Are Female Managers More Informative?

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Abstract:

In this paper we use a large sample of earnings conference call transcripts to compare the linguistic styles adopted by female and male top executives (i.e. CEOs and CFOs). We focus on two dimensions of the language: optimism and vagueness. Our results provide strong evidence that female CEOs and CFOs employ a more optimistic and less vague tone than their male colleagues during both sessions of earnings conference calls. In the second part of the paper, we analyze cumulative abnormal returns around each conference call to investigate whether the associated market reaction is influenced by the tone employed by female versus male managers during the call. Our evidence shows that the stock market reacts more positively to more optimistic and less vague earnings conference calls, regardless of the gender of the manager who delivers the call. Indeed, the more optimistic and less vague tone employed by female managers does not impact investor perceptions about the firm.

Keywords: Conference Calls, CEO and CFO gender, Market Reaction; Textual Analysis

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1. Introduction

A growing body of the literature in accounting and finance uses textual analysis to study the language of corporate qualitative disclosures. Most of these studies focuses on the optimism of firm narratives, that is, the use of positive versus negative words (for example, Frankel, Mayew, and Sun 2010; X. Huang, Teoh, and Zhang 2014; Davis et al. 2015). These studies document that manager linguistic choices to communicate firm news and performance are related to the quantity and the quality of the information disclosed by the firm, and that the market reacts to the soft signals conveyed through manager linguistic styles (Henry 2006; Tetlock, Saar-Tsechansky, and Macskassy 2008; Price et al. 2012; Mayew and Venkatachalam 2012; Davis and Tama-Sweet 2012; Allee and Deangelis 2015). However, two recent studies of Davis et al. (2015) and Wagner et al. (2017) show that the tone of spoken corporate disclosure can be substantially influenced by a manager-specific component. As a consequence, highly optimistic speeches might be explained by extremely positive firm performance, but also through the existence of a manager personal style. Leading from these evidences, we examine executives' linguistic styles by focusing on one potentially important characteristic of firm top managers: their gender. The existing literature in psychology and sociology suggests that there are substantial differences in the use of language between women and men (Lakoff 1973; Haas 1979; Thomson and Murachver 2001; Mehl and Pennebaker 2003; Newman et al. 2008). In this study, we analyze the language of quarterly earnings conference calls to assess whether female and male top managers (i.e. CEOs and CFOs) adopt different linguistic styles to communicate firm performance. Our focus is on two language dimensions: optimism and vagueness. Next, we examine whether differences in the tones employed by female and male CEOs and CFOs have an impact on the market reaction around the conference call event.

To test our first hypothesis that female and male executives adopt a different linguistic style, we analyse the transcripts of managers' speeches obtained from a sample of 54,806 earnings conference calls. We concentrate on earnings conference calls, first, because they are important sources of information for investors. Research finds that companies use these live meetings to discuss and clarify reported earnings news, and that investors react to such information (Hollander, Pronk, and Roelofsen 2010; Matsumoto, Pronk, and Roelofsen 2011). Second, compared to the "static" and scripted nature of formal documents and filings, such as annual reports and press releases, or news articles, the conference call information environment is "dynamic" (Blau, DeLisle, and Price 2015). Indeed, conference calls are organized in two sessions: the manager discussion session (MD), and the Q&A session (Q&A). During the MD, managers present firm quarterly results following a scripted presentation that has been prepared

beforehand. The Q&A, instead, involves the participation of financial analysts who may intervene to ask questions and details. Therefore, even if the scripted nature of the manager discussion session allows the manager to set the tone of his or her speech, the larger extemporaneity of the following Q&A challenges the capability of managers to maintain the same degree of control over the content and the language of the disclosure as in the course of the MD, allowing the sentiment of the manager to emerge more spontaneously.

To obtain our measure of manager optimism we categorize each word that appears in the transcripts as negative, positive, and vague, according to the list of negative, positive, and uncertain financial words developed by Loughran and McDonald (2011).

Results show that female managers, adopt a significant more optimistic and less vague tone during both the MD and the Q&A, as compared to their male colleagues This finding suggests that manager gender has a significant impact on both CEO and CFO linguistic styles, and confirms the well documented evidence of different behaviours between men and women in the business context (for example, J. Huang and Kisgen 2013; Ho et al. 2015; Faccio, Marchica, and Mura 2016).

In the second part of our paper, we aim to investigate how financial analysts and investors react to the tone employed by male and female managers during each call. To this purpose, we assess whether financial analyst tone during the Q&A is related to the tone set by the managers during the MD, and if the fact that the call is held by female executives has an impact on financial analyst optimism, or vagueness. Results show that, while the tone of the manager during her/his presentation influences the tone of the questions asked by the financial analysts during the Q&A, the fact that the call is held by a female CEO or CFO does not affect financial analyst tone.

Next, we measure the market reaction around each earnings conference call to test whether the different linguistic styles, adopted by female and male managers, matter to the stock market, or if, instead, investors discount female managers tone. We calculate cumulative abnormal returns (CARs) over a three days window [-1; 1] centred on each event. Our results show that the stock market significantly underreacts to female manager optimism, especially when a higher level of optimism marks the Q&A session. Such evidence raises the question whether a more silent market reaction to female manager speech has to be interpreted as a signal that the stock market is gender biased, as some studies suggest (P. M. Lee and James 2007; Gregory et al. 2013), or if female manager tone is not informative to the stock market. To answer this question, and to assess whether female manager tone predicts future positive performance that the market is not expecting, we analyse the relationship between female manager optimism and future corporate

results. Following an approach similar to J. Lee (2016), we employ one quarter ahead earnings surprises and return on assets, as proxies for future firm performance. Our results show that female manager positive outlook, during both sessions of a conference call, is not related to future positive firm performance. This evidence confirms our hypothesis that female manager optimism and straightness are mainly gender related characteristics, not completely explained by firm fundamentals, and suggests that the market reaction is not gender biased but rationally driven by economic news.

Our study contributes to the literature in several ways. First, to our knowledge, this is one of the first paper that aims to address specifically the question whether the sentiment conveyed through manager speeches during earnings conference calls differs according to the gender of the CEO or the CFO that is leading the earnings call. Indeed, only few studies focus on the way how women and men at companies' top positions communicate to investors. Kim and Chung (2014) find that annual reports supervised by female CFOs contain less complicated words in the texts and more detailed numerical presentation in the tables; Nalikka (2009) finds that firms with female Chief Financial Officers are associated with higher voluntary disclosures in annual reports. Non definitive evidence of female manager to be less optimistic than male managers has been found in a recent paper by Davis et al. (2015). Second, we are the first to analyse the interplay between firm representatives and financial analysts to assess whether financial analysts manage their tone differently when they interact with female versus male executives. Recent studies find that financial analyst tone during the second portion of the call conveys relevant information to the market (Brockman, Li, and Price 2015), and that more optimistic and less aggressive questions can be indicative of a certain degree of favourableness of financial analysts towards the firm (Cohen, Lou, and Malloy 2013). Our finding that the tone of financial analyst questions is related to the sentiment of manager presentations, but not to the gender of the manager who is holding the call confirms that managerial tones are informative to market participants, and suggests that financial analysts do not express, through their speeches, any favourableness towards or against firms leaded by female executives. Moreover, our result that the optimism of financial analyst questions rises as the number of female financial analysts called on increases reinforces our main evidence that a more optimistic communication style characterizes women talks in financial contexts. Finally, with this paper we aim to contribute to the still open debate whether investors in the stock market discriminate against women. The evidence that the market reaction around earnings conference calls is not driven by the gender of manager holding the call, and that the investors discount female manager optimistic

speeches, supports the notion that investors are rational since they base their decisions on economic news.

The rest of the paper is organized into 7 sections. Section 2 reviews the relevant literature. In Section 3, we describe the data and the empirical methodology. Section 4 reports summary statistics. In section 5, we present the results on the main hypothesis that manager gender has an impact on manager linguistic tone. In Section 6, we investigate the relationship between financial analyst talks and manager tone during an earnings conference, and we assess the market around each call event. Section 7 concludes.

2. Background

Textual analysis of corporate disclosure

Recent papers in accounting and finance use textual analysis to study various linguistic features of firms' qualitative disclosures. One of the most studied characteristics of the language of corporate narratives is the optimism, measured as the frequency of positive versus negative words. To categorize each word as positive or negative, prior studies in capital markets adopt external wordlists such as the Harvard General Inquirer wordlist developed in the domain of social psychology (Tetlock 2007; Tetlock, Saar-Tsechansky, and Macskassy 2008; Kothari, Shu, and Wysocki 2009; Price et al. 2012), and the DICTION vocabulary developed in the field of political communication (Davis, Piger, and Sedor 2011; Davis and Tama-Sweet 2012; Demers and Vega 2014; Davis et al. 2015). However, a disadvantage of external wordlists is that a substantial number of words can be misclassified due to the different meaning that the same word assumes in financial narratives relative to alternative contexts (Feldman et al. 2010; Loughran and McDonald 2011). For this reason, more recent studies use the word-list developed by Loughran and McDonald (2011) that is specifically designed to categorize words employed in financial contexts (X. Huang, Teoh, and Zhang 2014; Blau, DeLisle, and Price 2015; Brockman, Li, and Price 2015).

The literature documents that the tone of qualitative communications reflects firm fundamentals and has significant predictive value on future firm profitability (Tetlock, Saar-Tsechansky, and Macskassy 2008; Li 2010; Allee and Deangelis 2015). Moreover, the optimism, or pessimism, conveyed through qualitative corporate disclosures significantly affects stock returns over the period surrounding the disclosure event, providing evidence of the fact that the linguistic components of firm narratives are informative to the stock market (Henry 2006; Feldman et al. 2010; Price et al. 2012). Differences in the language of corporate disclosures raise the question whether and to what extent managers' linguistic choices reflect the actual performance of the firm. Recent studies identify several circumstances in which managers use their language to

manipulate investors' perceptions upward or downward, or to mask poor firm performance. Davis and Tama-Sweet (2012) and X. Huang, Teoh, and Zhang (2014) find that abnormal positive tone is frequently used by firms that usually just meet or beat analyst expectations, or by companies whose earnings are subsequently restated. Other studies find that managers strategically combine an optimistic tone with the choice of complex words and long sentences to obfuscate value-relevant information (Tan, Ying Wang, and Zhou 2014; Brockman, Li, and Price 2015).

In addition to firm current and future performance, and to the presence of strategic incentives to manage the tone, recent studies show that the tone of spoken corporate disclosure can be substantially influenced by manager personal style. Davis et al. (2015) find that the tone of conference calls is significantly influenced by a "manager-specific tendency" to be optimistic or pessimistic. Similarly, Wagner et al. (2017) find that managers conducting earnings conference calls have distinctive styles in their word choice. In particular, some CEOs and CFOs are "vague talkers", while other are "straight talkers".

Earnings conference calls as a form of voluntary disclosure

Earnings conference calls are live-meetings typically held on the same day or the day after the relevant earnings announcement. They involve two sessions: the manager discussion (MD) session, where senior managers (normally, the CEO and the CFO) provide details regarding recent corporate performance and future firm profitability, and the question and answer (Q&A) session, during which financial analysts can intervene to ask questions and details.

Conference calls held in conjunction with earnings announcements have become an increasingly common form of voluntary disclosure (Matsumoto, Pronk, and Roelofsen 2011). Prior studies find that conference calls convey material information to the market (Frankel, Johnson, and Skinner 1999; Bowen, Davis, and Matsumoto 2002; Kimbrough 2005), and that they are incrementally informative over a press release (Matsumoto, Pronk, and Roelofsen 2011). Unusual large return volatility and trading volume, and the increasing average trade size during conference calls, suggest that investors trade in real time on the basis of information that is released during these events (Frankel, Johnson, and Skinner 1999). As shown by Matsumoto, Pronk, and Roelofsen (2011), both sessions of an earnings call have incremental information content over the accompanying press release. However, they find statistically greater abnormal returns during the Q&A session relative to the MD, suggesting that the Q&A is more informative to investors. One reason that the Q&A receives greater attention from the stock market is related to the role played by financial analysts in uncovering information that managers omitted to disclose or did not exhaustively clarify.

The extemporaneity and the interactivity of conference calls challenge the capability of managers to maintain a certain degree of control over the content of their speeches, and also over their word choice, and leave their true sentiment to emerge more spontaneously (Brockman, Li, and Price 2015; Blau, DeLisle, and Price 2015). Due to these unique features that characterize conference calls relative to other written forms of financial disclosure, a large part of the research assessing the informativeness of firms' voluntary disclosures through textual analysis tools focuses on earnings calls. Hollander, Pronk, and Roelofsen (2010) analyse earnings conference calls to explore whether managers opportunistically withhold information from conference call participants. Larcker and Zakolyukina (2012) examine managers' language during earnings conference calls to estimate a linguistic-based classification model of deceptive discussions. In another study, Brockman, Li, and Price (2015) extract the linguistic tones of managers and analysts during earnings conference calls and examine the differences between them. They find that manager word choice reflects a more optimistic sentiment as compared to their analyst counterparts, and that investors (particularly institutional investors) react more strongly to analyst tones than to manager ones. Similarly, Blau, DeLisle, and Price (2015) find that more sophisticated investors are better skilled at discern manager inflated conference call talks. J. Lee (2016) focuses on earnings conference calls to assess whether the market can detect, and, if so, whether investors perceive as a negative signal, the adherence of managers to predetermined scripts during Q&A sessions.

