underweight new information and are slow to make downward revisions (Elliott et al. 1995), they may not incorporate all of the bad news, resulting in missed earnings expectations.

Managers used a higher proportion of positive words in earnings press releases to help provide credible evidence of good results; they used more negative words when reporting bad results when controlling for earnings surprise (Davis et al. 2006). Prior research presents mixed results when examining the effects of positive tone. Some studies have concluded that positive tone had minimal, if any, effects on firm fundamentals and stock prices (Tetlock 2007; Tetlock et al. 2008), while others showed it can have a significant effect (Loughran and McDonald 2011). Conversely, a pessimistic tone signaled lower firm fundamentals including a negative unexpected earnings and negative forecast accuracy based on news reports of the earnings (Tetlock et al. 2008). Based on the results from the qualitative research on positive/negative tone of company reports, the positive and negative information presented during a conference call may provide additional information to analysts and may help explain the conflicting results of analyst accuracy from early research into conference calls.

Zhang (2006) found that information uncertainty was higher following bad news, compared to good news, and that negative analyst forecast revisions were larger than positive ones. His results suggest that information uncertainty slows the incorporation of ambiguous information into analyst forecasts. In an attempt to prevent the more ambiguous information from being incorporated slowly by analysts, managers are more likely to report quantitative (and more comprehensible) guidance when they are reporting poor results (Kasznik and Lev 1995). The negative tone of a conference call could be indicative of bad news suggesting higher levels

of information uncertainty. In addition, managers use more positive words in earnings press releases when they have good results (Davis et al. 2006). It is, therefore, valid to assume that with higher levels of information uncertainty and managers' decisions to use more positive words in calls where the company is reporting good earnings, there will be less accurate analyst forecasts for the subsequent quarter with negative information. This leads to the first hypothesis:

H1: Firms with more pessimistic conference calls have less accurate analyst estimates.

2.3 Abnormal Returns

Qualitative information (e.g. tone, complexity, and emotional state) has been shown to be a significant predictor of future stock returns. The negative tone of the column, "Abreast of the Market" in the *Wall Street Journal*, historically predicts a downward pressure on stocks in the days after it was published. The market then reverts to fundamentals over the next several days (Tetlock 2007). Increasingly difficult to read annual reports, as measured by the fog index, were shown to predict negative abnormal returns in the 12 months after they were filed with the SEC (Li 2008).

The impact of qualitative information from conference calls on abnormal returns has also been the subject of previous research. Managerial affective states (emotion) were found to be significant predictors of future firm performance as positive managerial affect is positively related to future stock returns and unexpected earnings. Similarly, negative managerial affect is negatively related to future stock returns and unexpected earnings for the next two quarters (Mayew and Venkatachalam 2011). The study by Price et al. (2012) differs from other textual analysis research as it uses two different measures of tone. First, Price et al. take the first

principal component of four categories of the Harvard IV-4 Dictionary, (positive/negative, active/passive, strong/weak, and overstated/understated), and used this combined measurement in their regression analyses. Second, they used a custom financial- oriented dictionary created by Henry (2008) for robustness tests. They then take a sample of 2,800 conference calls from 2004 to 2008 and create a measure of the net tone of the calls through their two measures and find that the most optimistic conference calls had higher abnormal returns as compared to those with the lowest levels of optimism. They also divided the conference call into two parts, the introduction and the question and answer portions. When they examined the impact of net tone on these two sections they found tone to be positively associated with the 60-day abnormal returns in both sections. In addition, they found both the number of analysts and word count to be negatively associated with abnormal returns when looking at the entire sample of 2,800 calls. Finally, Price et al (2012) break their sample into dividend payers and non-dividend payers, finding that the relationship between tone and abnormal return to be stronger in the question and answer section for non-dividend paying firms as compared to the question and answer section of dividend paying firms. Whereas in the conference calls of dividend paying firms the introduction section provides a stronger relationship between tone and long-term abnormal returns.

Managerial guidance, which can be released the same day as a conference call, is a significant predictor of abnormal returns. Guidance which is above consensus estimates from management suggests confidence in the company's upcoming quarters leading to higher analyst and investor expectations. Decreasing guidance, on the other hand, has a negative impact on future stock returns and analyst expectations (Anilowski et al. 2007). Firms that warned of a bad quarter can expect significantly negative cumulative abnormal returns as compared to those that do not issue earnings warnings (Kasznik and Lev 1995). In addition, firms that issue warnings

are more likely to have a sharper decline in their future earnings and, as a result, experience

negative abnormal returns (Xu 2008). As management guidance is typically issued in the period

around earnings releases and conference calls, I control for management guidance in my

regressions. This leads to my second hypothesis:

H2: Firms with more pessimistic conference calls have lower abnormal returns.

2.4 Abnormal Trading Volumes

Abnormal trading volumes reflect individual reactions to changes in the information

available to market participants through either private or publicly announced information such as

earnings releases and conference calls (Kim and Verrecchia 1991). Increases in abnormal

trading volume can signify differences in opinion among investors. Some will buy stock due to

perceived positive information and some will sell due to perceived negative information.

Decreases in abnormal volume would suggest a lack of new or unexpected information presented

during an earnings release and the subsequent conference call.

If managers disclose new information during conference calls, it would indicate increased

trading volume based on the new information presented to analysts and investors. Researchers

suggest that managers disclosed at least some new information during conference calls as

evidenced by unusually high levels of return volatility and trading volume during conference call

periods (Frankel et al. 1999). Their findings provide indirect evidence that conference calls

introduce new, material information to analysts and the investor community.

It has yet to be determined if positive or negative information during the conference calls

impacts the volume of trades. Negative or uncertain information during the conference call may

produce increased trading as buyers are trying to accumulate shares while sellers may be looking to exit the company due to the increased uncertainty. Additionally, this paper will control for the impact of corporate guidance on abnormal volume; trading volume will decrease for optimistic management guidance as the level of uncertainty around the company decreases, and increase for negative management guidance (Rogers et al. 2009; Verrecchia 2001). It has yet to be determined if issuing neutral guidance will impact trading volume during the conference call trading windows.

H3: Firms with more (less) pessimistic conference calls have higher (lower) abnormal volumes.

2.5 Analyst Dispersion

Analyst dispersion has been used as a proxy for the information uncertainty around analyst estimates. Accounting research has explored both the empirical proxies for the information environment (Lang and Lundholm 1996) and the analytical models of the information environment used by analysts (Barron et al. 1998). This environment is composed of two sources, common and private information. Common information includes everything that is available to all participants, while private information is limited to the analysts themselves. Increases in analyst dispersion indicate higher levels of information uncertainty from both common and private sources, and higher levels of uncertainty have been found to impact everything from borrowing costs and volume of trading to volatility (Barron et al. 1998).

Matsumoto, et al. (2011) studied the effect of various factors related to conference calls on changes in analyst dispersion. They did not find significant results for the relationship

between many attributes of conference calls including the length, the quarter in which the call occurs, the size of the firm, and changes in sales and the information content of the conference call. However, the researchers found significant results for the market return the day before the call on the change in future analyst dispersion, with a higher return indicating future decreases in analyst dispersion. Their results suggest that conference calls are more forward looking if the prior market returns are positive, indicating the markets' satisfaction with past events and its desire to learn more about the future prospects of the company.

Bowen et al. (2002) determined that dispersion decreases following conference calls, but did not explore the information content that causes this phenomenon. It is unknown if any qualitative guidance issued by management impacts dispersion. I predict that negative conference calls will increase both the information uncertainty and the dispersion of analyst estimates. Moreover, positive tone during a conference call will decrease analyst dispersion. In addition, positive calls are more forward looking and will result in decreased dispersion of analyst estimates (Matsumoto et al. 2011). As a result, the most negative calls will result in overall analyst dispersion that is higher than calls that are more positive. This leads to my fourth hypothesis:

H4: Firms with more (less) pessimistic conference calls have higher (lower) analyst dispersion.

2.5 Days after quarter end

Prior researchers have shown that the average annual conference call is three minutes longer than quarterly conference calls (Frankel et al. 2010). Data shows that annual conference calls have approximately 8,100 words while quarterly conference calls have approximately 7,700

words. Longer calls imply more informative disclosures resulting in higher analyst accuracy and less volatility in earnings forecast revisions (Lang and Lundholm 1996). Results from the Lang and Lundholm (1996) study prior to Reg. FD show that direct contact between analysts and managers is a primary source of information. After Reg. FD, direct communication of any material facts in a private setting is prohibited. The conference call allows analysts the opportunity to obtain answers to questions in a public setting without violating the requirements of Reg. FD Longer calls provide more detailed information from the management team as well as providing answers to analysts attempting to improve their earnings forecasts.