Gender behavioural differences and gender stereotype

Gender studies have received a widespread attention within various areas of the literature. Early studies in psychology and sociology find significant differences between female and male behaviour. Most of these studies perhaps support the notion that on average women are less overconfident and more risk adverse than men (Prince 1993; Lundeberg 1994; Byrnes, Miller, and Schafer 1999), less tolerant towards unethical behaviours and less cynical (Ameen, Guffey, and McMillan 1996). Men and women have been found to be different also on the ground of their use of language. Lakoff (1973), who pioneered the study of gender differences in the language, argues that "Women's language shows up in all levels of the grammar of English", such as in the choice and frequency of lexical items, or in the situations in which certain syntactic rules are performed. Another early study by Haas (1979) finds that women are often more supportive, polite, and expressive. In more recent studies, women have been found to use more intensive adverbs, to refer to positive emotion more often than do men (Thomson and Murachver 2001; Mehl and Pennebaker 2003), and to use more words related to psychological and social processes, while men refer more to object properties and impersonal topics (Newman

et al. 2008). Behavioural differences between women and men have been studied extensively also within the recent literature in accounting and finance. Indeed, many studies highlight that female and male managers behave differently in a number of circumstances. Consistently with psychology and sociology research, these studies find that male executives undertake more acquisitions and issue debt more often than female executives, supporting the notion that women are less overconfident and more risk adverse than men (J. Huang and Kisgen 2013; Faccio, Marchica, and Mura 2016). Other studies document that women on boards make more cautious accounting decisions compared to their male colleagues. Barua et al. (2010) find that female CFOs are less likely to be aggressive in making judgements related to discretionary accruals. Srinidhi, Gul, and Tsui (2011) find that female executives are less likely than men to engage in earnings management for opportunistic motives. Ho et al. (2015) show that companies with female CEOs report more conservative earnings. Similarly, Francis et al. (2015) find that the level of accounting conservatism significantly increases after a female CFO has been appointed to replace a male CFO. However, very few studies focus on the way how women and men at companies' top positions communicate to investors: non definitive evidence of female manager to be less optimistic than male managers has been found in a recent paper by Davis et al. (2015); Kim and Chung (2014) find that annual reports supervised by female CFOs contain less complicated words in the texts and more detailed numerical presentation in the tables; Nalikka (2009) finds that firms with female Chief Financial Officers are associated with higher voluntary disclosures in annual reports.

The evidence that women and men at managerial positions differ in their behaviours raises the question whether and how the stock market perceives such differences. Prior studies address the question if the market reaction to various events involving male and female managers is gender biased. However, evidences on this point are controversial. P. M. Lee and James (2007), analyse the market reaction to the appointment of a new top executive and find that the market significantly underreacts when the new top manager is a woman. Two years later, Martin, Nishikawa, and Williams (2009) find no significant difference in the market reaction to the appointment of a new female CEO versus a new male CEO. More recently, Gregory et al. (2013) examine the market reaction to the announcement of female and male corporate directors to trade their own company stocks. Their results reveal that short-term market reaction to male directors' trades is faster and larger as compared to the case of female directors' trades, supporting the idea that the stock market is gender biased. J. Huang and Kisgen (2013), come to a different conclusion, showing that investors react more positively to the announcement of

major corporate transactions (*e.g.* acquisitions, or capital structure decisions) when the CEO or the CFO of the firm is a woman.

3. Data and Methodology

3.1 Data and sample construction

We obtain our set of quarterly earnings conference calls over the time period from 2004 to 2011 from FactSet which corrects, filters and transcribes the content of each call into a machine readable format. Each transcript is organized in two main sessions: management discussion (MD) and questions and answers (Q&A). The MD session consists in scripted presentations of firm current results and future prospects delivered by firm's top managers, typically the CEO and the CFO. In all transcripts of our sample each presentation in the MD session starts with the name and the title of the firm representative who delivers the speech. By extracting and parsing each MD session we identify each manager (CEO and CFO) presentation, retrieve CEO and CFO names and titles, and implement our textual analysis. Our sample includes only those earnings conference calls in which at least one, the CEO or the CFO, participates and delivers her/his presentation. The Q&A session, that follows the MD session, consists in a dialogue between financial analysts invited to intervene in the call, and firm managers. Questions and answers are always marked with "Q" and "A" respectively. This enables us to distinguish and analyse separately financial analyst and manager speeches. However, transcript format does not allow us to attribute each question and answer to a specific financial analyst and top manager. For this reason, our textual analysis of the Q&A session results into two comprehensive measures of optimism and vagueness: one for financial analysts' questions, and one for managers' answers. For a smaller number of conference call transcripts we are able to identify the names of the financial analysts taking part in the call. This allows us to manually research the gender of the financial analysts invited in each of these conference calls. We match the names of CEOs and CFOs reported in any transcript with Execucomp and Board-Ex annual data to obtain the gender and the full name of the managers. We match manually those CEO and CFO names that are not recorded by Execucomp, or Board-Ex. Observations with missing or unmatched CEO and CFO names are dropped. We remove all conference calls where CEO and/or CFO speech has less than 200 words, financial analysts' questions consist in less than 50 words, and managers' answers in less than 200 words[1]. To merge transcript data with balance sheet and return data and analysts' recommendations from Compustat, CRSP, and IBES respectively, we use ticker symbols and company names provided by Factset. For mismatched

[1] Following Larcker and Zakolyukina (2012), we impose these constraints in order to obtain a reasonable number of words for measuring our measures of the tone.

companies, we perform merging manually. We drop all observations with missing records on Compustat, CRSP and IBES databases. The full sample consists of 54,806 quarterly earnings conference calls held by 4,017 unique US firms.

3.2 Methodology

3.2.1 Language dimensions

We focus on two dimensions of the language: optimism and vagueness. Optimism and vagueness are computed through a programming language that parses each transcript and categorizes each word within the text as positive, negative, or uncertain according to the Loughran and McDonald (2011) wordlist. Financial negative wordlist includes 2,337 words such as: restated, litigation, serious, deterioration. Financial positive wordlist includes 353 words, such as: achieve, attain, efficient, improve, profitable. The list of financial uncertain words includes words denoting uncertainty, with emphasis on the general notion of imprecision. This list includes 285 words, such as: approximate, contingency, depend, fluctuate, indefinite, uncertain, and variability.

Our measure of optimism is the difference between positive and negative words scaled by the length of the speech (i.e. number of words):

$$K\ Optimism = \frac{\#\ of\ positive\ words - \#\ of\ negative\ words}{\#\ of\ words}$$

Where, K = {CEO; CFO; MD; Q&A; FA}.

To construct our measure of vagueness we divide the number of uncertain words by the length of the speech:

$$K\ Vagueness = \frac{\#\ of\ uncertain\ words}{\#\ of\ words}$$

Where, K = {CEO; CFO; MD; Q&A; FA}.

As far as the MD is concerned, we compute our measures of optimism and vagueness with reference to CEO presentations (*CEO optimism,* and *CEO vagueness*) and CFO presentations (*CFO optimism,* and *CFO vagueness*) separately. We also include a measure of the optimism of the managerial team participating in the MD session, calculated as the difference between the sum of CEO and CFO positive words and the sum of CEO and CFO negative words scaled by the sum of the talk of both the CEO and the CFO during the MD session (*MD optimism*), and a measure of managerial team vagueness defined as the sum of CEO and CFO vague words scaled by the length of both the CEO and CFO speeches (*MD vagueness*). As per Q&A sessions, we compute *FA optimism* and *FA vagueness* that measures of the optimism and vagueness of all financial analysts' questions, and *Q&A optimism* and *Q&A vagueness* that indicates the optimism or the vagueness of all manager answers.

3.3 Empirical methodology

3.3.1 Optimism and vagueness of earnings calls and executive gender

The main purpose of this paper is to assess if manager tone, in terms of optimism and vagueness, during each session of an earnings conference call is affected by the manager gender.
This translates in estimating the following pooled OLS regression model:

$$K\ Optimism/Vagueness = \alpha + \beta\ Female_{(Man,\ CEO,\ CFO)} + \vartheta\ Controls + Year\ and\ quarter\ fixed\ effects + Industry\ fixed\ effects \quad (1)$$

Where, K = {MD; CEO; CFO; Q&A}.
In Equation (1), our variable of interest is $Female_{(Man.)}$ an indicator variable set to one if either the CEO or the CFO participating in the call is a woman, and zero otherwise. We provide two further specifications of Equation (1) using alternatively $Female_{(CEO)}$, and $Female_{(CFO)}$ as dependent variables. $Female_{(CEO)}$ is set to one if the conference call is held by a female CEO, and zero otherwise. $Female_{(CFO)}$ is set to one if the conference call is delivered by a female CFO, and zero otherwise. *Controls* is a set of control variables. In particular, we control for the experience that the manager has gained in delivering conference calls. To this purpose, we define $Experience_{(CEO)}$ and $Experience_{(CFO)}$ as log of the number of conference calls included in our sample held by the same CEO and CFO respectively in the course of the period 2004-2011. To obtain a measure of the experience of the management team, we calculate $Experience_{(Man.)}$ as the average experience between the CEO and the CFO. *CC time*, a variable equal to the log of the time of the day at which each conference call takes place, controls for diurnal variations in manager behaviour. Indeed, Chen, Demers, and Lev (2016) find that manager tone and financial analyst tone tend to become less optimistic as the day wears on. *SUE* are standardized earnings surprises, defined as the difference between actuals and median estimated earnings per share based on IBES reported analyst forecasts and actuals. Standardized earnings surprises are divided into deciles from 5 to 1, from largest positive to smallest positive surprise, 0 for zero surprises, and from -1 to -5, from the smallest negative surprises to the largest negative surprises. Return on assets (*ROA*) is calculated as the ratio of net income to quarter's total assets. *Return* is the percentage change in firm's quarterly stock return for the quarter to which the earnings conference call relates relative to firm's quarterly stock return in the prior quarter. Sales growth (*Sales g.*) is the percentage change in sales for the quarter to which the earnings conference call relates relative to firm's sales in the prior quarter. To control for the size of the firms included in the sample we compute *Mkt. Cap.*, the logarithm of quarterly market capitalization. EPS growth (*EPS g.*), the percentage change in earnings per share for the quarter

to which the earnings conference call relates relative to earnings per share in the prior quarter. *Firm age* is defined as the logarithm of the age from the first year the firm entered the CRSP dataset. Finally, we include year, quarter and industry fixed effects.

3.3.2 Alternative measures of manager tone: abnormal optimism and vagueness, and *Tone persistence* across MD and Q&A.

To strengthen our results on the hypothesis that the gender of the CEO and the CFO who conduct the conference call has an impact on the tone of both manager presentations during the MD, and manager answers during the Q&A, we adopt an approach similar to that of X. Huang, Teoh, and Zhang (2014) that allows us to compute a measure of abnormal optimism and abnormal vagueness. Recent studies refer to abnormal tone as the sentiment conveyed through firm disclosures that is not explained by economic news and other firm fundamentals (X. Huang, Teoh, and Zhang 2014; Chen, Demers, and Lev 2018). We define abnormal optimism and abnormal vagueness as the residuals from the following equation:

$$K\ Optimism/Vagueness = \alpha + \theta\ Controls + \varepsilon \quad (1.a)$$

Where, K = {MD; Q&A}.

The variable *Controls* refers to all the control variables that we consider to estimate Equation (1). Results from the regression above are presented in table A. of Appendix II. We calculate the abnormal optimism and the abnormal vagueness of both the MD and the Q&A session, and we label these new variables $Abnormal\ optimism_{(MD)}$ and $Abnormal\ vagueness_{(MD)}$, and $Abnormal\ optimism_{(Q\&A)}$ and $Abnormal\ vagueness_{(Q\&A)}$. To assess whether that portion of optimism and vagueness of earnings conference calls, that is not economic-driven, is instead explained by the gender of the manager holding the call, we run the following regression:

$$Abnormal\ optimism/vagueness_{(MD;\ Q\&A)} = \alpha + \beta\ Female_{(Man)} + Year\ and\ quarter\ fixed\ effects + Industry\ fixed\ effects \quad (2)$$

A positive and significant coefficient on $Female_{(Man)}$, would suggest that manager gender is crucial to explain the abnormal component of optimistic or vague conference call tones.

Finally, we define a third measure of the tone that enables ut to assess whether managers inflate their speech during the first session of a conference call. Following (Blau, DeLisle, and Price 2015), we define *Tone persistence* as the difference between *Q&A optimism* and *MD optimism* scaled by *MD optimism*:

$$Tone\ persistence = \frac{Q\&A\ optimism - MD\ optimism}{MD\ optimism}$$

Tone persistence measures how close the two sessions of the call are in terms of optimism, and indicates how much inflated talk management uses during the MD relative to the more realistic tone of the Q&A session (Blau, DeLisle, and Price 2015). The lower the value of *Tone persistence* the larger the deviation of the Q&A tone from the tone set in the first part of the call. Vice versa, higher, or close to zero, values of *Tone persistence* mean that the sentiment of the Q&A reflects more closely the sentiment of the MD session, indicating that less likely the MD talk has been inflated. We analyze the relationship between *Tone persistence* and $Female_{(Man.)}$ to assess how stable is female managers optimism across the two sessions of the conference call. To this end, we estimate the following pooled OLS regression model:

$$Tone\ persistence = \alpha + \beta_1\ Female_{(Man.)} + \beta_2\ FA\ talk + \vartheta\ Controls + Year,\ quarter\ and\ industry\ fixed\ effects \quad (3)$$

As before, our variable of interest in this model is $Female_{(Man.)}$. A positive and significant relationship between $Female_{(Man.)}$ and *Tone persistence* implies that female managers exhibit a more stable tone over the two sessions of the call as compared to their male colleagues. *FA talk* is a control variable equal to the length of the questions or comments that financial analysts address to managers during the Q&A. It controls for the level of participation of financial analysts during the call. *Controls* include all the control variables we control for in Equation (1).

3.4 Propensity score matching approach

To mitigate sample selection concerns and to balance the distribution of covariates in the treated (earnings calls held by female managers) and control group (earnings call held by male managers only) we employ a propensity score matching approach (Rosenbaum and Rubin 1983). This procedure allows us to identify a control group of firms, which host conference calls held by male managers, as similar as possible to the firms that belong to the treatment group. To implement this methodology, we first calculate the probability, or propensity score, that the CEO or the CFO of firms with certain characteristics is a woman. Propensity scores are estimated using the following probit model:

$$Female_{(Man.)} = \alpha + \beta_1\ Experience_{(Man)} + \beta_2\ SUE + \beta_3\ Mkt.\ Cap + \beta_4\ Firm\ age + Year,\ quarter,\ and\ industry\ fixed\ effects \quad (4)$$

$Female_{(Man.)}$ is an indicator variable set to one if either the CEO or the CFO is a woman and zero otherwise. We then use the propensity scores from this probit estimation and perform a nearest neighbour (1:1) matching with replacement to other firms. We re-estimate Equation (1),

Equation (2) and Equation (3) on the matched sample to examine whether earnings conference calls held by female managers exhibit different linguistic characteristics as compared to male manager leaded conference calls. Table A of Appendix I reports results from Equation (4). Table B of Appendix I reports results on t-test on the means between treatment and control groups before and after the propensity score matching has been performed.

4. Summary statistics

Table 2 presents summary statistics for the variables used in our analyses. All variables are defined in Table 1.

[Insert Table 2 here]

Top managers are more optimistic than pessimistic during both sessions of earnings calls. However, managers tend to lose part of the positivity exhibited during the MD when they move to the more interactive Q&A session, shifting from an average optimism of 0.015 during the MD to an average optimism of 0.009 during the Q&A. Vice versa, managerial vagueness slightly increases from the MD session, characterized by an average vagueness of 0.014, to the Q&A session, with an average vagueness of 0.018. When we consider the tone of CEO presentations and CFO presentations separately, we find that CEOs are more optimistic and less vague than CFOs (the average optimism is equal to 0.021 for CEOs and 0.006 for CFOs; the average vagueness is equal to 0.013 for CEOs and 0.017 for CFOs). We also measure the optimism and vagueness of financial analyst questions. Consistently with Brockman et al. (2015), we find that financial analysts are substantially less optimistic than their interlocutors with an average optimism of 0.001. However, financial analyst questions tend to be vaguer as compared to manager answers.

For a smaller sample of earnings conference calls, conference call transcripts report the names of the financial analysts participating in the call. This allows us to count the number of financial analysts called in by the firm, and to assess their gender. On average, there are five financial analysts invited to participate and ask question during each call, and most of them are men. Indeed, 75% of conference calls are attended only by male financial analysts.

Table 3 shows the proportion of female managers in our sample of conference calls (Panel A), distinguishing by industry (Panel B), and year (Panel C).

[Insert Table 3 here]

Panel A indicates a large gender gap between male and female top managers: only 8.75% conference calls in our sample are delivered by either a female CEO or a female CFO, and,

among those conference calls, 2.89% are held by female CEOs and 7.62% by female CFOs. Panel B shows that some industry sectors are more open than others to female top managers (*e.g.* Educational services; Arts entertainment, and recreation; Accommodation and food services; Retail trade). Finally, Panel C shows a slight increase in the number of female top managers over the period from 2004 to 2011 with a pick in 2010 (9.53% of conference calls in our sample are delivered by female managers).

Table 4 reports differences in means between two groups of conference calls: conference calls where at least one, between the CEO and the CFO, is a woman, and a control group of conference calls where both the CEO and the CFO are men. Column 1 reports t-statistic calculated on the full sample of conference calls. Columns 2 reports results computed by using the propensity score matching approach described at paragraph 3.4.

[Insert Table 4 here]

Both columns 1 and 2 indicate that the optimism of both the MD and the Q&A improves significantly when conference calls are held by female managers (CEO or CFO). At the same time, the vagueness of conference calls (during both the MD and the Q&A sessions) significantly decreases when the CEO or the CFO is a woman. *Tone persistence*, that measures the difference between manager optimism during the first portion of conference calls and manager optimism during the last session of conference calls, is higher for female managers than for male managers, showing that female manager positive sentiment is more stable across both sessions of the conference call as compared to their male colleagues. Finally, when we look at the gender of financial analysts invited to take part in the call, we find that the number of female financial analysts called on increases when the manager holding the call is a woman.

5. Results

5.1 Manager optimism and vagueness during earnings conference calls

We begin our primary empirical investigation by estimating the pooled OLS regression model described by Equation (1). We conduct a second alternate specification that uses the propensity score matching approach discussed at paragraph 3.4. Table 5 reports results obtained considering MD (columns 1 and 2), CEO (columns 3 to 6) and CFO (columns 7 and 8) optimism and vagueness as dependent variables.

[Insert Table 5 here]

Table 6 shows the results obtained considering Q&A optimism and vagueness as dependent variables.

[Insert Table 6 here]

In both Table 5 and Table 6, Panel A reports the results computed on the full sample of earnings call, while Panel B reports the results calculated on the matched sample. We find that the presence of a female manager (either the CEO, or the CFO) significantly increases the optimism, and reduces the vagueness of MD and Q&A sessions (columns 1 and 2 of Table 5 and Table 6). Column 3 of Panel A and Panel B of Table 5 shows that most of the optimism of the MD session has to be attributed to female CEOs, while female CFOs do not exhibit higher levels of optimism as compared to male CFOs. We also control for the experience of top managers in delivering earnings calls ($Experience_{(Man., CEO, CFO)}$). We find that MD and Q&A sessions held by more experienced managers are less optimistic than those ones held by less experienced CEOs or CFOs . In contrast, managerial experience has a positive impact on the vagueness of the speech. In column 4 of both Panel A and Panel B of Table 5 we include the age of the CEO as a control variable, and we find that younger managers tend to be more optimistic than the more aged ones. The variable *CC time* indicates the hour of the day at which each earnings call begins. The coefficient on *CC Time* is positive but insignificant when we consider optimism and vagueness of manager presentations as dependent variables, but it is negative and significant when we consider *Q&A optimism* as dependent variable. These results are in line with Chen, Demers, and Lev (2016) evidence that the tone of manager answers becomes more pessimistic as the day wears on.

Most of the other control variables included in the model are significant. As expected, we find that positive earnings surprises (*SUE*) boost the optimism and reduce the vagueness of managers' speech. More in general, managers of firms that reported positive results in the specific quarter tend to present their firm performance in a more optimistic and less vague fashion. In all specifications of Equation (1) we include year, quarter and industry fixed effects. Interestingly, our results indicate that the optimism of both manager presentations during the MD and manager answers during the Q&A increases from the 3rd to the 4th quarter of a fiscal year. This evidence is in line with studies in accounting that find that firm managers resort to last chance strategies (e.g. earnings adjustments and manipulations) during the last fiscal quarter to boost earnings in order to meet or beat annual earnings expectations (Dhaliwal, Gleason, and Mills 2004; Das, Shroff, and Zhang 2009). Finally, as expected, the optimism of MD sessions largely dropped from the fiscal year 2007 to the fiscal year 2009, to recover, later, in fiscal year 2010 when the financial crisis was over.

5.1.1 Robustness check: alternative samples

To assess the robustness of our results we re-estimate our main regression described by Equation (1) considering three alternative specifications. First, we exclude all conference calls held after the financial crisis broke up in 2008. So, our sample includes only conference calls held over the period from 2004 to 2007. Next, we restrict our estimation to those conference calls held during the years 2008 and 2009 only. Results from these regressions are reported in Table A. of Appendix III. Finally, we run Equation (1) excluding financial firms (two-digit SIC code 60) from our sample. Results are reported in Table B. of Appendix III.

In all cases, results confirm our main findings that female executives exhibit a more optimistic and less vague tone during both sessions of conference calls.

5.2 Abnormal optimism, abnormal vagueness, and *Tone persistence* across MD and Q&A sessions.

The results described in paragraphs 5.1 and 5.1.1 above indicate that female and male managers differ significantly in the way how they use their language: women are significantly more optimistic and less vague than men during both sessions of conference calls.

In this section, we present results obtained from the estimation of Equation (2) and Equation (3) discussed in paragraph 3.3.2 above. Results of Equation (2) are presented in Table 7, columns 1 to 4. Panel A reports results from the full sample of earnings calls. Panel B shows the results from the propensity score matched sample.

[Insert Table 7 here]

The positive and significant coefficients on $Female_{(Man.)}$, when the dependent variable is either $Abnormal\ optimism_{(MD)}$ or $Abnormal\ optimism_{(Q\&A)}$, indicate that the portion of manager optimism during earnings calls that is not explained by the current firm performance is significantly larger when the manager intervening in the call is a woman. We also find that $Abnormal\ optimism_{(MD;\ Q\&A)}$ is higher in those conference calls that happen on the 4^{th} quarter of a fiscal year, and lower for those conference calls held during the financial crisis (i.e. during the fiscal years 2008 and 2009). Differently, when the dependent variable is either $Abnormal\ vagueness_{(MD)}$ or $Abnormal\ vagueness_{(Q\&A)}$, the coefficient of female manager dummy is negative and significant, which indicates that non economics driven vagueness characterizes men's communications more than women's communications.

Results of Equation (3) are presented in Table 7, column 5. Panel A reports results from the full sample of earnings calls; Panel B shows the results from the propensity score matched sample.

Column 5 of Table 7, shows that female managers maintain a closer level of optimism between the MD and the Q&A as compared to their male counterparts. Not surprisingly, coefficient on *FA talk* is negative and significant, suggesting that long financial analyst talks challenge firm managers and negatively impact their ability to be as optimistic as they were during the first portion of the call. Moreover, the positive and significant coefficient on $Experience_{(Man.)}$ indicates that more experienced managers exhibit a higher degree of control on their tone over the second part of the call. Finally, we find that manager optimism across the MD and the Q&A becomes less persistent during the 4th fiscal quarter as compared to the 3rd quarter. This evidence supports the idea that managers' attempts to inflate their talks are more pronounced during last quarter conference calls.

6. Financial analysts, the stock market, and the tone of earnings conference calls

6.1 Financial analysts talk during Q&A sessions

Recent studies find that financial analyst tone is informative of analyst's underlying sentiment regarding the firm, and that investors are sensitive to the linguistic signals conveyed through financial analyst questions during earnings calls (Twedt and Rees 2012; Brockman, Li, and Price 2015). Moreover, Cohen, Lou, and Malloy (2013) find that the tone of financial analyst questions can also be indicative of a certain favourableness of the analyst towards the firm or the managers. To test whether financial analyst optimism and vagueness is affected by female managers' participation in earnings calls we run the following regression:

$$\begin{aligned} \textit{FA optimism/vagueness} = {} & \alpha + \beta_1\, Female_{(Man)} + \beta_2\, \textit{MD optimism/vagueness} \\ & + \delta\, Female_{(Man.)} * \textit{MD optimism/vagueness} + \vartheta\, \textit{Controls} \\ & + \textit{Year, quarter, and industry fixed effects} \end{aligned} \quad (5)$$

Our main interest is in the effect of $Female_{(Man)}$ dummy variable on *FA optimism* and *FA vagueness*. We control for *MD optimism* and *MD vagueness* to see whether financial analyst sentiment during the call is influenced by the sentiment of the MD session. The variable *Controls* refers to the set of control variables included in Equation (1). We report results from Equation (5) in Table 8. Panel A of Table 8 reports results from Equation (5) considering the full sample of conference calls. Panel B shows the results from Equation (5) using the propensity score matched sample described at paragraph 3.4.

[Insert Table 8 here]

We do not find any effect of the participation of female managers in the call on financial analyst optimism or vagueness. This finding implies that female manager optimism during the Q&A

cannot be attributed to a higher level of friendliness of financial analysts towards female executives. Results instead show that more optimistic (vaguer) manger presentations increase (reduce) analyst optimism, while vaguer talks during the MD sessions predicts vaguer financial analysts' questions during the Q&A. Finally, consistently with Chen, Demers, and Lev (2016), we find that late time conference calls (*CC time*) induce financial analysts to be less optimistic and vaguer.

6.1.1 Results from a subsample of earnings calls

For a smaller sample of earnings conference calls, call transcripts report the names of the financial analysts participating in the call. Thus, only for those transcripts we are able to identify the names of the financial analysts participating in the conference call and manually retrieve the gender of the analysts participating in each earnings call. This subsample consists in 15,039 conference calls delivered over the period from 2004 to 2011. It includes conference calls with a number of financial analysts ranging between three and eight (see Table 2 for details). Female financial analysts are substantially underrepresented. We use this subsample to investigate the effects of both manager and financial analyst gender on the tone of the second portion of earnings calls.

Our first interest is in the relationship between the number of female financial analysts invited by the firm and the fact that either the CEO or the CFO is a woman. To this end, we estimate the following regression:

$$\#of\ fem.\ FA = \alpha + \beta_1\, Female_{(Man.)} + \vartheta\, Controls + Year,\ quarter,\ industry\ fixed\ effects \qquad (6)$$

Where, *#of fem. FA* is the number of female financial analysts who participate in the Q&A. The variable *Controls* includes all control variables of Equation (1).

Next, we re-estimate Equation (5) and Equation (1) including the number of female financial analysts as a control to assess if the optimism and vagueness of financial analyst questions and manager answers vary in presence of a higher number of female financial analysts. To this purpose, we run the following regressions:

$$\begin{aligned} FA\ optimism/vagueness = {} & \alpha + \beta_1\, Female_{(Man.)} + \beta_2\, Fem.\ FA{>}2 \\ & + \beta_3\, MD\ optimism/vagueness + \delta Fem._{(Man.)} * Fem.\ FA{>}2 \\ & + \vartheta\, Controls + Year,\ quarter,\ and\ industry\ fixed\ effects \end{aligned} \qquad (7)$$

$$Q\&A\ optimism/vagueness = \alpha + \beta_1\, Female_{(Man.)} + \beta_2\, Fem.\ FA{>}2$$

$$+ \vartheta\, Controls + \delta Female_{(Man.)} * Fem.\ FA>2$$
$$+ Year,\ quarter,\ and\ industry\ fixed\ effects \quad (8)$$

The dependent variable of Equation (7) is either the optimism, or vagueness of financial analyst questions. The dependent variable of Equation (8) is either the optimism, or vagueness of manager answers. *Fem. FA>2* is a dummy variable equal to one if at least two financial analysts among those who participate in the call are women, and zero otherwise. We include in both Equation (7) and Equation (8) an interaction term, $Female_{(Man.)}$**Fem. FA>2*, to assess whether a higher percentage of female financial analysts combined with the presence of a female CEO or CFO has an impact on the tone of financial analyst questions and manager answers. The variable *Controls* includes all control variables of Equation (1).

Results from Equation (6), Equation (7), and Equation (8) are presented in Table 9. Panel A reports results calculated on the full subsample of conference calls. Panel A shows results obtained following the propensity score matching approach described at paragraph 3.4. Our first result indicates that female financial analysts are more likely to be called on when earnings calls are held by female managers (column 1, Panel A and Panel B).