The average annual conference call occurs after the filing of the press release, or approximately 40 days after the end of the 4th quarter. (For quarterly filing, the press release occurs on average 33 days after the end of the quarter.) Accuracy of analysts' estimates should be based on the amount of information presented, as well as the timing of the information. Matsumoto et al. (2011) determined that managers increase disclosure length when reporting bad news as well as for annual conference calls. In addition, they determined that analyst revisions after longer calls are larger and more accurate when compared with shorter calls. Additionally, their research revealed that the presentation portion of the conference call for the 4th quarter tends to be backwards-looking, discussing the results of the prior year, while the question and answer portion of the call projects ahead as analysts are more concerned about the future quarter's results. Both the questions asked by the analysts as well as the later disclosure date should provide additional information and increase the usefulness of their estimates. I will proxy for the increased information through analyst accuracy. I conjecture that calls further after the end of the quarter provide more qualitative guidance to analysts than calls that are close to the

end of the quarter. As a result, I conjecture that conference calls that are further after the end of

the quarter will increase analyst accuracy.

H5: Conference calls which happen further after the fiscal quarter end provide

additional information to analysts.

3. Methodology

      To test the first hypothesis, negative tone of information presented during conference calls decreases the accuracy of analysts' estimates, I will follow the methodology used in Bowen et al. (2002). A proxy variable will be used for the information available to analysts by taking the absolute value of the difference between forecasted earnings per share and actual earnings per share in the quarter after the conference call as calculated below in Equation 1. *Accuracy* has been used to calculate the overall accuracy of analyst forecasts without regard to meeting or beating expectations. (Bowen et al. 2002; Mozes 2003). Following existing literature, the accuracy of prior quarter analysts' estimates will be controlled for because it has been shown to impact subsequent analyst estimate accuracy (Bowen et al. 2002). Larger firms have lower levels of information asymmetry and higher levels of accuracy of analyst estimates. I therefore control for size of the firm through the log of assets (Bowen et al. 2002). Longer calls are expected to decrease information asymmetry and will increase accuracy of analysts' estimates. I therefore control for length of the call through the natural log of the number of words in the transcript (Matsumoto et al. 2011). Research shows that firms with larger number of analyst followings have lower dispersion in estimates and higher forecast accuracy (Lim 2001). I use Equation 2 to determine the effect of tone on analyst accuracy for the subsequent quarter. Lastly, I control for management guidance. Firms that issue guidance have significantly more accurate analyst estimates (Hirst et al. 2008). Figure 1 presents a timeline of events for Hypothesis 1.

$$Accuracy_{it+1} = \frac{|ActualEPS_{it+1} - ForecastedEPS_{it+1}|}{StockPrice_{it}}$$
(1)

$$Accuracy_{it+1} = \beta_0 + \beta_1 Pos.Tone_{it} + \beta_2 Neg.Tone_{it} + \beta_3 PriorAccuracy_{it} + \beta_4 Assets_{it}$$
$$+ \beta_5 LNlength_{it} + \beta_6 Numanalyst_{it} + \beta_7 MgtGuidance + \beta_8 Year_{it} + \varepsilon$$
(2)

Pos.Tone = number of positive words in the conference call taken from the Harvard IV-4 Dictionary divided by the total number of words in the conference call.

Neg.Tone = number of negative words in the conference call taken from the Harvard IV-4 Dictionary divided by the total number of words in the conference call.

PriorAccuracy = absolute value of (actual earnings per share – forecasted earnings per share) in the prior quarter divided by the stock price in the prior quarter.

Assets = the natural log of assets as of the start of the prior quarter.

LNLength = the natural log of the number of words spoken during the conference call.

Numanalyst = the number of analysts following a firm.

MgtGuidance = Indicator variable of 1 if management has issued earnings guidance in the prior quarter, variable of 0 otherwise.

[See Figure 1]

To test the second hypothesis, negative tone during a conference call will decrease abnormal returns, I examine the stock return over the 30 days after the conference call. Previous research has explored the relationship between the absolute abnormal returns during the two portions of the conference call, finding that both parts of the call provide information to the market as evidenced by the abnormal returns. If a company missed estimates, the presentation section contained was longer; however, the question and answer section of the conference call is relatively more informative when the company misses estimates (Matsumoto et al. 2011). Additional research has examined the effect of a manager's emotional state on abnormal returns. The attitudes displayed by managers during conference calls are associated with stock returns even after controlling for the content in the conference calls (Mayew and Venkatachalam 2011). Using a principal component analysis technique that includes the following categories -positive, negative, active, passive, strong, weak, overstated and understated - researchers can identify an

overall tone of a conference call and find that it is a significant predictor of abnormal returns in the 60 days after a conference call (Price et al. 2012). This paper will expand on the Price et al. research by including management guidance as a control variable and expanding the sample of 2,800 conference calls to over 45,000 while also comparing the results with a different financially oriented dictionary. Additionally, this paper will verify the results with a simpler measurement of tone.

In addition to the size of the company, the length of the call, and the number of analysts following the company controlled for in hypothesis 1, I also control for the type of management guidance, and the prior returns of the company. Following previous research, I control for the returns of the company before the conference call as they are indicative of future returns (Matsumoto et al. 2011). If a company issued positive guidance (above the consensus estimates), they will have higher abnormal returns; if they issue negative guidance below consensus estimates they will have lower abnormal returns (Anilowski et al. 2007). Neutral guidance will also be controlled for, but there is not a prediction for abnormal returns related to this type of guidance.

$$
\begin{aligned}
CAR(0,30)_{it} = \ & \beta_0 + \beta_1 Pos.Tone_{it} + \beta_2 Neg.Tone_{it} + \beta_3 Priorreturn_{it} + \beta_4 Assets_{it} + \beta_5 LNlength_{it} \\
& + \beta_6 Numanalyst_{it} + \beta_7 Neg.Guidance_{it} + \beta_8 Pos.Guidance_{it} + \beta_9 NeutralGuidance_{it} \quad \textbf{(3)} \\
& + \beta_{10} Year_{it} + \varepsilon
\end{aligned}
$$

Priorreturn = the return for the 30 days prior to the conference call.

Pos.Guidance = Indicator variable of 1 if management has issued positive earnings guidance (above consensus estimates) in the prior quarter, indicator variable of 0 otherwise.

Neg.Guidance = Indicator variable of 1 if management has issued negative earnings guidance (below consensus estimates) in the prior quarter, indicator variable of 0 otherwise.

NeutralGuidance = Indicator variable of 1 if management has issued neutral earnings guidance (in line with consensus estimates) in the prior quarter, indicator variable of 0 otherwise.

I control for the prior abnormal volume for the company the day before the conference call. I also control for the size of the company, the number of analysts following the company, and the length of the conference call. I also control for the type of guidance issued by management. Prior research has explored the impact of management guidance on uncertainty surrounding a company and has found an increase in overall uncertainty in the days before and after a management earnings forecast (Rogers et al. 2009). This effect is largely attributable to negative management guidance, which had the largest increase in uncertainty; as uncertainty increases, it is expected that abnormal volume will increase. Positive management guidance has been found to slightly decrease volatility in the days immediately after the announcement. Based upon the potential increase in uncertainty following negative management guidance, I test to see if the negative information presented during a conference call will increase uncertainty. In addition, I test if the positive information presented during a conference call will reduce both the uncertainty of information and abnormal trading volume. Negative tone will augment uncertainty and increase the abnormal volume, whereas positive information will reduce uncertainty and abnormal trading volume.

$$
\begin{aligned}
CAV(0,3)_{it} = \ & \beta_0 + \beta_1 Pos.Tone_{it} + \beta_2 Neg.Tone_{it} + \beta_3 Priorvolume_{it} + \beta_4 Assets_{it} + \beta_5 LNlength_{it} \\
& + \beta_6 Numanalyst_{it} + \beta_7 Neg.Guidance_{it} + \beta_8 Pos.Guidance_{it} + \beta_9 NeutralGuidance_{it} \quad \textbf{(4)} \\
& + \beta_{10} Year_{it} + \mathcal{E}
\end{aligned}
$$

Priorvolume = the abnormal trading volume for the previous day as compared to the prior 30 days.

To test my 4th hypothesis, analyst dispersion of estimates will be higher for firms with a negative tone to their conference call; I calculate the dispersion of analyst forecasts in the subsequent quarter as the standard deviation of the individual estimates. I estimate the

regression using the positive and negative tones of conference calls. Bowen et al. (2002) showed

that conference calls decreased analyst dispersion but did not identify if this is merely due to the

call itself or because of particular information presented during the call. Negative quarters could

cause managers to spend more time discussing the prior quarter and the reasons for the bad

quarter and less time discussing future quarters, which could increase analyst dispersion

(Matsumoto et al. 2011). Conversely, positive information could decrease dispersion as the

managers and analyst may devote more of the call to forward looking information. I hypothesize

that the dispersion analyst estimates will be larger for calls that are more negative than for calls

which are more positive and forward looking.

$$
\begin{aligned}
\textit{Dispersion}_{it+1} \;=\; & \beta_0 + \beta_1 \textit{Pos.Tone}_{it} + \beta_2 \textit{Neg.Tone}_{it} + \beta_3 \textit{Numanalyst}_{it} + \beta_4 \textit{Assets}_{it} \\
& + \beta_5 \textit{LNlength}_{it} + \beta_6 \textit{Neg.Guidance}_{it} + \beta_7 \textit{Pos.Guidance}_{it} + \beta_8 \textit{NeutralGuidance}_{it} \quad \textbf{(6)} \\
& + \beta_9 \textit{Year}_{it} + \mathcal{E}
\end{aligned}
$$

To test the fifth hypothesis, conference calls which happen later after the end of the

quarter provide additional information to market participants; I include a count variable for the

number of days after quarter end. Prior research has found annual conference calls are

approximately three minutes longer than quarterly conference calls (Matsumoto et al. 2011).