[Insert Table 9 here]

The estimates from Equation (7) show an interesting result. While, as before, we do not observe any effect of our gender dummy, $Female_{(Man.)}$, on financial analyst tone (optimism and vagueness), we find that, when a higher number of female financial analysts is called on, the optimism of financial analyst questions increases significantly (column 2 of Panel A and Panel B). This evidence provides further support to our finding that women exhibit a more positive language in financial contexts, and is in line with the large literature in psychology and sociology that indicates that women and men differ in the way how they use their language (Lakoff 1973; Haas 1979; Thomson and Murachver 2001; Mehl and Pennebaker 2003; Newman et al. 2008). Moreover, results confirm that the tone of manager presentations during the MD influences financial analyst optimism and vagueness during the Q&A (columns 2 and 3 of Panel A and Panel B). As per Equation (8), we find that our gender dummy, $Female_{(Man.)}$, continues to predict more optimistic manager answers during the Q&A (column 4, Panel A and B). Some evidence also shows that manager optimism and straightness, as opposed to vagueness, improve when a higher number of female financial analysts are called on (columns 5 and 6 of Panel B). Finally, column 5 of Panel A shows an effect of the interplay between female financial analysts and female managers on the tone of manager answers. Precisely, we

find that manager answers tend to be more optimistic when either the CEO or the CFO of the firm is a woman and at least two financial analysts called on are women.

6.2 Gender, optimism, vagueness, and market reaction

Previous research documents that the stock market perceives earnings conference calls as informative disclosure events and that the sentiment that managers instill through their talks significantly impacts the market reaction around the call (Tetlock, Saar-Tsechansky, and Macskassy 2008). On the other side, studies addressing the question whether the stock market is gender biased towards women have not found yet a unique solution (P. M. Lee and James 2007; Martin, Nishikawa, and Williams 2009; Gregory et al. 2013; J. Huang and Kisgen 2013). To assess whether and to what extent investors react to our tone measures, and to the tone of female top managers, we estimate the following model:

$$CAR = \alpha + \beta_1 Female_{(Man.)} + \beta_2 Tone + \delta Female_{(Man.)}*Tone + \vartheta Controls + Year, quarter\ and\ industry\ fixed\ effect \quad (9)$$

Where, *Tone* = {MD optimism; MD vagueness; Q&A optimism; Q&A vagueness; Tone persistence; Abnormal optimism; Abnormal vagueness}

CAR are cumulative abnormal returns calculated on a three days event window from the day before and the day after the conference call. Our independent variables of interest are the indicator variable $Female_{(Man.)}$, and the interaction term $Female_{(Man.)}*Tone$, which captures the market reaction to the tone of conference calls delivered by female top managers (CEO and/or CFO). *Controls* includes all control variables of Equation (1).

Table 10 reports results from Equation (9). We begin by estimating Equation (9) on the full sample of earnings calls (Panel A). As a second alternate specification, we re-estimate Equation (9) using the propensity score matched sample described in paragraph 3.4 (Panel B).

[Insert Table 10 here]

As expected, the market reacts more positively to more optimistic conference calls. Indeed, columns 2 and 3, and columns 6 and 7 show that a more optimistic tone during the MD session and the Q&A session boosts stock returns around the event. Interestingly, investors seem to find the tone of the Q&A session more informative than the tone of the MD session. Similar to Wagner et al. (2017), in columns 4 and 5, and 8 and 9 of Panel A, we find that the market reaction is dampened by vaguer manager talks. To assess whether manager gender impacts the market reaction to the news communicated during earnings conference calls, we control for $Female_{(Man.)}$ and for the interaction $Female_{(Man.)}*Tone$. Results do not allow us to conclude that

the market reaction is affected, either positively, or negatively, by the mere circumstance that a conference call is held by a female executive. Indeed, coefficient of $Female_{(Man.)}$ is positive and significant only when we run Equation (9), with *Tone persistence* as a dependent variable (column 1, Panel A and B). Moreover, results indicate that female manager talks are not more informative than their male colleague ones to investors. Indeed, while in most specifications we do not find any significant difference in the market reaction to female versus male tone, we find that female manager *Tone persistence* and female manager optimism during the Q&A session negatively and significantly impact the market reaction around the call (columns 1, 6 and 7 of Panel A and Panel B). For robustness, we re-estimate Equation (9), using cumulative abnormal returns over a two-day window (0, +1) centred on the conference call date. Results, reported in table A of Appendix IV, confirm our evidence that the market reaction around the event is significantly affected by manager tone during the call, but is not influenced by manager gender.

6.3 One quarter ahead SUE and ROA

Our evidence that investors significantly underreact to the optimism conveyed by female manager answers during earnings calls raises the question whether the stock market merely dislikes female manager optimism, as a form of negative stereotype towards women in power, or if investor reaction is consistent with firm economic news. Following an approach similar to that of J. Lee (2016) and X. Huang, Teoh, and Zhang (2014), we define two alternative proxies for future firm performance: one quarter ahead earnings surprises (SUE_{t+1}), and one quarter ahead ROA (ROA_{t+1}). We estimate the following regression model:

$$FUT\_PERF = \alpha + \beta_1 Female_{(Man., CEO, CFO)} + \beta_2 Tone + \delta Female_{(Man., CEO, CFO)} * Tone + \beta_3 FA\ optimism + \vartheta Controls + Year, quarter\ and\ industry\ fixed\ effect \quad (10)$$

Where, FUT_PERF= {SUE_{t+1} ; ROA_{t+1}}; and *Tone* = {*Tone persistence*; *Abnormal optimism*; *Abnormal vagueness*}.

Our dependent variable of interest in this model is the interaction term $Female_{(Man., CEO, CFO)} * Tone$. With δ positive and significant we would conclude that the higher level of optimism exhibited by female managers is informative of future firm performance and that the observed market reaction cannot be justified by any bad news embedded in female manager talks. Conversely, with δ not significant or significantly negative we should conclude that female manager optimism does not predict future positive firm performance, or that female manager optimistic tone predicts poor future performance (X. Huang, Teoh, and Zhang 2014). The

variable *Control* includes the following control variables: *Experience*$_{(Man.)}$, *SUE*, *ROA*, *Return*, *Sales g.*, *Mkt. Cap.*, and *EPS g.*. Table 11 presents results from Equation (10). Panel A shows results computed on the full sample of conference calls. Results calculated on the propensity score matched sample described in paragraph 3.4 are reported in Panel B.

[Insert Table 11 here]

Panel A shows that, in general, abnormal optimistic tones during the MD and the Q&A sessions, signal positive firm performance. However, results do not indicate any strong evidence that female manager tone is more informative about future firm performance as compared to male manager tone. This finding supports the idea that investors perception are rational and driven by economic news, while we do not find any results that confirm that the market is gender biased.

7. Conclusions

We explore the tone of earnings conference calls by comparing two linguistic features of financial communications, optimism and vagueness, between female and male CEOs and CFOs. We find that the tone of earnings conference calls is significantly more optimistic and less vague when the call is delivered by female managers. Moreover, female manager optimism persists at its high level also during the more dynamic and interactive Q&A session.

In the second part of the paper we focus on the tone employed by financial analysts to address their questions to the management of the firm. While we do not find any difference in the tone of financial analyst questions when their interlocutor is a female manager versus a male manager, we find that a higher number of female financial analysts participating in the call is associated with more optimistic questions during the Q&A. These results are in line with prior studies in psychology and sociology on the existence of significant differences in the use of language between women and men (Lakoff 1973; Haas 1979; Thomson and Murachver 2001; Mehl and Pennebaker 2003; Newman et al. 2008), and suggests that such distinctive linguistic style of women and men shows up also in the context of financial communication.

Next, we examine the market reaction around earnings conference call events. We find that more optimistic MD and Q&A sessions are associated with a positive and significant market reaction, while manager vagueness predicts a negative market reaction around the call. Similarly, investors react more positively to conference calls with more persistent level of optimism (*Tone persistence*) during the two portions of the call. However, we do not find any impact of the gender of the manager delivering the call on the market reaction around the event, while we find some evidence that the higher level of optimism of female manager speech

dampens stock returns in the period surrounding the conference call. This evidence offers two possible interpretation: one is that the more silent market reaction to female manager speech is due to the existence of a gender stereotype in the stock market; the second possible explanation is that investors simply discount female manager optimism since it is not informative about future firm performance. To answer this question, we explore the relationship between female manager optimism and one quarter ahead earnings surprises and return on assets. Our results suggest that female manager highly optimistic tone is not related to the presence of positive future firm performance. This result, therefore, contradicts the idea that the market is gender biased towards women at top managerial positions, and privileges the hypothesis that investors are rational since they discount optimistic tones not related to firm fundamentals.

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Table 1. Variable definitions

Language measure for earnings conference calls	
MD optimism	Optimism of firm representatives during the Manager Discussion session. Optimism is defined as: (CEO and CFO Positive – CEO and CFO Negative)/MD talk, where Positive and Negative refer to the word count frequency of positive and negative words based on the Loughran-McDonald wordlist respectively.
MD vagueness	Vagueness of firm representatives during the Manager Discussion session. Vagueness is defined as: CEO and CFO Uncertain/MD talk, where Uncertain refers to the word count frequency of uncertain words based on the Loughran-McDonald wordlist.
MD talk	Length of CEO and CFO talk during the Manager Discussion session.
CEO optimism	Optimism of the CEO during the Manager Discussion session. Optimism is defined as: (CEO Positive – CEO Negative)/CEO talk, where Positive and Negative refer to the word count frequency of positive and negative words based on the Loughran-McDonald wordlist respectively.
CEO vagueness	Vagueness of the CEO during the Manager Discussion session. Vagueness is defined as: CEO Uncertain/CEO talk, where Uncertain refers to the word count frequency of uncertain words based on the Loughran-McDonald wordlist.
CEO talk	Length of CEO talk during the Manager Discussion session.
CFO optimism	Optimism of the CFO during the Management Discussion session. Optimism is defined as: (CFO Positive – CFO Negative)/CFO talk, where Positive and Negative refer to the word count frequency of positive and negative words based on the Loughran-McDonald wordlist respectively.
CFO vagueness	Vagueness of the CFO during the Manager Discussion session. Vagueness is defined as: CFO Uncertain/CFO talk, where Uncertain refers to the word count frequency of uncertain words based on the Loughran-McDonald wordlist.
CFO talk	Length of CEO talk during the Manager Discussion session.
Q&A optimism	Optimism of firm representative answers during the Q&A session. Optimism is defined as: (Positive – Negative)/Q&A talk, where Positive and Negative refer to the word count frequency of positive and negative words based on the Loughran-McDonald wordlist respectively.
Q&A vagueness	Vagueness of firm representative answers during the Q&A session. Vagueness is defined as: Uncertain/Q&A talk, where Uncertain refers to the word count frequency of uncertain words based on the Loughran-McDonald wordlist.
Q&A talk	Length of firm representative talk during the Q&A session.
Abnormal optimism	Abnormal optimism$_{(MD)}$ for manager presentations during MD sessions, and Abnormal optimism$_{(Q\&A)}$ for manager answers during Q&A sessions, represent the component of optimism that is not explained by current firm performance.
Abnormal vagueness	Abnormal vagueness$_{(MD)}$ for manager presentations during MD sessions, and Abnormal vagueness$_{(Q\&A)}$ for manager answers during Q&A sessions, represent the component of vagueness that is not explained by current firm performance.
FA Optimism	Optimism of financial analyst questions during the Q&A session. Optimism is defined as: (Positive – Negative)/FA talk, where Positive and Negative refer to the word count frequency of positive and negative words based on the Loughran-McDonald wordlist respectively.
FA Vagueness	Vagueness of financial analyst questions during the Q&A session. Vagueness is defined as: Uncertain/Q&A talk, where Uncertain refers to the word count frequency of uncertain words based on the Loughran-McDonald wordlist.
FA talk	Length of financial analysts talk during the Q&A session.
Manger characteristics	
Experience$_{(CEO)}$	The log of the number of conference calls included in the sample held by the same CEO over the period 2004-2011.
Experience$_{(CFO)}$	The log of the number of conference calls included in the sample held by the same CFO over the period 2004-2011.
Experience$_{(Man.)}$	The average of the number of conference calls held by the CEO and the CFO (*i.e.* the sum of CEO experience and CFO experience scaled by 2) on the conference call date for firm *i.*
CEO Age	The log of the age of the CEO.

Financial analysts	*(continued)*
# of FA	For each conference call the number of financial analysts participating in the Q&A session
# of fem. FA	For each conference call the number of female financial analysts participating in the Q&A session
Other dependent and independent variables	
CAR	Cumulative abnormal returns from day *t-1* to day *t+1* around the earnings conference call date. Abnormal returns are defined in excess of CRSP value-weighted market return.
SUE	Standardized unexpected earnings (SUE) surprises based on IBES median analyst forecasts and actuals.
Return	Percentage change in firm's quarterly stock return for the quarter to which the earnings conference call relates relative to firm's quarterly stock return in the prior quarter.
Sales growth	Percentage change in sales for the quarter to which the earnings conference call relates relative to sales in the prior quarter.
ROA	Quarterly return on assets: ratio of net income to total assets.
EPS growth	Percentage change in earnings per share for the quarter to which the earnings conference call relates relative to earnings per share in the prior quarter.
Market cap.	Quarterly market capitalization.
CC time	Log of the time of the day at which each conference call takes place.
Firm age	Log of age from the first year the firm entered the CRSP dataset.

Table 2. Summary statistics

Tone measure		Mean	Median	Min	25%	75%	Max	Std. dev.
MD opt.		0.015	0.015	-0.083	0.005	0.026	0.093	0.017
MD vag.		0.014	0.013	0.000	0.009	0.018	0.102	0.007
Q&A opt.		0.009	0.008	-0.073	0.001	0.016	0.086	0.012
Q&A vag.		0.018	0.017	0.000	0.013	0.022	0.065	0.007
Ab. opt.$_{(MD)}$		0.000	0.000	-0.040	-0.010	0.010	0.038	0.016
Ab. vag.$_{(MD)}$		0.000	-0.001	-0.012	-0.005	0.003	0.025	0.007
Ab. opt.$_{(Q\&A)}$		0.000	-0.000	-0.028	-0.007	0.007	0.029	0.011
Ab. vag.$_{(Q\&A)}$		0.000	-0.001	-0.013	-0.005	0.004	0.020	0.007
MD talk		2,569.55	2,184	220	1,422	3,275	15,046	1,678.68
Q&A talk		1,181.31	1,127	200	787	1,501	13,636	551.91
Tone pers.		-0.517	-0.556	-2.963	-1	-0.064	2.033	1.074
FA Optimism		0.001	0.000	-0.129	-0.008	0.009	0.088	0.013
FA vagueness		0.026	0.025	0.000	0.020	0.031	0.103	0.009
FA talk		683.80	651	50	456	868	8,540	324.46
N	54,806							
CEO opt.		0.021	0.021	-0.088	0.008	0.035	0.141	0.022
CEO vag.		0.013	0.012	0.000	0.008	0.017	0.119	0.008
CEO talk		1,919	1,454	236	835	2,494	11,216	1,575
N	49,905							
CFO opt.		0.006	0.006	-0.084	-0.003	0.016	0.083	0.016
CFO vag.		0.017	0.014	0.000	0.009	0.020	0.136	0.013
CFO talk		974.25	787	220	526	1,173	4,845	693.75
N	46,001							
Man. charact.	*N*	Mean	Median	Min	25%	75%	Max	Std. dev.
Exp.$_{(CEO)}$	49,905	8.105	7	1	3	12	49	6.214
Exp.$_{(CFO)}$	46,001	7.323	6	1	3	11	39	5.763
Exp.$_{(Man)}$	54,806	7.748	6.5	1	3	11	43	5.562
CEO age	23,813	50	51	28	47	54	56	4.516
Fin. An.	*N*	Mean	Median	Min	25%	75%	Max	Std. dev.
# of FA		5.334	5	4	4	6	8	1.285
# of fem. FA		0.549	0	0	0	1	8	0.847
N	15,039							
Other var.		Mean	Median	Min	25%	75%	Max	Std. dev.
CAR		0.002	0.001	-0.287	-0.046	0.051	0.270	0.085
SUE		0.000	0.001	-0.097	-0.001	0.002	0.043	0.008
Return		0.022	0.016	-0.556	-0.097	0.132	0.874	0.203
Sales growth		0.034	0.023	-0.576	-0.039	0.092	1.215	0.174
ROA		0.840	1.030	-20.364	0.211	2.077	8.827	2.794
EPS growth		-0.171	-0.049	-15.667	-0.615	0.311	13.333	2.021
Mkt cap.		7.159	7.061	3.761	6.095	8.109	11.377	1.470
Firm age		18.445	13.115	1.885	7.030	24.137	80.888	16.525
CC time		12:00	11:00	7:00	10:00	16:00	22:00	3.217
N	54,806							

Table 3. Distribution of sample over manager gender, industries and year

Panel A.: Distribution by gender						
	Male man.	Female man.	Male CEO	Female CEO	Male CFO	Female CFO
N. of earnings conference calls	50,010	4,796	48,464	1,441	42,497	3,504
Percent of sample	91.25	8.75	97.11	2.89	92.38	7.62
Panel B.: distribution by industries (percent of sample)						
NAICS description	Male exec.	Female exec.	Male CEO	Female CEO	Male CFO	Female CFO
Accommodation and Food Services	84.92	15.08	94.5	5.5	84.77	15.23
Administrative and Support and Waste Management	93.41	6.59	97.86	2.14	94.81	5.19
Agriculture, Forestry, Fishing and Hunting	100	0	100	0	100	0
Arts, Entertainment, and Recreation	82.11	17.89	94.14	5.86	83.41	16.59
Construction	96.66	3.34	100	0	95.98	4.02
Educational Services	78.17	21.83	91.85	8.15	80.08	19.92
Finance and Insurance	92.4	7.6	97.31	2.69	93.04	6.96
Health Care and Social Assistance	92.98	7.02	97.17	2.83	94.98	5.02
Information	87.67	12.33	95.17	4.83	90.62	9.38
Manufacturing	92.06	7.94	97.64	2.36	92.92	7.08
Mining, Quarrying, and Oil and Gas Extraction	96.28	3.72	100	0	95.13	4.87
Other Services	78.48	21.52	95.41	4.59	74.59	25.41
Professional, Scientific, and Technical services	92.5	7.5	98.29	1.71	93.22	6.78
Public Administration	94.64	5.36	100	0	94.17	5.83
Real Estate and Rental and Leasing	91.44	8.56	95.99	4.01	93.85	6.15
Retail Trade	84.53	15.47	91.86	8.14	89.39	10.61
Transportation and Warehousing	93.69	6.31	97.81	2.19	94.93	5.07
Utilities	89.84	10.16	98	2	90.21	9.79
Wholesale Trade	91.9	8.1	99.6	0.4	91.1	8.9
Panel C.: distribution by year (percent of sample)						
Year	Male man.	Female man.	Male CEO	Female CEO	Male CFO	Female CFO
2004	91.63	8.37	97.68	2.32	92.17	7.83
2005	91.64	8.36	97.41	2.59	92.33	7.67
2006	91.63	8.37	97.47	2.53	92.25	7.75
2007	91.33	8.67	97.3	2.7	92.31	7.69
2008	91.18	8.82	96.96	3.04	92.63	7.37
2009	90.85	9.15	96.68	3.32	92.58	7.42
2010	90.47	9.53	96.46	3.54	92.29	7.71
2011	91.59	8.41	97.18	2.82	92.58	7.42

Table 4. Differences in means

This table reports differences in means between two groups of conference calls: conferences calls held by at least one female manager (either the CEO or the CFO) and a control group of conference calls where both the CEO and the CFO are men. Column 1 reports t-stats on the full sample of conference calls. Columns 2 reports results computed by using a 1:1 propensity score matching approach. Propensity score matching is estimated from the probit regression described by Equation (4).

Variable		Full sample	1-NN
		(1)	(2)
MD optimism			
	F- M	0.0027***	0.0016***
	t-stat	10.53	4.48
MD vagueness			
	F- M	-0.0009***	-0.0007***
	t-stat	-7.97	-4.41
Q&A optimism			
	F- M	0.0017***	0.0016***
	t-stat	9.41	6.51
Q&A vagueness			
	F- M	-0.0010***	-0.0006***
	t-stat	-9.47	-4.04
Tone persistence			
	F- M	0.0399**	0.0553**
	t-stat	2.46	2.46
FA optimism			
	F- M	0.0004**	0.0004
	t-stat	2.16	1.11
FA vagueness			
	F- M	0.0001	0.0002
	t-stat	1.04	1.23
# of FA			
	F- M	0.10819	-0.09574
	t-stat	2.58**	-1.58
# of fem. FA			
	F- M	0.16187***	0.07897***
	t-stat	12.17	-3.43

Table 5. Top managers gender and MD session optimism/vagueness

This table compares the optimism and vagueness of MD sessions between two groups of earnings calls: conference calls delivered by female managers and conference calls delivered by male managers (Eq. 1). *Female*$_{(Man.)}$, columns 1 and 2, is a dummy variable equal to one when either the CEO or the CFO is a woman, and zero otherwise. *Female*$_{(CEO)}$, columns 3, 4, 5 and 6, is a dummy variable equal to one when the CEO of the firm is a woman, and zero otherwise. *Female*$_{(CFO)}$, columns 7 and 8, is a dummy variable equal to one when the CFO of the firm is a woman and zero otherwise. Panel A reports results calculated on the full sample of conference calls. Panel B reports results calculated using a nearest neighbors (1:1) propensity score matching procedure. Propensity scores are estimated from the probit regression model described by Equation (4). The variable *Controls* in panel B includes all the control variables from Equation 1. All continuous variables are winsorized at the 1st and 99th percentiles. Standard errors are clustered at the industry level. Significance on 10%(*), 5%(**), or 1%(***) is indicated.

Panel A	MD		CEO				CFO	
	Optimism	Vagueness	Optimism	Optimism	Vagueness	Vagueness	Optimism	Vagueness
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Female$_{(Man., CEO, CFO)}$	0.00155	-0.00067	0.00330	0.00372	-0.00131	-0.00217	0.00021	-0.00109
	(4.16)***	(2.08)**	(2.75)**	(2.03)**	(2.00)*	(5.54)***	(0.33)	(2.22)**
Exp.$_{(Man., CEO, CFO)}$	-0.00046	0.00059	-0.00086	-0.00074	0.00035	0.00024	-0.00029	0.00077
	(1.94)*	(4.23)***	(4.64)***	(2.28)**	(3.19)***	(2.14)**	(1.43)	(2.95)***
CEO age				-0.00017		-0.00001		
				(1.91)*		(0.40)		
CC time	0.00056	0.00027	0.00156	0.00184	-0.00017	-0.00077	-0.00079	0.00109
	(0.73)	(0.47)	(1.15)	(1.38)	(0.28)	(1.96)*	(1.24)	(0.96)
SUE	0.00048	-0.00005	0.00060	0.00059	-0.00008	-0.00008	0.00033	-0.00001
	(12.98)***	(3.28)***	(16.40)***	(9.43)***	(4.03)***	(2.85)***	(9.39)***	(0.38)
ROA	0.00020	0.00004	0.00004	0.00007	0.00002	0.00004	0.00073	0.00006
	(4.15)***	(0.92)	(0.58)	(0.44)	(0.41)	(0.71)	(5.66)***	(1.21)
Return	0.00587	-0.00035	0.00673	0.00635	-0.00040	-0.00039	0.00408	-0.00047
	(15.96)***	(4.08)***	(12.79)***	(13.46)***	(1.79)*	(1.52)	(12.58)***	(1.46)
Sales g.	0.00433	-0.00005	0.00462	0.00414	0.00001	-0.00013	0.00358	-0.00021
	(4.26)***	(0.22)	(3.29)***	(2.34)**	(0.05)	(0.69)	(4.38)***	(0.56)
Market cap.	0.00165	-0.00072	0.00209	0.00220	-0.00066	-0.00072	0.00185	-0.00095
	(13.80)***	(10.24)***	(12.97)***	(9.77)***	(7.28)***	(5.23)***	(10.05)***	(5.23)***
EPS g.	0.00040	-0.00002	0.00038	0.00030	-0.00000	-0.00004	0.00036	-0.00002
	(4.71)***	(1.09)	(3.71)***	(2.70)**	(0.14)	(1.37)	(6.74)***	(0.51)
Firm age	-0.00071	-0.00020	-0.00096	-0.00040	-0.00001	-0.00017	0.00004	-0.00051
	(2.83)***	(3.21)***	(4.93)***	(1.55)	(0.12)	(1.37)	(0.14)	(2.95)***
3rd quarter	-0.00083	-0.00119	-0.00119	-0.00145	-0.00108	-0.00106	-0.00069	-0.00117
	(4.96)***	(8.99)***	(3.81)***	(3.37)***	(5.80)***	(3.79)***	(4.40)***	(8.04)***
4th quarter	0.00045	-0.00141	0.00091	0.00064	-0.00138	-0.00123	-0.00067	-0.00121
	(2.16)**	(13.36)***	(3.31)***	(2.20)**	(6.77)***	(4.15)***	(3.53)***	(9.04)***
Fiscal year 2007	0.00141	-0.00105	0.00183	0.00175	-0.00071	-0.00050	-0.00069	-0.00013
	(2.98)***	(3.57)***	(2.17)**	(1.40)	(5.33)***	(2.64)**	(1.99)*	(0.29)
Fiscal year 2008	-0.00160	-0.00058	-0.00176	-0.00182	0.00003	0.00019	-0.00262	-0.00010
	(1.66)	(1.56)	(1.29)	(1.55)	(0.14)	(0.64)	(4.94)***	(0.17)
Fiscal year 2009	-0.00218	-0.00111	-0.00205	-0.00182	-0.00033	-0.00018	-0.00347	-0.00065
	(3.23)***	(3.49)***	(2.70)**	(1.55)	(1.53)	(0.59)	(5.25)***	(0.98)
Fiscal year 2010	0.00370	-0.00179	0.00502	0.00490	-0.00131	-0.00112	0.00056	-0.00092
	(4.85)***	(4.69)***	(4.06)***	(3.72)***	(5.65)***	(3.39)***	(1.15)	(1.54)
Constant	0.00463	0.01968	0.00857	0.01946	0.01968	0.02314	-0.00507	0.01994
	(1.68)	(15.44)***	(1.92)*	(2.75)***	(12.01)***	(13.77)***	(2.26)**	(6.29)***
Year/quarter FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.12	0.04	0.10	0.10	0.05	0.05	0.11	0.03
N	54,806.00	54,806.00	49,905.00	23,813.00	49,905.00	23,813.00	46,001.00	46,001.00
Panel B	MD		CEO				CFO	
	optimism	Vagueness	Optimism	Optimism	Vagueness	Vagueness	Optimism	Vagueness
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Fem. (Man.)	0.00164	-0.00070	0.00266	0.00300	-0.00128	-0.00227	0.00008	-0.00058
	(3.43)***	(2.34)**	(2.10)**	(1.80)*	(1.96)*	(4.80)***	(0.13)	(1.15)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year/quarter FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.15	0.06	0.12	0.12	0.07	0.08	0.14	0.04
N	9,592.00	9,592.00	8,801.00	4,780.00	8,801.00	4,780.00	8,545.00	8,545.00

Table 6. Top managers gender and Q&A session optimism/vagueness

This table compares the optimism and vagueness of the Q&A sessions between two groups of earnings call: conference calls delivered by female managers and conference calls where both the CEO and CFO are men (Eq. 1). $Female_{(Man.)}$, in columns 1 and 2, is a dummy variable equal to one when either the CEO or the CFO is a woman, and zero otherwise. $Female_{(CEO)}$, in columns 3 and 4, is a dummy variable equal to one when the CEO of the firm is a woman, and zero otherwise. $Female_{(CFO)}$, in columns 5 and 6, is a dummy variable equal to one when the CFO of the firm is a woman, and zero otherwise. Panel A reports results calculated on the full sample of conference calls. Panel B reports results calculated using a nearest neighbor (1:1) propensity score matching procedures. Propensity scores are estimated from the probit regression model described by Equation (4). The variable Controls in panel B includes all the control variables from Eq. 1. All continuous variables are winsorized at the 1st and 99th percentiles. Standard errors are clustered at the industry level. Significance on 10%(*), 5%(**), or 1%(***) is indicated.