Companies have 75 days to file their annual report and 40 days to file their quarterly reports.

The days after the end of the quarter could provide additional information to managers allowing

them to give that information to market participants. I again control for the same variables from

hypothesis 1 but also include the *Days* variable.

$$
\begin{aligned}
\textit{Accuracy}_{it+1} \;=\; & \beta_0 + \beta_1 \textit{Pos.Tone}_{it} + \beta_2 \textit{Neg.Tone}_{it} + \beta_3 \textit{PriorAccuracy}_{it} + \beta_4 \textit{Assets}_{it} \\
& + \beta_5 \textit{LNlength}_{it} + \beta_6 \textit{Numanalyst}_{it} + \beta_7 \textit{Days}_{it} + \beta_9 \textit{Year}_{it} + \mathcal{E} \quad \textbf{(5)}
\end{aligned}
$$

Days = Natural log of days after the end of the quarter.

4. Sample

Due to the private nature of many conference calls before the passage of Reg. FD, it is difficult to obtain significant quantifiable data prior to 2001. Researchers who previously examined conference calls relied more on indicator variables in the testing of hypotheses (Frankel et al. 1999; Bowen et al. 2002; Kimbrough 2005). Additionally, prior to Reg. FD, managers were allowed to provide selective disclosure of information to analysts and other influential investors (e.g. hedge fund managers, mutual fund managers, etc.) making it difficult to test the impact of verbal communication between analysts and members of the management team.

All of the conference call transcripts available from the FACTIVA database were downloaded, using a series of search terms to find the published transcripts. I chose this database because it provides access to over 9,000 news sources including *The Wall Street Journal, New York Times, The Associated Press, PR Newswire* among others. The conference call transcripts were published mainly through FD (Fair Disclosure) Wire and the Voxant FD (Fair Disclosure) Wire. After downloading all articles that met the search criteria, the transcripts were then parsed into a usable format. This included obtaining the number of words in the conference call, the name of the company, the quarter and year the call took place, as well as the positive and negative words of the call. Using the Harvard IV-4 Dictionary[3] as a reference tool, I calculated the positive/negative tone by counting the total number of positive/negative words in the transcript and divided this number by the total number of words spoken. In addition, the net positive tone of my sample was within 1% of the net positive tone of the Frankel et al. (2010) study.

---

[3] As a robustness test, I have included tests using the Loughran and McDonald (2011) word lists

After parsing the conference calls, all articles with fewer than 500 words were removed from the sample.[4] After removing conference calls with fewer than 500 words, duplicates were also removed. Many duplicates included abridged versions of the transcripts and summaries of individual company conference calls. The conference call with the larger number of words was kept. Next, all transcripts related only to sales volume, possible mergers, or acquisitions were removed. For instance, on a monthly basis, Ford Motor Company has a sales volume call whereby analysts discuss the number of vehicles sold. The remaining 45,000 transcripts in my sample are for earnings conference calls between 2002 and 2008 that include over 500 words and are not duplicative.

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[4] Many of the transcripts under 500 words were related to press releases from the company announcing when the conference call would take place.

5. Results:

    First I present the descriptive statistics for my dependent and independent variables in

Table 1. As shown, I have approximately 45,000 conference calls between 2002 and 2008. I

included the Variance Inflation Factors (VIFs) in Table 2; as all VIFs are below 10 it does not

suggest high levels of multi-collinearity. I include the Pearson correlation matrix on the top half

of Table 3 and the Spearman correlation matrix on the bottom half of Table 3.

[See Table 1]

[See Table 2]

[See Table 3]

    Table 4 depicts the test for the impact of tone during a conference call on analysts'

accuracy in the subsequent quarter. In Model 1,[5] I show a control variable-only linear

regression. As noted earlier, I control for the size of the company through the log of assets, the

year in which the conference call took place, the number of analysts providing EPS predictions,

the length of the conference call, and the accuracy of analysts' estimates from the prior quarter

for this company. The results suggest that the log of assets aids significantly in determining the

accuracy of analyst estimates; the larger the company, the more accurate the analyst estimates.

The relationship between the control variables for the first four years prove and analyst accuracy

is significant; the association between the control variable 2007 and analyst accuracy is

insignificant, while the relationship between the control variable 2008 and analyst accuracy is

negative and significant, suggesting analyst accuracy decreased during 2008. I also include the

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[5] Following White's (1980) paper on heteroskedasticity, I use the robust standard errors.

impact of guidance on analyst accuracy in Model 2. As expected, there is a positive relationship between any type management guidance and analyst accuracy. The variables optimistic and pessimistic tone are also added in Model 2. This model indicates that there is a relationship between optimistic tone of conference calls and increases in analyst accuracy. As shown by the decrease in the difference in the absolute value of the estimates and the company's actual results in the subsequent quarter. This could provide additional insight into the conflicting results of the Bowen et al (2002) and the Francis et al. (1997) studies that indicate the impact of conference on analyst accuracy. This finding also supported the Zhang (2006) study that reveals that information uncertainty was higher following negative news than it is following good news. In Model 3 of Table 4, I follow prior literature and exchange the optimistic and pessimistic tone of the conference call with the net tone (optimism-pessimism) of the conference call (Frankel et al. 2010). As expected, the relationship between net optimism of a conference call and analyst accuracy is significant when predicting future quarter earnings per share. These results suggest that analysts are able to incorporate the positive information of a conference call into their estimates, but they fail to compensate for the negative information presented. Additionally, it suggests that the tone of a conference call could provide incremental evidence to analysts predicting the next quarter's earnings per share. The Bowen et al. (2002) paper shows increased analysts' accuracy following a conference call. This paper expands upon that finding and suggests that analysts incorporate the positive information during a conference call, but fail to incorporate the negative information when forecasting the following quarter's estimates[6].

---

[6]As a robustness test, in Table 11, I have run the results using a panel data approach, which shows that the results for optimism, pessimism, and guidance all remain significant and in the same direction for all three Models discussed above.

[See Table 4]

Next, I examined the impact of optimism, pessimism, and management issued guidance on abnormal returns over the 30 days following a conference call. In addition to the control variables listed above, I control for the prior 30-day return and have indicator variables for positive, negative, or neutral management issued guidance. Positive/negative guidance is any guidance where the midpoint of the range or the point estimate is greater/less than the consensus estimate at the time of issuance. Neutral guidance is any guidance that is in line with current estimates. In Model 1 of Table 5, a controls-only regression model is presented using robust standard errors; the relationship between the prior 30-day return and future cumulative abnormal returns is significant and positive. The relationship between the accuracy of analyst forecasts and cumulative abnormal returns is also significant and positive; companies that meet or beat expectations experience a higher abnormal return than those who fail to achieve expectations. Neither the length of the conference call or the number of analysts is significant to the abnormal returns. There is a relationship between the level of optimism and pessimism of a conference call and the cumulative abnormal return as expected; this model suggests that more optimistic conference calls provide a higher abnormal return, and more pessimistic calls produce lower abnormal returns over the following 30 days. This model predicts that positive guidance from management provides a three percent increase in the abnormal return over the following 30 days, whereas negative guidance decreases it by 2.7%. Neutral guidance has an insignificant effect on abnormal returns. In Model 3, I examine the level of net optimism in relation to abnormal returns. As expected, higher net optimism indicates a higher abnormal return over the 30 days

following a conference call. As shown in Table 5, Model 3, the other independent variables

remain fairly consistent when including the net optimism[7].

[See Table 5]

As shown in Table 6, optimism and pessimism variables were used to predict the

abnormal trading volume of a company's shares. Optimism during a conference call was not a

significant predictor of the abnormal volume of a company, whereas pessimism during a

conference call predicted significantly higher abnormal trading volumes during the days

following the call. This model suggests that negative information during a conference call

increased trading volumes. This finding is interesting as it suggests that traders do not trade

based on the optimism of a conference call but do trade on the pessimistic tone of the call.

Negative information presented during a conference call could increase the amount of

uncertainty for traders and subsequently increases the abnormal trading volume in the three days

after the conference call. Positive and negative guidance issued by management also increase

the abnormal trading volume surrounding a conference call; neutral guidance is marginally

significant to the abnormal trading volumes. Again, following the Frankel et al. (2010) study, I

remove the individual components of optimism and pessimism and include the combined

variable, net tone, in the model. There was a negative relationship between net tone and

---

[7] In Table 12, I compute the significance of my model using a panel data model. There is little change in the results as optimism, pessimism, positive guidance, and negative guidance remain significant while neutral guidance remains insignificant.

abnormal volumes, which was significant at the .01 level. As net optimism has a mean of .04,

the net level of optimism decreases abnormal volume[8].

[See Table 6]

As seen in Table 7, I tested the impact of optimism and pessimism on the dispersion of

analyst estimates. In Model 1, I include a controls-only regression of analyst dispersion; higher

levels of analyst dispersion suggest increased uncertainty regarding the upcoming earnings

estimates. Optimism was significantly related to decreased analyst dispersion, while pessimism

was related to an increase in the dispersion of analysts' estimates. Much like the accuracy of

analyst estimates in the future quarter, pessimism could increase the uncertainty of future results.