Panel A	Optimism	Vagueness	Optimism	Vagueness	Optimism	Vagueness
	(1)	(2)	(3)	(4)	(5)	(6)
$Fem._{(Man., CEO. CFO)}$	0.00123	-0.00057	0.00208	-0.00153	0.00072	-0.00016
	(4.24)***	(2.46)**	(4.12)***	(3.74)***	(2.41)**	(0.70)
$Exp._{(Man., CEO, CFO)}$	-0.00008	0.00040	-0.00021	0.00033	0.00013	0.00023
	(0.58)	(5.64)***	(2.09)**	(5.65)***	(1.34)	(3.81)***
CC time	-0.00174	0.00016	-0.00189	0.00012	-0.00178	0.00021
	(2.73)**	(0.79)	(2.96)***	(0.56)	(2.52)**	(1.00)
SUE	0.00017	0.00000	0.00017	-0.00000	0.00018	-0.00000
	(3.53)***	(0.01)	(2.97)***	(0.13)	(3.73)***	(0.19)
ROA	0.00016	0.00005	0.00016	0.00004	0.00016	0.00004
	(3.41)***	(0.99)	(3.66)***	(0.80)	(3.44)***	(0.86)
Return	0.00331	-0.00006	0.00338	-0.00011	0.00327	-0.00010
	(11.34)***	(0.30)	(10.90)***	(0.53)	(11.31)***	(0.58)
Sales g.	0.00219	-0.00034	0.00222	-0.00030	0.00235	-0.00027
	(4.81)***	(2.07)*	(4.31)***	(1.96)*	(5.32)***	(1.35)
Mkt cap.	0.00010	-0.00049	0.00013	-0.00047	0.00005	-0.00046
	(0.87)	(9.72)***	(1.15)	(9.08)***	(0.43)	(7.92)***
EPS g.	0.00016	-0.00002	0.00017	-0.00002	0.00015	-0.00002
	(3.54)***	(1.11)	(3.36)***	(1.10)	(3.40)***	(1.09)
Firm age	0.00005	-0.00007	0.00005	-0.00008	0.00005	-0.00005
	(0.43)	(1.03)	(0.48)	(1.28)	(0.44)	(0.66)
3^{rd} quarter	-0.00113	-0.00001	-0.00111	-0.00002	-0.00112	0.00005
	(9.58)***	(0.09)	(7.58)***	(0.22)	(8.50)***	(0.91)
4^{th} quarter	-0.00071	0.00007	-0.00067	0.00011	-0.00069	0.00010
	(4.73)***	(1.17)	(4.74)***	(1.70)	(4.52)***	(1.37)
Fiscal year 2007	0.00012	-0.00169	0.00035	-0.00152	-0.00024	-0.00146
	(0.31)	(8.48)***	(0.88)	(8.26)***	(0.63)	(7.90)***
Fiscal year 2008	-0.00249	-0.00178	-0.00222	-0.00158	-0.00300	-0.00147
	(6.60)***	(9.02)***	(5.21)***	(8.36)***	(8.50)***	(9.10)***
Fiscal year 2009	-0.00217	-0.00215	-0.00190	-0.00193	-0.00265	-0.00180
	(5.43)***	(10.56)***	(4.65)***	(8.32)***	(6.91)***	(13.03)***
Fiscal year 2010	0.00048	-0.00275	0.00075	-0.00253	-0.00003	-0.00241
	(1.58)	(10.24)***	(2.31)**	(9.48)***	(0.09)	(11.48)***
Year/quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.01244	0.02448	0.01291	0.02481	0.01313	0.02419
	(5.95)***	(29.57)***	(6.28)***	(28.17)***	(6.00)***	(30.28)***
Adjusted R^2	0.08	0.07	0.09	0.07	0.08	0.07
N	54,806.00	54,806.00	49,905.00	49,905.00	46,001.00	46,001.00
Panel B	Q&A optimism	Q&A vagueness	Q&A optimism	Q&A vagueness	Q&A optimism	Q&A vagueness
	(1)	(2)	(3)	(4)	(5)	(6)
Fem. Man.	0.00159	-0.00064	0.00200	-0.00149	0.00065	-0.00000
	(4.56)***	(2.11)**	(3.84)***	(3.48)***	(2.01)*	(0.01)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year/quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.09	0.08	0.09	0.09	0.08	0.08
N	9,592.00	9,592.00	8,801.00	8,801.00	8,542.00	8,542.00

Table 7. Top manager gender, abnormal tones and tone persistence

This table compares abnormal optimism and vagueness of MD and Q&A sessions and *Tone persistence* between two groups of earnings calls: conference calls delivered by female CEOs and CFOs, and conference calls where both the CEO and CFO are men. *Female(Man.)* is a dummy variable equal to one when either the CEO or the CFO is a woman, and zero otherwise. The variable *Controls* in Panel A and Panel B includes all the control variables from Equation (1). Panel A reports results calculated on the full sample of conference calls. Panel B reports results calculated using a nearest neighbors (1:1) propensity score matching procedure. Propensity scores are estimated from the probit regression model described by Equation (4). All continuous variables are winsorized at the 1st and 99th percentiles. Standard errors are clustered at the industry level. Significance on 10%(*), 5%(**), or 1%(***) is indicated.

Panel A	Ab. optimism(MD)	Ab. vagueness(MD)	Ab. optimism(Q&A)	Ab. vagueness(Q&A)	Tone persistence
	(1)	(2)	(3)	(4)	(5)
Female(Man.)	0.00144	-0.00063	0.00122	-0.00057	0.11018
	(4.05)***	(2.04)*	(4.38)***	(2.46)**	(1.95)*
Experience(Man.)	-0.00031	0.00047	-0.00004	0.00027	0.05515
	(1.72)*	(4.81)***	(0.28)	(4.82)***	(1.93)*
FA talk					-0.00015
					(4.11)***
3rd quarter	-0.00089	-0.00113	-0.00112	0.00001	-0.13924
	(6.22)***	(8.16)***	(10.54)***	(1.13)	(3.36)***
4th quarter	0.00042	-0.00133	-0.00068	0.00006	-0.19811
	(2.28)**	(13.40)***	(5.13)***	(0.07)	(5.57)***
Fiscal year 2007	0.00119	-0.00095	0.00008	-0.00148	-0.00012
	(2.65)**	(4.05)	(0.21)	(9.21)***	(0.00)
Fiscal year 2008	-0.00181	-0.00046	-0.00243	-0.00153	-0.27908
	(1.99)*	(1.49)	(5.64)***	(9.85)***	(3.62)***
Fiscal year 2009	-0.00242	-0.00091	-0.00218	-0.00181	-0.32667
	(3.57)***	(3.39)**	(5.32)***	(10.60)***	(4.05)***
Fiscal year 2010	0.00338	-0.00162	0.00037	-0.00244	-0.12950
	(4.88)***	(5.11)***	(1.22)	(11.41)***	(1.66)
Constant	0.00157	0.00324	0.00058	0.00300	5.81631
	(4.34)***	(2.16)**	(2.04)***	(25.59)***	(20.57)***
Controls	No	No	No	No	Yes
Year, quarter FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.08	0.04	0.07	0.06	0.01
N	54,806.00	54,806.00	54,806.00	54,806.00	54,806.00

Panel B	Ab. optimism(MD)	Ab. vagueness(MD)	Ab. optimism(Q&A)	Ab. vagueness(Q&A)	Tone persistence
	(1)	(2)	(3)	(4)	(5)
Female(Man.)	0.00157	-0.00068	0.00158	-0.00062	0.15990
	(3.43)***	(2.36)**	(4.67)***	(2.06)**	(1.99)*
Experience(Man.)	0.00008	0.00050	0.00009	0.00029	-0.04108
	(0.24)	(2.89)***	(0.51)	(1.94)*	(0.89)
Controls	No	No	No	No	Yes
Year/quarter FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.09	0.04	0.07	0.07	0.02
N	9,592.00	9,592.00	9,592.00	9,592.00	9,592.00

Table 8. Financial analysts speech during Q&A sessions

This table reports results on the determinants of financial analyst speech during Q&A sessions (Equation (5)). Dependent variables are financial analysts optimism (columns from 1 to 4), and vagueness (columns from 5 to 6). Regressions include the following independent variables: *Female*, equal to one if the either the CEO or the CFO is a woman, and zero otherwise; MD tone, which refers either to MD optimism (columns 1 and 5), or to MD vagueness (column 3 and 7), or to Abnormal optimism$_{(MD)}$ (columns 2 and 6), or to Abnormal vagueness$_{(MD)}$ (columns 4 and 8). Panel A reports results calculated on the full sample of conference calls. Panel B reports results calculated using a nearest neighbor (1:1) propensity score matching procedure. Propensity scores are estimated from the model described by Equation (4). The variable *Controls* in panel B includes all the control variables from Eq. 1. All continuous variables are winsorized at the 1st and 99th percentiles. Standard errors are clustered at the industry level. Significance on 10%(*), 5%(**), or 1%(***) is indicated.

Panel A	FA Optimism and MD tones				FA Vagueness			
	Opt.	Ab. opt.	Vag.	Ab. Vag.	Opt.	Ab. opt.	Vag.	Ab. Vag.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Female	-0.00000	-0.00006	0.00034	0.00005	-0.00002	0.00004	0.00042	0.00007
	(0.09)	(0.15)	(0.35)	(0.13)	(0.08)	(0.32)	(1.48)	(0.45)
MD tone	0.13440	0.14456	-0.05316	-0.06382	0.00084	-0.00015	0.04002	0.04558
	(9.21)***	(9.93)***	(2.32)**	(2.65)**	(0.23)	(0.04)	(4.30)***	(4.22)***
Female$_{(Man.)*}$ MD tone	-0.00841	-0.01705	-0.02017	-0.01184	0.00383	0.00351	-0.02577	-0.02211
	(0.50)	(0.92)	(2.44)	(0.25)	(0.44)	(0.38)	(1.24)	(0.97)
Experience$_{(Man.)}$	-0.00002	-0.00000	-0.00005	-0.00005	0.00008	0.00008	0.00006	0.00005
	(0.15)	(0.03)	(0.36)	(0.34)	(0.67)	(0.66)	(0.49)	(0.48)
CC time	-0.00358	-0.00317	-0.00349	-0.00348	0.00009	0.00009	0.00008	0.00007
	(5.30)***	(4.60)***	(5.41)***	(5.44)***	(0.25)	(0.24)	(0.23)	(0.22)
SUE	0.00024	0.00031	0.00030	0.00031	0.00006	0.00006	0.00006	0.00006
	(4.78)***	(7.01)***	(6.10)***	(6.33)***	(2.86)***	(3.08)***	(3.23)***	(3.09)***
ROA	0.00029	0.00033	0.00032	0.00032	-0.00009	-0.00009	-0.00009	-0.00009
	(3.65)***	(4.08)***	(4.21)***	(4.21)***	(1.64)	(1.62)	(1.70)	(1.68)
Return	0.00439	0.00519	0.00515	0.00518	-0.00100	-0.00100	-0.00098	-0.00010
	(11.41)***	(14.12)***	(13.65)***	(13.92)***	(7.59)***	(7.80)***	(7.42)***	(7.77)***
Sales growth	0.00151	0.00210	0.00209	0.00212	-0.00021	-0.00020	-0.00020	-0.00022
	(3.18)***	(4.45)***	(3.70)***	(3.81)***	(0.84)	(0.81)	(0.82)	(0.90)
Market cap.	-0.00086	-0.00068	-0.00068	-0.00065	0.00083	0.00083	0.00086	0.00083
	(4.81)***	(3.88)***	(3.61)***	(3.59)***	(12.86)***	(13.21)***	(12.98)***	(13.36)***
EPS growth	0.00011	0.00017	0.00017	0.00017	-0.00001	-0.00001	-0.00001	-0.00001
	(2.78)**	(4.22)***	(3.52)***	(3.54)***	(0.70)	(0.67)	(0.64)	(0.66)
Firm age	0.00027	0.00015	0.00016	0.00017	-0.00024	-0.00024	-0.00023	-0.00023
	(1.97)*	(1.10)	(1.20)	(1.25)	(2.97)***	(3.01)***	(2.96)***	(3.01)***
3rd quarter	-0.00094	-0.00093	-0.00111	-0.00112	0.00010	0.00010	0.00015	0.00015
	(7.04)***	(7.07)***	(10.31)***	(10.40)***	(1.40)	(1.39)	(2.07)**	(2.17)**
4th quarter	-0.00046	-0.00046	-0.00048	-0.00049	0.00039	0.00039	0.00045	0.00045
	(2.30)**	(2.35)**	(2.56)**	(2.62)**	(3.69)***	(3.70)***	(3.93)***	(3.96)***
Fiscal year 2007	0.00605	0.00602	0.00619	0.00618	-0.00293	-0.00293	-0.00289	-0.00288
	(13.27)***	(13.34)***	(14.71)***	(14.62)***	(16.15)***	(16.09)***	(15.73)***	(15.73)***
Fiscal year 2008	0.00549	0.00548	0.00525	0.00524	-0.00277	-0.00277	-0.00275	-0.00275
	(12.37)***	(12.40)***	(12.10)***	(12.06)***	(13.47)***	(13.51)***	(13.50)***	(13.51)***
Fiscal year 2009	0.00710	0.00709	0.00675	0.00674	-0.00260	-0.00260	-0.00256	-0.00254
	(10.70)***	(10.76)***	(10.34)***	(10.27)***	(9.44)***	(9.48)***	(9.48)***	(9.48)***
Fiscal year 2010	0.00921	0.00915	0.00960	0.00959	-0.00262	-0.00262	-0.00255	-0.00254
	(14.57)***	(14.46)***	(15.43)***	(12.21)***	(10.81)***	(10.72)***	(10.14)***	(10.10)***
Constant	0.00716	0.00704	0.00886	0.00780	0.02252	0.02255	0.02178	0.02255
	(2.80)**	(2.74)**	(3.24)***	(2.99)***	(20.35)***	(20.31)***	(20.06)***	(21.13)***
Year/quarter FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.17	0.17	0.14	0.14	0.05	0.05	0.05	0.05
N	54,806.00	54,806.00	54,806.00	54,806.00	54,806.00	54,806.00	54,806.00	54,806.00
Panel B	FA Optimism				FA Vagueness			
	Opt.	Ab. opt.	Vag.	Ab. Vag.	Opt.	Ab. opt.	Vag.	Ab. Vag.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Fem. Man.	0.00005	0.00005	0.00039	0.00019	0.00019	0.00028	0.00062	0.00030
	(0.11)	(0.10)	(0.41)	(0.42)	(0.75)	(1.43)	(1.89)*	(1.57)
MD tone	0.12226	0.12979	-0.05494	-0.06027	-0.00371	-0.00620	0.04111	0.04383
	(10.13)***	(13.05)***	(1.63)	(1.64)	(0.53)	(0.78)	(1.76)*	(1.68)
Female$_{(Man.)*}$ MD tone	-0.00050	-0.00529	-0.01412	-0.01459	0.005544	0.00841	-0.02249	-0.01855
	(0.04)	(0.50)	(0.32)	(0.33)	(0.55)	(0.69)	(1.04)	(0.77)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year/quarter FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.17	0.17	0.15	0.15	0.05	0.05	0.05	0.06
N	9,592.00	9,592.00	9,592.00	9,592.00	9,592.00	9,592.00	9,592.00	9,592.00