I also include the impact of management guidance; positive, negative, and neutral guidance all

three are significantly related to decreases in the dispersion of analyst estimates. If a company

issues guidance, analyst estimates are closer as evidenced by hypothesis 1 in Table 4. Again,

following Frankel et al. (2010), I also include the level of net tone when predicting the effect of

tone on analyst dispersion. Net tone predicts a decrease in the dispersion of analyst estimates

leading up to the subsequent quarter's conference call and earnings release.

[See Table 7]

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[8] In Table 13, I compute the significance of my model using a panel data model and obtained
similar results

Table 8 displays the results from the test for hypothesis 5, the impact of additional time between the end of the quarter and the conference call on analyst accuracy. Annual conference calls are longer than quarterly conference calls by approximately 400 words and occur seven days later. The additional time from the end of the quarter could provide more information that managers can share with participants of the conference call. Previous research reveals annual conference calls are approximately three minutes longer then quarterly conference calls (Matsumoto et al. 2011). In order to test if conference calls that take place further from the end of the quarter provide additional information to market participants, I include the natural log of days after the end of the quarter. I find the relationship between the length of time from the end of the quarter and the conference call date and the accuracy of analysts' estimates is not significant. In addition, I find natural log of days is not significantly related to the cumulative abnormal returns. These two findings do not provide much additional information about the importance of decreasing the period of time between the end of the quarter and the conference call. In Model 3 of Table 8, I find a negative relationship between the natural log of days and abnormal trading volume, this model suggests that the longer between the end of the quarter and the conference call, the fewer shares that will be traded in the days immediately after the conference call. This may imply that traders' opinions of the quarter are more aligned the farther away from the end of the quarter.

[See Table 8]

As a series of robustness tests in Table 9, I follow the Loughran and McDonald (2011) paper and exchanged the Harvard IV-4 Dictionary's definition of optimistic and pessimistic tone

with their definitions. In Model 1, the relationship between with the new definitions of financial optimism and financial pessimism and analyst accuracy has changed results. The effect of an optimistic tone becomes not significant when examining the accuracy of analysts' estimates. The relationship between financial pessimism and the accuracy of analysts' estimates remains significant. In Model 2 of Table 9, I examined the impact of using the financial optimism and pessimism on abnormal returns. The results remain fairly consistent between the Harvard IV-4 Dictionary and the more financially oriented list generated by Loughran and McDonald. Finally, using the financial dictionary I find that optimism is not significantly related to abnormal volumes while pessimism is significant and positive. This finding suggests that investors increase trading around pessimistic conference calls as they may have difficulty in determining the impact of the information presented. The differences between the Harvard IV-4 Dictionary definition of optimism and the more financially oriented one provides support for the Loughran and McDonald argument that it is important to consider the differences between financial language and a more general language dictionary when examining financial information.

[See Table 9]

Finally, following the methodology of Matsumoto et al. (2011), I examined the positive and negative tone of the question-and-answer section of the conference call and determined the impact on future analyst accuracy, cumulative abnormal returns, and abnormal trading volumes. When only the second portion of the conference call is considered, the relationship between optimism and the accuracy of analysts' estimates is not significant. Whereas, the relationship between a pessimistic tone in the questions and answers and analyst accuracy remains

36

significant, as shown in Table 10, Model 1. This provides additional support for the hypothesis

that when analysts do not fully incorporate all of the negative information in the presentation

portion of the conference call the next quarter estimates are less accurate. In Model 2 of Table

10, I examine the positive and negative tone during the question and answer section of the

conference call and abnormal returns, and find the results are similar to those of the full

conference call. Optimistic tone suggests a positive abnormal return over the 30 days after a

conference call, and a pessimistic tone decreases abnormal returns. Finally, I find slightly

different results when only the second portion of the conference call, the question-and-answer

section, is examined. An optimistic question and answer section is related to decreased abnormal

trading volumes. Conversely, negative information during the question-and-answer section of a

conference call suggests an increase in abnormal trading volumes in the days following a

conference call. This analysis shows that both investors and analysts have difficulty time

quantifying negative information presented during a conference call and, as a result, increase the

volume of shares traded.

[See Table 10]

6. Limitations and Contributions

This study has some limitations. Sample selection was limited to firms that had published transcripts in the FACTIVA database. As a result, my sample consists of firms that are much larger than the average firm in CRSP or Compustat. The sample was also limited to firms which had an analyst following. Finally, due to the limited availability of conference call transcripts, my sample was restricted to years between 2002 and 2008.

This research expands the growing body of research on conference calls and has many potentially significant findings. Conference calls are extremely important to analyst and market participants as evidenced not only by the SEC requirement to make these calls open to the public, but also by the level of analyst participation during the calls and the growing academic literature. This paper examines the tone of the conference call showing that it predicts many important factors of the stock market including analyst accuracy, abnormal returns, abnormal volume, and analyst dispersion.

This research contributes to the literature in several ways. This is the first paper to explore the relationship between the tone of information presented by management and its impact on analyst accuracy. Positive conference calls are associated with more accurate analyst estimates in the quarter after the call. Conversely, pessimistic conference calls are associated with decreased analyst accuracy in the quarter after the call. This result is economically significant; the absolute value of the average accuracy of analysts' estimates is four cents for a $10.00 stock. A conference call that had just one percent more optimism would predict an increase of analyst accuracy by 0.25 cents. A call that was one percent more pessimistic would predict a decrease in accuracy by about 0.37 cents. My model would predict that a company that issues any type of management guidance will have an increase in analyst accuracy by 1.75 cents.

While company issued guidance has a more significant impact on analyst accuracy, the optimism and pessimism of the conference call also predict future quarter analyst accuracy.

Second, this paper expands on the prior research by showing the impact of positive and negative tone on abnormal returns. In a non-conference call setting, pessimistic tone signals negative abnormal returns in the coming days (Tetlock 2007). When examining conference calls, (Price et al. 2012) found that negative information presented during a call predicts a decrease in the abnormal returns in both the first day and 60 days after the conference call. This paper expands upon conference call research by showing that positive abnormal returns are associated with firms that conduct more optimistic conference calls when controlling for the impact of management guidance. Economically, this model only explains approximately five percent of the abnormal returns in the three days after a conference call. While the overall strength of the model is relatively weak, it predicts a one percent more optimistic conference call will increase abnormal returns by about .5% in the following 30 days. A one percent more pessimistic conference call will predict a decrease in abnormal returns by approximately .4% when controlling for management guidance.

Next, this paper provides additional support for the theory that market participants do not understand negative information as well as optimistic information presented by management. This paper explored the tone of the information presented during the conference call and the impact on abnormal trading volume. Abnormal volumes increased with the increasing pessimism of the call. However, optimism during a conference call was not a significant predictor of abnormal trading volume. Expanding on the Frankel et al. (1999) research that showed increased trading around a conference call. In addition, this research showed the abnormal trading volume in relationship to management guidance. Positive and negative

39

guidance from management predicts increased abnormal trading volumes, and neutral guidance did not have a significant impact on abnormal volumes.

Lastly, this research explored the impact of tone on analyst dispersion of estimates and the length of time between the end of the quarter and the conference call. Optimistic conference calls predict a decrease in dispersion of analysts' estimates while pessimistic conference calls predict an increase in it. In addition, any management guidance predicts a decrease in the standard deviation of analyst estimates. The number of days between the end of the quarter and the conference call is not significant when examining analyst accuracy or abnormal returns. However, the number of days between the conference call and the end of the quarter predicts a decrease in the abnormal trading volume.

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Appendix A: Variable List

Optimism = number of positive words in the conference call taken from the Harvard IV-4 Dictionary divided by the total number of words in the conference call.

Pessimism = number of negative words in the conference call taken from the Harvard IV-4 Dictionary divided by the total number of words in the conference call.

Absolute Value of Prior Accuracy = absolute value of (actual earnings per share – forecasted earnings per share) in the prior quarter divided by the stock price in the prior quarter.

Log of Assets = the natural log of assets as of the start of the prior quarter.

Log of C.C. Words = the natural log of the number of words spoken during the conference call.

Number of Analyst Estimates = the number of analysts following a firm.

Management Guidance = Indicator variable of 1 if management has issued earnings guidance in the prior quarter, variable of 0 otherwise.

Days = Natural log of days after the end of the quarter.

Prior Return = the return for the 30 days prior to the conference call.

Positive Management.Guidance = Indicator variable of 1 if management has issued positive earnings guidance (above consensus estimates) in the prior quarter, indicator variable of 0 otherwise.

Negative Management.Guidance = Indicator variable of 1 if management has issued negative earnings guidance (below consensus estimates) in the prior quarter, indicator variable of 0 otherwise.

Neutral Management Guidance = Indicator variable of 1 if management has issued neutral earnings guidance (in line with consensus estimates) in the prior quarter, indicator variable of 0 otherwise.

Prior Day Abnormal Volume = the abnormal trading volume for the previous day as compared to the prior 30 days.

Net Optimism = Optimism – Pessimism from the Harvard IV-4 Dictionary

Earnings Surprise = (The actual earnings per share – forecasted earnings per shares)divided by stock price at time t

Analyst Accuracy = the absolute value of the (forecasted EPS – actual EPS)/stock price.

Return 0 to 30 days = equal weighted cumulative abnormal return in the 30 days after the conference call.

Abnormal volume = equal weighted cumulative abnormal trading volume in the three days after the conference call.

Figure 1: Timeline of Events for H1

End qtr t Beg. qtr t+1	Qtr t earnings Release and C.C. (Pos.Tone$_t$) (Neg. Tone$_t$)	Analyst estimates qtr t+1 (ForecastedEPS$_{t+1}$)	End Qtr t+1	Qtr. T Earnings release and C.C. Actual EPS t+1 (ActualEPS$_{t+1}$)

Time

$$\frac{ActualEPS_{t+1} - ForecastedEPS_{t+1}}{Stock\ Price_t}$$
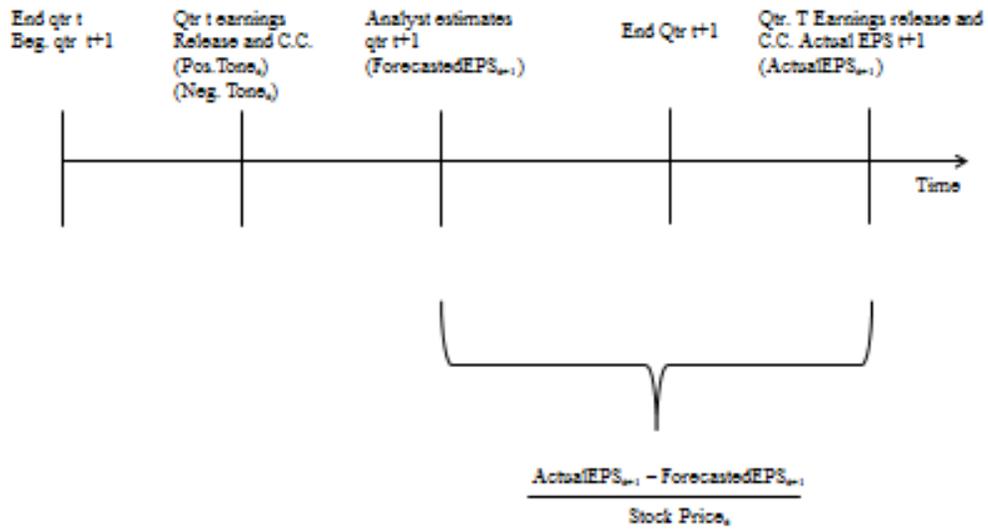
Table 1: Descriptive Statistics

Variable	N	Mean	Median	Std. Dev.	Lower Quartile	Upper Quartile
Analyst Accuracy	45841	0.004631	0.001643	0.008922	0.00054	0.004546
Return 0 to 30 days	45841	0.000304	-0.0025	0.139538	-0.0809	0.0768
Abnormal Volume	45841	1.59569	1.48	2.070566	0.29	2.8
Optimism	45841	0.110873	0.109312	0.014942	0.101115	0.118447
Pessimism	45841	0.077657	0.075446	0.015188	0.068147	0.084118
Positive Guidance	45841	0.099016	0	0.298687	0	0
Negative Guidance	45841	0.07454	0	0.262651	0	0
Neutral Guidance	45841	0.185882	0	0.389015	0	0
Prior Analyst Accuracy	42486	0.004303	0.001572	0.008277	0.00052	0.004277
Number of Conference Call Words	45841	7758.082	7717	2570.661	5894	9460
Number of Analyst Estimates	45841	7.270871	6	5.663899	3	10
Log of Assets	45802	7.056702	6.904317	1.877359	5.715286	8.222887

Notes: This table presents descriptive statistics for the dependent, independent and control variables. **Analyst Accuracy** is calculated from equation 1, and is the absolute value of the (forecasted EPS – actual EPS)/stock price. **Return 0 to 30 days** is the equal weighted cumulative abnormal return in the 30 days after the conference call. **Abnormal volume** is the equal weighted cumulative abnormal trading volume in the three days after the conference call. **Optimism** is the number of times a positive word (as defined by the Harvard IV-4 Dictionary is used divided by the total number of words in the conference call. **Pessimism** is the number of times a negative word (as defined by the Harvard IV-4 Dictionary is used divided by the total number of words in the conference call. **Positive guidance** is an indicator variable of 1 if management has issued positive earnings guidance (above consensus estimates) in the prior quarter, 0 otherwise. **Negative guidance** is an indicator variable of 1 if management has issued negative earnings guidance (below consensus estimates) in the prior quarter, 0 otherwise. **Neutral guidance** is an indicator variable of 1 if management has issued neutral earnings guidance (in line with consensus estimates) in the prior quarter, 0 otherwise. **Prior analyst accuracy** is the accuracy of analysts' estimates in the prior quarter. **Number of conference call words** is number of words used during a conference call. **Number of analyst estimates** is the number of analysts' following the company. **Log of assets** is the natural log of total assets from the prior quarter.

Table 2: Variance Inflation Factor Calculations

Variable	VIF
Year 2007	3.47
Year 2006	3.41
Year 2005	3.26
Year 2008	3.14
Year 2004	3.12
Year 2003	2.74
Optimism	2.73
Pessimism	2.63
Number of Analyst Estimates	1.46
Natural Log of Assets	1.42
Natural Log of C.C. Words	1.36
Positive Management Guidance	1.15
Neutral Management Guidance	1.12
Absolute value of prior accuracy	1.08
Negative Management Guidance	1.07

I have used the variance inflation factor to provide assurance for a lack of multi-collinearity in my sample. As the VIF factors are all below four, multi-collinearity is not an issue.

Table 3: Spearman and Pearson Correlation Table

	Analyst Accuracy	30 day Return	Trading Volume	Optimism	Pessimism	C.C. Words	Number of Analysts	Log Assets	Positive Guidance	Negative Guidance	Neutral Guidance
Analyst Accuracy	1	0.01	0.03	0.03	0.04	-0.12	-0.27	-0.17	-0.03	-0.07	-0.19
30 day Return	-0.02	1	-0.04	0.03	-0.01	0.01	0.03	0.05	0.09	-0.07	0.02
Trading Volume	0.01	-0.04	1	-0.01	0	0.1	0.04	-0.13	0.06	0.08	0.01
Optimism	0.03	0.02	-0.02	1	0.68	-0.29	-0.16	-0.21	0.01	0.00	0.02
Pessimism	0.04	-0.01	-0.01	0.79	1	-0.22	-0.09	-0.01	0.02	0.02	-0.01
C.C. Words	-0.11	0.01	0.1	-0.35	-0.31	1	0.43	0.32	0.08	0.07	0.08
Number of Analysts	-0.19	0.01	0.01	-0.12	-0.06	0.39	1	0.45	0.08	0.04	0.15
Log Assets	-0.14	0.03	-0.12	-0.17	0.00	0.31	0.48	1	0.05	-0.02	0.08
Positive Guidance	-0.06	0.08	0.05	0.00	0.00	0.08	0.06	0.04	1	-0.09	-0.16
Negative Guidance	-0.06	-0.07	0.08	0.00	0.01	0.07	0.03	-0.02	-0.09	1	-0.14
Neutral Guidance	-0.13	0.01	0.00	0.01	0.00	0.08	0.13	0.07	-0.16	-0.14	1

Note: This table presents the Pearson correlations on the top and the Spearman correlations on the bottom. **Analyst accuracy** is defined as the consensus estimate of earnings per share in the month after the prior quarter's conference call. **Return 0 to 30 days after conference call** is defined as the 30 day return after the conference call. **Trading Volume** is defined as the 3 day Equal Weighted Index Log Transformed Abnormal Trading after the conference call. **Optimism** = number of positive words in the conference call taken from the Harvard IV-4 Dictionary divided by the total number of words in the conference call. **Pessimism** = number of negative words in the conference call taken from the Harvard IV-4 Dictionary divided by the total number of words in the conference call. **C.C. Words** = the natural log of the number of words spoken during the conference call. **Number of Analyst Estimates** = the number of analysts following a firm. **Log of Assets** = the natural log of assets as of the start of the prior quarter. **Positive Management.Guidance** = Indicator variable of 1 if management has issued positive earnings guidance (above consensus estimates) in the prior quarter, indicator variable of 0 otherwise. **Negative Management.Guidance** = Indicator variable of 1 if management has issued negative earnings guidance (below consensus estimates) in the prior quarter, indicator variable of 0 otherwise. **Neutral Management Guidance** = Indicator variable of 1 if management has issued neutral earnings guidance (in line with consensus estimates) in the prior quarter, indicator variable of 0 otherwise.