Table 9. Financial analysts optimism and vagueness during Q&A sessions for a smaller sample of conference calls

This table compares the number of female financial analysts (column 1), and the optimism and vagueness of both financial analysts' questions (columns 2 and 3) and firm managers' answers (columns 4 and 5) during Q&A sessions between the group of conference calls delivered by female managers (either the CEO, or the CFO), treatment group, and the group of conference calls where both the CEO and CFO are men, control group. *Fem. FA>2* is a dummy variable equal to one if the number of female financial analysts called on is larger than two, and zero otherwise. *MD tone* is either *MD optimism* (column 2), or *MD vagueness* (column 3). Panel A reports results calculated on the full sample of conference calls for which we are able to identify the identity of financial analysts. Panel B reports calculated using a 1:1 nearest neighbours matching procedure. Propensity scores are estimated from the probit regression model described by Equation (4). The variable *Controls* in panel B includes all the control variables from Eq. (1). All continuous variables are winsorized at the 1st and 99th percentiles. Standard errors are clustered at the industry level. Significance on 10%(*), 5%(**), or 1%(***) is indicated.

Panel A	# of fem. FA	FA opt.	FA vag.	Q&A opt.	Q&A vag.
	(1)	(2)	(3)	(4)	(5)
Female$_{(Man.)}$	0.17892	-0.00062	0.00021	0.00147	-0.00068
	(1.77)*	(1.17)	(0.76)	(4.46)***	(1.45)
Fem. FA>2		0.00312	-0.00112	0.00147	-0.00037
		(2.64)**	(1.15)	(1.19)	(0.57)
Fem FA>2*Female$_{(Man.)}$		0.00476	0.00036	0.00063	-0.00152
		(1.48)	(0.24)	(0.24)	(2.71)**
Experience$_{(Man.)}$	0.02703	0.00045	-0.00018	-0.00061	0.00066
	(1.52)	(1.83)*	(0.85)	(3.13)***	(3.88)***
MD tone		0.14061	0.05002		
		(10.81)***	(2.31)**		
Mkt cap.	0.04054	-0.00060	0.00073	0.00018	-0.00047
	(1.49)	(2.62)**	(8.28)***	(1.59)	(7.61)***
Firm age	0.02581	0.00024	-0.00017	-0.00007	-0.00003
	(0.95)	(1.19)	(1.29)	(0.24)	(0.22)
CC time	-0.01387	-0.00426	0.00013	-0.00208	0.00073
	(0.19)	(4.75)***	(0.34)	(2.27)**	(2.13)**
SUE	0.00030	0.00026	0.00008	0.00016	-0.00000
	(0.08)	(8.93)***	(2.96)***	(4.77)***	(0.10)
ROA	0.00244	0.00038	-0.00002	0.00023	0.00002
	(0.43)	(6.07)***	(0.28)	(6.29)***	(0.36)
Return	-0.04669	0.00455	-0.00103	0.00428	-0.00076
	(1.51)	(8.14)***	(3.82)***	(10.31)***	(3.59)***
Sales g.	0.01960	0.00096	-0.00036	0.00238	-0.00064
	(0.79)	(1.35)	(1.09)	(3.32)***	(1.71)
EPS g.	0.00009	0.00003	-0.00002	0.00019	0.00000
	(0.02)	(0.60)	(1.34)	(3.60)***	(0.13)
3rd quarter	-0.01447	-0.00112	0.00009	-0.00128	0.00019
	(1.20)	(4.46)***	(0.68)	(5.53)***	(1.73)*
4th quarter	-0.00007	-0.00075	0.00065	-0.00071	0.00018
	(0.01)	(2.52)**	(4.41)***	(2.39)**	(1.81)*
Fiscal year 2007	-0.04259	0.00494	-0.00285	0.00024	-0.00169
	(0.68)	(7.50)***	(6.59)***	(0.59)	(4.11)***
Fiscal year 2008	-0.07072	0.00464	-0.00301	-0.00210	-0.00186
	(1.08)	(9.21)***	(5.52)***	(4.96)***	(4.90)***
Fiscal year 2009	-0.08359	0.00652	-0.00277	-0.00142	-0.00196
	(1.09)	(7.41)***	(5.75)***	(2.27)**	(4.85)***
Fiscal year 2010	-0.06429	0.00821	-0.00262	0.00129	-0.00263
	(0.83)	(8.95)***	(5.91)***	(2.42)**	(6.24)***
Constant	-0.04990	0.00953	0.02389	0.01400	0.02145
	(0.36)	(2.88)***	(17.97)***	(4.77)***	(18.42)***
Year/quarter FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.18	0.24	0.07	0.12	0.08
N	15,039.00	15,039.00	15,039.00	15,039.00	15,039.00
Panel B	# of fem. FA	FA opt.	FA vag.	Q&A opt.	Q&A vag.
	(1)	(3)	(4)	(5)	(6)
Fem. Man.	0.19825	-0.00034	0.00033	0.00198	-0.00099
	(2.07)*	(0.45)	(0.83)	(6.15)***	(1.72)
Fem. FA>2		0.00522	-0.00224	0.00207	-0.00136
		(4.01)***	(2.26)**	(2.57)**	(2.39)**
Fem FA>2*Fem. $_{(Man.)}$		0.00188	0.00107	0.00074	-0.00088
		(0.49)	(0.65)	(0.38)	(1.12)
Controls	Yes	Yes	Yes	Yes	Yes
Year/quarter FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.29	0.27	0.08	0.13	0.12
N	2,782.00	2,782.00	2,782.00	2,782.00	2,782.00

Table 10. Market reaction to earnings conference calls (CAR [-1, 1])

This table compares the market reaction (CAR) to *Tone persistence* (column 1) across the MD and the Q&A sessions, MD and Q&A optimism (columns 2 and 6), abnormal MD and Q&A optimism (column 3 and 7), MD and Q&A vagueness (columns 4 and 8), and abnormal vagueness (columns 5 and 9) between the group of earnings call delivered by female managers (either the CEO, or the CFO), and a control group, consisting in those conference calls where both the CEO and CFO are men. Female is a dummy variable equal to one if either the CEO or the CFO is a woman. Panel A reports results computed on the full sample of conference calls. Panel B reports results calculated using a nearest neighbor (1:1) propensity score matching procedures. Propensity scores are estimated from the probit regression model described by Equation (4). The variable *Controls* in panel B includes all the control variables from Eq. (10). All continuous variables are winsorized at the 1st and 99th percentiles. Standard errors are clustered at the industry level. Significance on 10%(*), 5%(**), or 1%(***) is indicated.

Panel A	Tone	MD				Q&A			
	pers.	Opt	Ab. opt.	Vag.	Ab. vag.	Opt.	Ab. opt.	Vag.	Ab. vag
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Tone	0.00097	0.35897	0.38568	-0.15135	-0.16139	0.58715	0.60589	-0.17140	-0.17756
	(6.98)***	(11.97)***	(11.76)***	(2.48)**	(2.40)**	(16.56)***	(16.56)***	(4.58)***	(4.66)***
Female	0.00529	-0.00139	-0.00105	0.00073	-0.00065	0.00080	-0.00096	-0.00274	-0.00045
	(2.66)**	(0.94)	(0.80)	(0.31)	(0.53)	(0.66)	(0.77)	(1.07)	(0.35)
Female*Tone	-0.00104	0.02124	0.01749	-0.09499	-0.11862	-0.19510	-0.18082	0.12708	0.13043
	(3.90)***	(0.55)	(0.41)	(0.81)	(0.93)	(3.95)***	(3.45)***	(1.15)	(1.09)
Experience	0.00172	0.00194	0.00198	0.00187	0.00184	0.00183	0.00182	0.00183	0.00183
	(5.33)***	(5.63)***	(5.82)***	(5.25)***	(5.24)***	(5.98)***	(5.94)***	(5.52)***	(5.53)***
CC time	-0.00301	-0.00341	-0.00231	-0.00316	-0.00315	-0.00221	-0.00244	-0.00318	-0.00309
	(1.11)	(1.17)	(0.81)	(1.18)	(1.18)	(0.79)	(0.88)	(1.15)	(1.34)
SUE	0.00646	0.00629	0.00648	0.00646	0.00647	0.00637	0.00648	0.00646	0.00647
	(21.41)***	(21.59)***	(21.68)***	(21.43)***	(21.35)***	(21.42)***	(21.48)***	(21.34)***	(21.33)***
ROA	0.00190	0.00185	0.00196	0.00193	0.00192	0.00183	0.00199	0.00193	0.00193
	(8.86)***	(8.74)***	(9.28)***	(8.79)***	(8.73)***	(7.91)***	(8.55)***	(8.79)***	(8.77)***
Return	-0.01056	-0.01244	-0.01029	-0.01038	-0.01030	-0.01220	-0.01009	-0.01033	-0.01028
	(6.65)***	(8.25)***	(6.59)***	(6.48)***	(6.37)***	(7.48)***	(6.06)***	(6.46)***	(6.42)***
Sales g.	0.02454	0.02337	0.02498	0.02492	0.02500	0.02368	0.02491	0.02487	0.02484
	(7.05)***	(7.33)***	(7.73)***	(7.12)***	(7.13)***	(7.11)***	(7.37)***	(7.13)***	(7.13)***
Market cap.	-0.00024	-0.00065	-0.00015	-0.00017	-0.00005	-0.00010	-0.00010	-0.00013	-0.00007
	(0.06)	(1.60)	(0.39)	(0.40)	(0.15)	(0.25)	(0.27)	(0.33)	(0.18)
EPS g.	0.00059	0.00046	0.00062	0.00060	0.00060	0.00051	0.00062	0.00060	0.00060
	(2.48)**	(2.04)*	(2.80)**	(2.57)**	(2.58)***	(2.26)**	(2.80)**	(2.59)**	(2.61)**
Firm age	0.00020	0.00004	-0.00028	-0.00024	0.00022	-0.00024	-0.00022	-0.00022	-0.00022
	(0.29)	(0.07)	(0.45)	(0.36)	(0.33)	(0.36)	(0.33)	(0.32)	(0.33)
Constant	-0.01134	-0.00736	-0.00775	-0.00269	-0.00571	-0.01305	-0.00765	-0.00163	-0.00533
	(1.58)	(0.99)	(1.05)	(0.33)	(0.81)	(1.84)*	(1.06)	(0.22)	(0.74)
Year/qtr. FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.09	0.09	0.09	0.09	0.09	0.09	0.10	0.09	0.09
N	54,806	54,806	54,806	54,806	54,806	54,806	54,806	54,806	54,806
Panel B	Tone	MD				Q&A			
	pers.	Opt	Ab. opt.	Vag.	Ab. vag.	Opt.	Ab. opt.	Vag.	Ab. vag
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Tone	0.00118	0.32491	0.34108	-0.10106	-0.11028	0.70521	0.72996	0.04809	0.062232
	(3.45)***	(6.49)***	(6.08)***	(0.54)	(0.58)	(7.30)***	(7.29)***	(0.52)	(0.65)
Female	0.00676	-0.00187	-0.00057	0.00237	0.00008	0.00188	-0.00064	0.00319	0.00000
	(2.35)**	(1.11)	(0.37)	(0.61)	(0.05)	(1.09)	(0.43)	(0.97)	(0.00)
$Female_{(Man.)}$*Tone	-0.00122	0.08352	0.07385	-0.17050	-0.16423	-0.28156	-0.28303	-0.17732	0.18762
	(3.35)***	(1.83)*	(1.24)	(0.84)	(0.77)	(2.72)**	(2.72)**	(1.27)	(1.29)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year/qtr. FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.09	0.09	0.10	0.08	0.09	0.09	0.09	0.08	0.08
N	9,592	9,592	9,592	9,592	9,592	9,592	9,592	9,592	9,592

Table 11. One quarter ahead SUE and ROA

This table reports results on the relationship between *Tone persistence* and Abnormal tone and future earnings surprises (SUE_{t+1}) and returns on assets (ROA_{t+1}). *Female* is a dummy variable equal to one if either the CEO or the CFO is a woman. *Tone* stands for *Tone persistence* in column 1 and 6, *Abnormal optimism* in columns 2, 4, 7, and 9, and *Abnormal vagueness* in columns 3, 5, 8, and 10. Panel A reports results computed on the full sample of conference calls. Panel B reports results calculated using a nearest neighbor (1:1) propensity score matching procedures. Propensity scores are estimated from the probit regression model described by Equation (4). The variable *Controls* in panel B includes all the control variables from Eq. (10). All continuous variables are winsorized at the 1st and 99th percentiles. Standard errors are clustered at the industry level. Significance on 10%(*), 5%(**), or 1%(***) is indicated.