Table 4:H1 - Regression Results for Analyst Accuracy

Variable	Model 1		Model 2		Model 3	
Constant	0.007927	***	0.005311	***	0.00788	***
	(6.35)		(3.82)		(6.34)	
Log of C.C words	-0.00032	*	6.26E-05		-9.2E-05	
	(-2.26)		(0.44)		(-0.66)	
Absolute value of prior accuracy	0.432825	***	0.417933	***	0.418079	***
	(36.16)		(34.93)		(34.93)	
Number of Analyst Estimates	-0.00013	***	-0.00011	***	-0.00011	***
	(-18.79)		(-16.42)		(-16.3)	
Log of Assets	-0.00018	***	-0.00024	***	-0.00024	***
	(-7.22)		(-9.6)		(-9.68)	
Management Guidance (DV)			-0.00175	***	-0.00172	***
			(-27.32)		(-27.09)	
Optimism			-0.02574	***		
			(-5.53)			
Pessimism			0.03799	***		
			(7.79)			
Net Optimism					-0.03251	***
					(-7.1)	
Adjusted R Squared	.2074		.2176		.2173	
Observations	42454		42454		42454	

Note: This table presents the regression results for the absolute value of analyst accuracy. The dependent variable **Analyst accuracy** is defined as the consensus estimate of earnings per share in the month after the prior quarter's conference call. Year indicator variables were included in the regression but omitted from results. The p-values are two tailed: *** <.001, **<.01, *<.05. **Log of C.C. Words** = the natural log of the number of words spoken during the conference call. **Absolute Value of Prior Accuracy** = absolute value of (actual earnings per share – forecasted earnings per share) in the prior quarter divided by the stock price in the prior quarter. **Number of Analyst Estimates** = the number of analysts following a firm. **Log of Assets** = the natural log of assets as of the start of the prior quarter. **Management Guidance** = Indicator variable of 1 if management has issued earnings guidance in the prior quarter, variable of 0 otherwise. **Optimism** = number of positive words in the conference call taken from the Harvard IV-4 Dictionary divided by the total number of words in the conference call. **Pessimism** = number of negative words in the conference call taken from the Harvard IV-4 Dictionary divided by the total number of words in the conference call. **Net Optimism** = Optimism – Pessimism from the Harvard IV-4 Dictionary

Table 5: H2 - Return 0 to 30 Days after Conference Call

Variable	Model 1		Model 2		Model 3	
Constant	-0.02667		-0.06374	**	-0.04261	*
	(-1.55)		(-3.12)		(-2.44)	
Log of Number of C.C words	-0.00022		0.001249		-0.0001	
	(-0.11)		(0.59)		(-0.05)	
Prior return	0.148729	***	0.140028	***	0.139949	***
	(22.36)		(21.06)		(21.05)	
Earnings Surprise	1.422121	***	1.352828	***	1.353027	***
	(15.9)		(15.07)		(15.08)	
Number of Analyst Estimates	-0.00001		-0.00011		-0.00011	
	(-0.08)		(-0.92)		(-0.85)	
Log of Assets	0.002213	***	0.002637	***	0.00263	***
	(5.72)		(6.7)		(6.68)	
Positive Management Guidance (DV)			0.031432	***	0.031629	***
			(13.27)		(13.36)	
Negative Management Guidance (DV)			-0.02731	***	-0.02711	***
			(-11.98)		(-11.9)	
Neutral Management Guidance (DV)			0.001446		0.001586	
			(0.94)		(1.03)	
Optimism			0.504659	***		
			(6.7)			
Pessimism			-0.41115	***		
			(-5.47)			
Net Optimism					0.451314	***
					(6.33)	
Adjusted R-Squared	.0422		.0504		.0503	
Observations	45802		45802		45802	

Note: This table presents the regression results for the absolute value of analyst accuracy. The dependent variable **Return 0 to 30 days after conference call** is defined as the 30 day return after the conference call. Year indicator variables were included in the regression but omitted from results. The p-values are two tailed: *** <.001, **<.01, *<.05. **Log of C.C. Words** = the natural log of the number of words spoken during the conference call. **Prior Return** = the return for the 30 days prior to the conference call. **Number of Analyst Estimates** = the number of analysts following a firm. **Log of Assets** = the natural log of assets as of the start of the prior quarter. **Positive Management.Guidance** = Indicator variable of 1 if management has issued positive earnings guidance (above consensus estimates) in the prior quarter, indicator variable of 0 otherwise. **Negative Management.Guidance** = Indicator variable of 1 if management has issued negative earnings guidance (below consensus estimates) in the prior quarter, indicator variable of 0 otherwise. **Neutral Management Guidance** = Indicator variable of 1 if management has issued neutral earnings guidance (in line with consensus estimates) in the prior quarter, indicator variable of 0 otherwise. **Optimism** = number of positive words in the conference call taken from the Harvard IV-4 Dictionary divided by the total number of words in the conference call. **Pessimism** = number of negative words in the conference call taken from the Harvard IV-4 Dictionary divided by the total number of words in the conference call. **Net Optimism** = Optimism – Pessimism from the Harvard IV-4 Dictionary

Table 6: H3 – Three Day Abnormal Trading Volume

Variable	Model 1		Model 2	
Constant	-0.92904	***	-1.41171	***
	(-3.88)		(-4.85)	
Natural Log of number of C.C words	0.295569	***	0.313808	***
	(10.5)		(10.39)	
Absolute Value of current analyst est.	0.493812		1.648668	
	(0.48)		(1.59)	
Number of Analyst Estimates	0.01289	***	0.011715	***
	(5.88)		(5.41)	
Log of Assets	-0.15823	***	-0.1593	***
	(-23.28)		(-23.02)	
Prior Day Abnormal Volume	1.217502	***	1.211689	***
	(145.39)		(144.89)	
Positive Management Guidance (DV)			0.237638	***
			(8.57)	
Negative Management Guidance (DV)			0.351186	***
			(10.2)	
Neutral Management Guidance (DV)			0.062974	**
			(2.66)	
Optimism			-0.84955	
			(-0.77)	
Pessimism			4.538282	***
			(4.11)	
Adjusted R-Squared	.4983		.5018	
Observations	45802		45802	

Note: This table presents the regression results for the absolute value of analyst accuracy. The dependent variable **Three day Abnormal Trading Volume** is defined as the 3 day Equal Weighted Index Log Transformed Abnormal Trading after the conference call. Year indicator variables were included in the regression but omitted from results. The p-values are two tailed: *** <.001, **<.01, *<.05. **Log of C.C. Words** = the natural log of the number of words spoken during the conference call. **Number of Analyst Estimates** = the number of analysts following a firm. **Log of Assets** = the natural log of assets as of the start of the prior quarter**.   Prior Day Abnormal Volume** = the abnormal trading volume for the previous day as compared to the prior 30 days. **Positive Management.Guidance** = Indicator variable of 1 if management has issued positive earnings guidance (above consensus estimates) in the prior quarter, indicator variable of 0 otherwise. **Negative Management.Guidance** = Indicator variable of 1 if management has issued negative earnings guidance (below consensus estimates) in the prior quarter, indicator variable of 0 otherwise. **Neutral Management Guidance** = Indicator variable of 1 if management has issued neutral earnings guidance (in line with consensus estimates) in the prior quarter, indicator variable of 0 otherwise. **Optimism** = number of positive words in the conference call taken from the Harvard IV-4 Dictionary divided by the total number of words in the conference call. **Pessimism** = number of negative words in the conference call taken from the Harvard IV-4 Dictionary divided by the total number of words in the conference call.

Table 7: H4 – Standard Deviation of Analyst Estimates

Variable	Model 1		Model 2		Model 3	
Constant	-0.024	**	-0.03293	**	-0.0382	***
	(-2.94)		(-2.87)		(-4.55)	
Natural Log of number of C.C words	0.00034		0.003158	**	0.003499	***
	(0.37)		(2.97)		(3.81)	
Number of Analyst Estimates	-0.00124	***	-0.00103	***	-0.00103	***
	(-14.92)		(-12.42)		(-12.58)	
Log of Assets	0.007708	***	0.007311	***	0.007313	***
	(27.78)		(25.22)		(25.28)	
Positive Management Guidance (DV)			-0.02327	***	-0.02332	***
			(-25.55)		(-25.98)	
Negative Management Guidance (DV)			-0.01705	***	-0.0171	***
			(-24.49)		(-24.75)	
Neutral Management Guidance (DV)			-0.02098	***	-0.02101	***
			(-37.01)		(-37.45)	
Optimism			-0.19223	***		
			(-4.41)			
Pessimism			0.169095	***		
			(4.44)			
Net Optimism					-0.17909	***
					(-4.64)	
Adjusted R Squared	.0547		.0796		.0796	
Observations	41163		41163		41163	

Note: This table presents the regression results for the absolute value of analyst accuracy. The dependent variable **Standard Deviation of Analyst Estimates** is defined as the standard deviation of all analyst estimates Year indicator variables were included in the regression but omitted from results. The p-values are two tailed: *** <.001, **<.01, *<.05. **Log of C.C. Words** = the natural log of the number of words spoken during the conference call. **Number of Analyst Estimates** = the number of analysts following a firm. **Log of Assets** = the natural log of assets as of the start of the prior quarter**.   Positive Management.Guidance** = Indicator variable of 1 if management has issued positive earnings guidance (above consensus estimates) in the prior quarter, indicator variable of 0 otherwise. **Negative Management.Guidance** = Indicator variable of 1 if management has issued negative earnings guidance (below consensus estimates) in the prior quarter, indicator variable of 0 otherwise. **Neutral Management Guidance** = Indicator variable of 1 if management has issued neutral earnings guidance (in line with consensus estimates) in the prior quarter, indicator variable of 0 otherwise. **Optimism** = number of positive words in the conference call taken from the Harvard IV-4 Dictionary divided by the total number of words in the conference call. **Pessimism** = number of negative words in the conference call taken from the Harvard IV-4 Dictionary divided by the total number of words in the conference call. **Net Optimism** = Optimism – Pessimism from the Harvard IV-4 Dictionary

Table 8: H5 – Time Between End of Quarter and Conference Call

	Model 1 – Analyst Accuracy		Model 2 – Return 0 to 30		Model 3 – Volume	
Constant	0.00484	***	-0.04372		-1.03044	***
	(3.30)		(-1.91)		(-4.33)	
Natural Log of number of C.C words	0.00007		0.00065		0.30062	***
	(0.48)		(0.29)		(12.20)	
Absolute value of prior accuracy	0.41716	***				
	(34.69)					
Number of Analyst Estimates	-0.00011	***	-0.00006		0.00937	***
	(-16.18)		(-0.45)		(7.15)	
Log of Assets	-0.00024	***	0.001890	***	-0.16779	***
	(-9.38)		(4.60)		(-37.56)	
Management Guidance (DV)	-0.00175	***				
	(-27.16)					
Natural Log of Days	0.000116		-0.00113		-0.00524	***
	(1.01)		(-0.57)		(-8.01)	
Prior 30 Day Return			0.14527	***		
			(20.48)			
Earnings Surprise			1.36932	***	-0.97008	
			(14.48)		(-1.07)	
Positive Management Guidance (DV)			0.03065	***	0.21573	***
			(12.77)		(9.37)	
Negative Management Guidance (DV)			-0.02794	***	0.33764	***
			(-11.96)		(11.67)	
Neutral Management Guidance (DV)			0.00056		0.04954	**
			(0.37)		(2.81)	
Prior Day's volume					1.20467	***
					(150.65)	
Optimism	-0.02593	***	0.45084	***	-0.10724	
	(-5.37)		(5.79)		(-0.13)	
Pessimism	0.03845	***	-0.41088	***	3.30976	***
	(7.89)		(-5.24)		(4.08)	
Adjusted R Squared	.2173		.0509		.4991	
Observations	42407		42418		42421	

Note: This table presents the regression results for the absolute value of analyst accuracy. The dependent variable in Model 1 **Analyst accuracy** is defined as the consensus estimate of earnings per share in the month after the prior quarter's conference call. In Model 2 **Return 0 to 30 days after conference call** is defined as the 30 day return after the conference call. In Model 3, **Three day Abnormal Trading Volume** is defined as the 3 day Abnormal Trading after the conference call. Year indicator variables were included in the regression but omitted from results. The p-values are two tailed: *** <.001, **<.01, *<.05. **Log of C.C. Words** = the natural log of the number of words spoken during the conference call. **Absolute Value of Prior Accuracy** = absolute value of (actual earnings per share – forecasted earnings per share) in the prior quarter divided by the stock price in the prior quarter. **Number of Analyst Estimates** = the number of analysts following a firm. **Log of Assets** = the natural log of assets as of the start of the prior quarter**. Management Guidance** = Indicator variable of 1 if management has issued earnings guidance in the prior quarter, variable of 0 otherwise. **Positive Management.Guidance** = Indicator variable of 1 if management has issued positive earnings guidance (above consensus estimates) in the prior quarter. **Negative Management.Guidance** = Indicator variable of 1 if management has issued negative earnings guidance (below consensus estimates) in the prior quarter. **Neutral Management Guidance** = Indicator variable of 1 if management has issued neutral earnings guidance (in line with consensus estimates) in the prior quarter. **Optimism** = number of positive words in the conference call taken from the Harvard IV-4 Dictionary divided by the total number of words in the conference call. **Pessimism** = number of negative words in the conference call taken from the Harvard IV-4 Dictionary divided by the total number of words in the conference call.

Table 9 – Financial Optimism and Financial Pessimism Impact

	Model 1 – Analyst Accuracy		Model 2 – Return 0 to 30		Model 3 – Volume	
Constant	0.002992 (2.39)	*	-0.02583 (-1.47)		-0.83586 (-3.48)	**
Natural Log of number of C.C words	1.36E-05 (0.1)		-0.00037 (-0.18)		0.264391 (9.5)	***
Absolute value of prior accuracy	0.41158 (34.45)	***				
Number of Analyst Estimates	-0.00011 (-16.11)	***	-7.7E-05 (-0.61)		0.011962 (5.58)	***
Log of Assets	-0.00029 (-11.53)	***	0.002419 (6.13)	***	-0.15764 (-22.96)	***
Management Guidance (DV)	-0.0016 (-25.24)	***				
Prior 30 Day Return			0.136828 (20.55)	***		
Earnings Surprise			1.327279 (14.8)	***		
Positive Management Guidance (DV)			0.030043 (12.67)	***	0.247148 (8.89)	***
Negative Management Guidance (DV)			-0.02801 (-12.31)	***	0.36231 (10.56)	***
Neutral Management Guidance (DV)			0.000247 (0.16)		0.068001 (2.86)	**
Analyst Accuracy					1.574587 (1.51)	
Prior Day Abnormal Volume					1.211694 (144.75)	***
Financial Optimism	-0.00018 (-0.02)		1.427147 (7.64)	***	3.417233 (1.25)	
Financial Pessimism	0.293927 (16.06)	***	-1.45078 (-5.78)	***	7.73478 (2.3)	*
Adjusted R Squared	.2239		.0515		.5012	
Observations	42454		45802		45802	

Note: This table presents the regression results for the absolute value of analyst accuracy. The dependent variable in Model 1 **Analyst accuracy** is defined as the consensus estimate of earnings per share in the month after the prior quarter's conference call. In Model 2 **Return 0 to 30 days after conference call** is defined as the 30 day return after the conference call. In Model 3, **Three day Abnormal Trading Volume** is defined as the 3 day Abnormal Trading after the conference call. Year indicator variables were included in the regression but omitted from results. The p-values are two tailed: *** <.001, **<.01, *<.05. **Log of C.C. Words** = the natural log of the number of words spoken during the conference call. **Absolute Value of Prior Accuracy** = absolute value of (actual earnings per share – forecasted earnings per share) in the prior quarter divided by the stock price in the prior quarter. **Number of Analyst Estimates** = the number of analysts following a firm. **Log of Assets** = the natural log of assets as of the start of the prior quarter. **Management Guidance** = Indicator variable of 1 if management has issued earnings guidance in the prior quarter, variable of 0 otherwise. **Positive Management.Guidance** = Indicator variable of 1 if management has issued positive earnings guidance (above consensus estimates) in the prior quarter. **Negative Management.Guidance** = Indicator variable of 1 if management has issued negative earnings guidance (below consensus estimates) in the prior quarter. **Neutral Management Guidance** = Indicator variable of 1 if management has issued neutral earnings guidance (in line with consensus estimates) in the prior quarter. **Financial**

Optimism = number of positive words in the conference call taken from the Loughran and Mcdonald (2011) word list divided by the total number of words in the conference call. **Financial Pessimism** = number of negative words in the conference call taken from the Loughran and Mcdonald (2011) word list divided by the total number of words in the conference call.

Table 10 – Question and Answer Portion of Conference Call

	Model 1 – Analyst Accuracy		Model 2 – Return 0 to 30		Model 3 – Volume	
Constant	0.005717	***	-0.04132	*	-0.60889	**
	(4.47)		(-2.23)		(-2.93)	
Natural Log of number of C.C words	-0.00012		-0.00139		0.254604	***
	(-0.85)		(-0.68)		(11.12)	
Absolute value of prior accuracy	0.418006	***				
	(34.91)					
Number of Analyst Estimates	-0.00011	***	-0.00022		0.012222	***
	(-16.52)		(-1.75)		(9.6)	
Log of Assets	-0.00021	***	0.002683	***	-0.15964	***
	(-8.57)		(6.83)		(-37.13)	
Management Guidance (DV)	-0.00174	***				
	(-27.19)					
Prior 30 Day Return			-0.04436	***		
			(-6.62)			
Earnings Surprise			1.740373	***		
			(19.1)			
Positive Management Guidance (DV)			0.035866	***	0.244358	***
			(14.91)		(10.7)	
Negative Management Guidance (DV)			-0.03261	***	0.357559	***
			(-14.2)		(12.61)	
Neutral Management Guidance (DV)			0.002206		0.068432	***
			(1.43)		(3.93)	
Analyst Accuracy					1.77093	
					(1.78)	
Prior Day Abnormal Volume					1.211424	***
					(158.26)	
Question and Answer Optimism	-0.00411		0.594785	***	-2.9369	***
	(-0.84)		(7.81)		(-3.56)	
Question and Answer Pessimism	0.026279	***	-0.57394	***	4.151491	***
	(4.82)		(-7.09)		(4.83)	
Adjusted R Squared	.2168		.0330		.5013	
Observations	52454		45802		45802	

Note: This table presents the regression results for the absolute value of analyst accuracy. The dependent variable in Model 1 **Analyst accuracy** is defined as the consensus estimate of earnings per share in the month after the prior quarter's conference call. In Model 2 **Return 0 to 30 days after conference call** is defined as the 30 day return after the conference call. In Model 3, **Three day Abnormal Trading Volume** is defined as the 3 day Abnormal Trading after the conference call. Year indicator variables were included in the regression but omitted from results. The p-values are two tailed: *** <.001, **<.01, *<.05. **Log of C.C. Words** = the natural log of the number of words spoken during the conference call. **Absolute Value of Prior Accuracy** = absolute value of (actual earnings per share – forecasted earnings per share) in the prior quarter divided by the stock price in the prior quarter. **Number of Analyst Estimates** = the number of analysts following a firm. **Log of Assets** = the natural log of assets as of the start of the prior quarter. **Management Guidance** = Indicator variable of 1 if management has issued earnings guidance in the prior quarter, variable of 0 otherwise. **Positive Management.Guidance** = Indicator variable of 1 if management has issued positive earnings guidance (above consensus estimates) in the prior quarter. **Negative Management.Guidance** = Indicator variable of 1 if management has issued negative earnings guidance (below consensus estimates) in the prior quarter. **Neutral Management Guidance** = Indicator variable of 1 if management has issued neutral earnings guidance (in line with consensus estimates) in the prior quarter. **Question**

and Answer Optimism = number of positive words in the question and answer portion of the conference call taken from the Harvard IV-4 Dictionary divided by the total number of words in the conference call. **Question and Answer Pessimism** = number of negative words in the question and answer portion of the conference call taken from the Harvard IV-4 Dictionary divided by the total number of words in the conference call.

Table 11 - Robustness Test Using Panel Data for Analyst Accuracy

Variable	Model 1		Model 2		Model 3	
Constant	0.004106		0.000893		0.006027	**
	(1.8)		(0.36)		(2.62)	
Natural Log of number of C.C words	0.000162		0.000492	*	0.000126	
	(0.79)		(2.27)		(0.62)	
Absolute value of prior accuracy	0.148577	***	0.145878	***	0.146082	***
	(11.05)		(10.92)		(10.92)	
Number of Analyst Estimates	-0.00013	***	-0.00013	***	-0.00013	***
	(-6.49)		(-6.7)		(-6.67)	
Log of Assets	-8.9E-05		-4.8E-05		-1.7E-05	
	(-0.37)		(-0.2)		(-0.07)	
Management Guidance (DV)			-0.00117	***	-0.00114	***
			(-9.65)		(-9.5)	
Optimism			-0.04717	***		
			(-6.31)			
Pessimism			0.068691	***		
			(9.20)			
Net Optimism					-0.0599	***
					(-8.47)	
Within R squared	.0335		.0397		.0389	
Observations	42454		42454		42454	

Note: This table presents the panel data regression results for the absolute value of analyst accuracy. The dependent variable **Analyst accuracy** is defined as the consensus estimate of earnings per share in the month after the prior quarter's conference call. Year indicator variables were included in the regression but omitted from results. The p-values are two tailed: *** <.001, **<.01, *<.05. **Log of C.C. Words** = the natural log of the number of words spoken during the conference call. **Absolute Value of Prior Accuracy** = absolute value of (actual earnings per share – forecasted earnings per share) in the prior quarter divided by the stock price in the prior quarter. **Number of Analyst Estimates** = the number of analysts following a firm. **Log of Assets** = the natural log of assets as of the start of the prior quarter. **Management Guidance** = Indicator variable of 1 if management has issued earnings guidance in the prior quarter, variable of 0 otherwise. **Optimism** = number of positive words in the conference call taken from the Harvard IV-4 Dictionary divided by the total number of words in the conference call. **Pessimism** = number of negative words in the conference call taken from the Harvard IV-4 Dictionary divided by the total number of words in the conference call. **Net Optimism** = Optimism – Pessimism from the Harvard IV-4 Dictionary

Table 12 - Robustness Test Using Panel Data for 30-day Return

	Model 1		Model 2		Model 3	
Constant	0.200588	***	0.10456	**	0.15248	***
	(6.55)		(3.04)		(4.97)	
Natural Log of number of C.C words	-0.01057	***	-0.00559		-0.00919	**
	(-3.69)		(-1.81)		(-3.23)	
Prior 30 Day Return	0.14398	***	0.132316	***	0.132181	***
	(19.21)		(17.74)		(17.73)	
Earnings Surprise	1.35692	***	1.26953	***	1.268038	***
	(12.92)		(12.18)		(12.17)	
Number of Analyst Estimates	-0.00087	**	-0.00079	*	-0.00077	*
	(-2.81)		(-2.53)		(-2.49)	
Log of Assets	-0.01713	***	-0.01738	***	-0.01708	***
	(-5.75)		(-5.82)		(-5.73)	
Positive Management Guidance (DV)			0.0255	***	0.025756	***
			(8.72)		(8.82)	
Negative Management Guidance (DV)			-0.03379	***	-0.03348	***
			(-11.45)		(-11.36)	
Neutral Management Guidance (DV)			-0.00073		-0.00059	
			(-0.32)		(-0.25)	
Optimism			1.374064	***		
			(12.15)			
Pessimism			-1.19	***		
			(-10.89)			
Net Optimism					1.259647	***
					(11.85)	
Within R squared	.0405		.0511		.0509	
Observations	45802		45802		45802	

Note: This table presents the panel data regression results for the absolute value of analyst accuracy. The dependent variable **Return 0 to 30 days after conference call** is defined as the 30 day return after the conference call. Year indicator variables were included in the regression but omitted from results. The p-values are two tailed: *** <.001, **<.01, *<.05. **Log of C.C. Words** = the natural log of the number of words spoken during the conference call. **Prior Return** = the return for the 30 days prior to the conference call. **Number of Analyst Estimates** = the number of analysts following a firm. **Log of Assets** = the natural log of assets as of the start of the prior quarter. **Positive Management.Guidance** = Indicator variable of 1 if management has issued positive earnings guidance (above consensus estimates) in the prior quarter, indicator variable of 0 otherwise. **Negative Management.Guidance** = Indicator variable of 1 if management has issued negative earnings guidance (below consensus estimates) in the prior quarter, indicator variable of 0 otherwise. **Neutral Management Guidance** = Indicator variable of 1 if management has issued neutral earnings guidance (in line with consensus estimates) in the prior quarter, indicator variable of 0 otherwise. **Optimism** = number of positive words in the conference call taken from the Harvard IV-4 Dictionary divided by the total number of words in the conference call. **Pessimism** = number of negative words in the conference call taken from the Harvard IV-4 Dictionary divided by the total number of words in the conference call. **Net Optimism** = Optimism – Pessimism from the Harvard IV-4 Dictionary

Table 13 - Robustness Test Using Panel Data for Abnormal Volume

Variable	Model 1		Model 2	
Constant	-1.74399	***	-2.30064	***
	(-5.24)		(-6.06)	
Absolute Value of current analyst estimates	4.931518	***	4.757781	***
	(4.08)		(3.93)	
Natural Log of number of C.C words	0.296829	***	0.347104	***
	(9.47)		(10.24)	
Number of Analyst Estimates	0.006459	*	0.006054	
	(1.98)		(1.86)	
Log of Assets	-0.04216		-0.05638	
	(-1.24)		(-1.66)	
Prior Day Abnormal Volume	1.281418	***	1.278023	***
	(147.96)		(147.3)	
Positive Management Guidance (DV)			0.114549	***
			(4.11)	
Negative Management Guidance (DV)			0.190651	***
			(5.76)	
Neutral Management Guidance (DV)			-0.03512	
			(-1.41)	
Optimism			-1.82442	
			(-1.58)	
Pessimism			4.974852	***
			(4.38)	
Within R squared	.5070		.5083	
Observations	45802		45802	

Note: This table presents the regression results for the absolute value of analyst accuracy. The dependent variable **Three day Abnormal Trading Volume** is defined as the 3 day Equal Weighted Index Log Transformed Abnormal Trading after the conference call. Year indicator variables were included in the regression but omitted from results. The p-values are two tailed: *** <.001, **<.01, *<.05. **Log of C.C. Words** = the natural log of the number of words spoken during the conference call. **Number of Analyst Estimates** = the number of analysts following a firm. **Log of Assets** = the natural log of assets as of the start of the prior quarter. **Prior Day Abnormal Volume** = the abnormal trading volume for the previous day as compared to the prior 30 days. **Positive Management.Guidance** = Indicator variable of 1 if management has issued positive earnings guidance (above consensus estimates) in the prior quarter, indicator variable of 0 otherwise. **Negative Management.Guidance** = Indicator variable of 1 if management has issued negative earnings guidance (below consensus estimates) in the prior quarter, indicator variable of 0 otherwise. **Neutral Management Guidance** = Indicator variable of 1 if management has issued neutral earnings guidance (in line with consensus estimates) in the prior quarter, indicator variable of 0 otherwise. **Optimism** = number of positive words in the conference call taken from the Harvard IV-4 Dictionary divided by the total number of words in the conference call. **Pessimism** = number of negative words in the conference call taken from the Harvard IV-4 Dictionary divided by the total number of words in the conference call.