Panel A	SUE_{t+1}					ROA_{t+1}				
	Tone pers.	Ab. opt.(MD)	Ab. vag.(MD)	Ab. opt.(Q&A)	Ab. vag.(Q&A)	Tone pers.	Ab. opt.(MD)	Ab. vag.(MD)	Ab. opt.(Q&A)	Ab. vag.(Q&A)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Tone	0.00001	0.00783	0.00403	0.00988	0.00168	0.00005	0.01959	0.00476	0.05368	0.01289
	(0.96)	(4.12)***	(1.51)	(3.54)***	(0.51)	(1.85)*	(2.91)***	(0.50)	(7.13)***	(0.69)
Female	0.00001	0.00010	0.00011	0.00009	0.00011	-0.00032	0.00006	0.00009	0.00003	0.00015
	(0.09)	(1.59)*	(2.06)*	(1.43)	(1.75)*	(0.54)	(0.36)	(0.56)	(0.21)	(0.92)
Fem.*Tone	0.00001	-0.00476	0.01922	-0.00458	0.01091	0.00007	0.00773	-0.00767	0.00088	0.07173
	(0.71)	(0.62)	(1.56)	(0.61)	(1.50)	(0.66)	(0.65)	(0.27)	(0.05)	(1.96)*
Experience	0.00021	0.00021	0.00021	0.00021	0.00021	-0.00006	-0.00005	-0.00006	-0.00006	-0.00007
	(6.30)***	(6.38)***	(6.31)***	(6.32)***	(6.36)***	(0.51)	(0.41)	(0.51)	(0.48)	(0.56)
SUE	0.00020	0.00020	0.00020	0.00020	0.00021	-0.00012	-0.00012	-0.00012	-0.00012	-0.00012
	(18.00)***	(18.15)***	(18.04)***	(18.26)***	(18.01)***	(3.05)***	(3.01)***	(3.03)***	(3.06)***	(3.06)***
ROA	0.00012	0.00012	0.00012	0.00012	0.00012	0.00747	0.00748	0.00747	0.00748	0.00747
	(4.69)***	(4.74)***	(4.71)***	(4.69)***	(4.71)***	(27.59)***	(27.58)***	(27.52)***	(27.73)***	(27.45)***
Return	0.00078	0.00079	0.00079	0.00079	0.00078	0.00658	0.00660	0.00660	0.00662	0.00659
	(5.09)***	(5.12)***	(5.17)***	(5.14)***	(5.16)***	(5.84)***	(5.85)***	(5.86)***	(5.83)***	(5.88)***
Sales g.	0.00003	0.00003	0.00003	0.00003	0.00004	-0.00249	-0.00245	-0.00245	-0.00247	-0.00244
	(0.19)	(0.19)	(0.22)	(0.21)	(0.25)	(1.08)	(1.07)	(1.06)	(1.08)	(1.05)
Market cap.	0.00019	0.00018	0.00019	0.00019	0.00019	0.00146	0.00145	0.00146	0.00145	0.00147
	(5.68)***	(5.66)***	(5.76)***	(5.60)***	(5.72)***	(8.13)***	(8.11)***	(8.10)***	(8.17)***	(8.06)***
EPS g.	0.00000	0.00001	0.00001	0.00001	0.00000	-0.00064	-0.00064	-0.00064	-0.00064	-0.00064
	(0.13)	(0.16)	(0.15)	(0.16)	(0.15)	(3.14)***	(3.12)***	(3.12)***	(3.12)***	(3.11)***
Constant	-0.00169	-0.00165	-0.00166	-0.00165	-0.00166	-0.00720	-0.00691	-0.00694	-0.00692	-0.00701
	(6.53)***	(6.73)***	(6.78)***	(6.66)***	(6.82)***	(5.26)***	(5.07)***	(5.06)***	(5.13)***	(4.37)***
Year/qtr. FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.05	0.05	0.05	0.05	0.05	0.50	0.50	0.50	0.50	0.50
N	54,806.00	54,806.00	54,806.00	54,806.00	54,806.00	54,806.00	54,806.00	54,806.00	54,806.00	54,806.00
Panel B	SUE_{t+1}					ROA_{t+1}				
	Tone pers.	Ab. opt.(MD)	Ab. vag.(MD)	Ab. opt.(Q&A)	Ab. vag.(Q&A)	Tone pers.	Ab. opt.(MD)	Ab. vag.(MD)	Ab. opt.(Q&A)	Ab. vag.(Q&A)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Tone	-0.00000	0.00587	0.02050	0.01313	-0.00201	-0.00002	0.01940	0.01135	0.02225	0.00764
	(0.19)	(1.21)	(1.88)*	(1.89)*	(0.18)	(0.40)	(1.46)	(0.31)	(0.95)	(0.30)
Female	-0.00004	0.00011	0.00013	0.00011	0.00012	-0.00079	0.00002	0.00006	-0.00001	0.00013
	(0.23)	(1.65)	(2.04)*	(1.56)	(1.79)*	(1.58)	(0.07)	(0.16)	(0.03)	(0.36)
Fem.*Tone	0.00003	-0.00248	0.00204	-0.00780	0.01060	0.00015	0.00389	-0.00507	0.02893	0.09073
	(1.00)	(0.48)	(0.13)	(0.88)	(0.76)	(1.56)	(0.22)	(0.16)	(1.18)	(1.98)*
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year/qtr. FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.04	0.05	0.04	0.04	0.04	0.50	0.50	0.50	0.50	0.50
N	9,592.00	9,592.00	9,592.00	9,592.00	9,592.00	9,592.00	9,592.00	9,592.00	9,592.00	9,592.00

Appendix I

Table A. Probit regression of female managers delivering an earnings conference call.
This table presents regression analysis of the likelihood that an earnings conference call is delivered by a female CEO or CFO. The dependent variable is an indicator variable that equals one if either the CEO or the CFO holding the call is a woman and zero otherwise. All continuous variables are winsorized at the 1st and 99th percentiles. Standard errors are clustered at the industry level. Significance on 10%(*), 5%(**), or 1%(***) is indicated

	$Female_{(Man.)}$
$Experience_{(Man.)}$	-0.024
	(1.90)*
SUE	0.010
	(3.95)***
Mkt. Cap.	0.035
	(6.08)***
Firm age	-0.038
	(4.10)***
Year FE	Yes
Industry FE	Yes
Pseudo R^2	0.02
N	54,589

Table B. Propensity score test.
This table reports t-test on the means between treated and control group before and after the propensity score matching has been performed.

Variable	Unmatched	Mean		t-test	
	Matched	Treated	Control	t	p>t
$Experience_{(Man.)}$	U	1.7463	1.7445	0.15	0.882
	M	1.7463	1.7453	0.06	0.949
SUE	U	1.0945	0.9042	4.16	0.000
	M	1.0945	1.1105	0.26	0.793
Mkt. Cap.	U	7.232	7.147	3.83	0.000
	M	7.232	7.2464	0.46	0.642
Firm age	U	2.4744	2.4744	3.92	0.000
	M	2.4744	2.4709	0.18	0.854

Appendix II

Table A. Manager optimism and vagueness during MD and Q&A sessions

This table reports results from Equation (1.a). Columns 1 to 4 show results obtained without including year, quarter and industry fixed effects. Columns 5 to 8 report results obtained including year, quarter and industry fixed effects. All continuous variables are winsorized at the 1st and 99th percentiles. Standard errors are clustered at the industry level. Significance on 10%(*), 5%(**), or 1%(***) is indicated.

	MD		Q&A		MD		Q&A	
	Optimism	Vagueness	Optimism	Vagueness	Optimism	Vagueness	Optimism	Vagueness
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
CC time	0.00294	0.00000	-0.00045	-0.00050	0.00054	0.00029	-0.00174	0.00018
	(2.92)***	(0.01)	(0.58)	(0.98)	(0.70)	(0.51)	(2.67)**	(0.86)
SUE	0.00053	-0.00007	0.00019	-0.00004	0.00049	-0.00005	0.00017	-0.00000
	(16.92)***	(4.51)***	(5.46)***	(2.13)**	(12.97)***	(3.33)***	(3.57)***	(0.02)
ROA	0.00031	0.00003	0.00027	0.00002	0.00020	0.00005	0.00016	0.00005
	(3.72)***	(0.75)	(4.68)***	(0.31)	(4.16)***	(0.98)	(3.43)**	(1.04)
Return	0.00587	-0.00052	0.00369	-0.00029	0.00588	-0.00038	0.00330	-0.00007
	(8.33)***	(3.42)***	(6.75)***	(1.17)	(15.98)***	(4.45)***	(11.18)***	(0.39)
Sales g.	0.00445	-0.00051	0.00211	0.00015	0.00436	-0.00008	0.00219	-0.00037
	(3.30)***	(1.82)*	(3.47)***	(0.68)	(4.24)***	(0.37)	(4.82)***	(2.17)**
Market cap.	0.00143	-0.00065	-0.00000	-0.00035	0.00161	-0.00066	0.00009	-0.00045
	(7.37)***	(10.52)***	(0.01)	(4.99)***	(14.19)***	(10.27)***	(0.82)	(8.59)***
EPS g.	0.00043	-0.00002	0.00019	-0.00002	0.00039	-0.00002	0.00016	-0.00002
	(5.01)***	(0.92)	(3.88)***	(1.36)	(4.68)***	(1.02)	(3.51)***	(1.07)
Firm age	-0.00084	-0.00015	0.00001	0.00003	-0.00080	-0.00008	0.00002	0.00001
	(1.85)*	(2.30)**	(0.07)	(0.27)	(3.28)***	(1.51)	(0.21)	(0.19)
Constant	0.00122	0.01948	0.00927	0.02170	0. .00487	0.00252	0. 01244	0.02423
	(0.39)	(11.66)***	(4.09)***	(19.17)***	(1.77)*	(18.48)***	(5.74)***	(28.43)***
Year/qtr. FE	No	No	No	No	Yes	Yes	Yes	Yes
Industry FE	No	No	No	No	Yes	Yes	Yes	Yes
Adjusted R^2	0.05	0.02	0.02	0.01	0.12	0.04	0.08	0.07
N	54,806.00	54,806.00	54,806.00	54,806.00	54,806.00	54,806.00	54,806.00	54,806.00

Appendix III

Table A Conference call tone before and during the financial crisis
In this table we report results from Equation (1) that we run excluding post crisis years (columns from 1 to 4), and including only conference calls happened in 2008 and 2009 (columns from 5 to 8).

	MD		Q&A		MD		Q&A	
	Optimism	Vagueness	Optimism	Vagueness	Optimism	Vagueness	Optimism	Vagueness
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Female	0.00174	-0.00060	0.00114	-0.00051	0.00130	-0.00076	0.00132	-0.00069
	(3.58)***	(1.73)*	(3.44)***	(1.55)	(2.45)**	(1.73)*	(2.28)**	(2.06)*
Experience	-0.00041	0.00055	-0.00026	0.00027	-0.00061	0.00059	-0.00024	0.00046
	(1.57)	(4.16)***	(1.44)	(2.45)**	(1.61)	(2.74)***	(1.12)	(5.57)***
CC time	-0.00010	0.00026	-0.00156	0.00028	0.00177	0.00035	-0.00206	0.00008
	(0.16)	(0.36)	(2.09)**	(1.18)	(1.13)	(0.68)	(2.58)**	(0.27)
SUE	0.00050	-0.00003	0.00019	0.00002	0.00041	-0.00007	0.00014	-0.00004
	(8.37)***	(1.52)	(2.73)**	(0.89)	(13.83)***	(5.53)***	(3.03)***	(1.66)
ROA	0.00013	0.00003	0.00015	0.00004	0.00030	0.00007	0.00014	0.00006
	(3.98)***	(0.64)	(2.38)**	(0.79)	(2.56)**	(1.60)	(3.96)***	(1.30)
Return	0.00559	-0.00029	0.00314	0.00038	0.00663	-0.00035	0.00412	-0.00001
	(6.68)***	(1.73)	(5.64)***	(1.85)*	(6.43)***	(1.63)	(14.57)***	(0.05)
Sales g.	0.00346	0.00007	0.00178	-0.00029	0.00723	0.00060	0.00307	-0.00040
	(3.20)***	(0.25)	(3.62)***	(1.04)	(6.16)**	(1.99)*	(6.71)***	(1.25)
Market cap.	0.00200	-0.00079	0.00018	-0.00058	0.00132	-0.00063	-0.00005	-0.00035
	(13.01)***	(9.98)***	(1.18)	(16.24)***	(7.75)***	(7.92)***	(0.49)	(4.40)***
EPS g.	0.00036	-0.00003	0.00016	-0.00003	0.00046	-0.00000	0.00018	0.00001
	(4.79)***	(1.11)	(3.83)***	(1.22)	(4.44)***	(0.06)	(3.46)***	(0.48)
Firm age	-0.00034	-0.00028	0.00022	-0.00006	-0.00148	-0.00001	-0.00025	-0.00011
	(1.27)	(3.15)***	(1.91)*	(0.67)	(4.66)***	(1.57)	(1.50)	(1.48)
Constant	0.00293	0.02071	0.00919	0.02543	0.00794	0.01735	0.01858	0.02244
	(1.09)	(12.75)***	(3.77)***	(44.83)***	(2.14)**	(11.44)***	(8.04)***	(17.93)***
Year/qtr. FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.11	0.04	0.09	0.06	0.14	0.04	0.08	0.04
N	29,130	29,130	29,130	29,130	14,525	14,525	14,525	14,525

Table B Conference calls tone excluding financial firms (two-digit SIC 60)
In this table we report results from Equation (1) that we run excluding financial firms (two-digit SIC 60).

	MD optimism	MD vagueness	Q&A optimism	Q&A vagueness
	(1)	(2)	(3)	(4)
Female$_{(Man.)}$	0.00147	-0.00070	0.00110	-0.00062
	(3.73)***	(1.82)*	(3.34)***	(2.49)**
Experience$_{(Man.)}$	-0.00030	0.00062	-0.00001	0.00040
	(1.13)	(4.55)***	(0.10)	(5.10)***
CC time	0.00011	0.00006	-0.00012	0.00000
	(2.32)**	(1.42)	(2.19)**	(0.01)
SUE	0.00051	-0.00006	0.00023	-0.00001
	(18.13)***	(4.43)***	(8.83)***	(0.80)
ROA	0.00019	0.00004	0.00015	0.00006
	(3.91)***	(0.87)	(3.01)***	(1.21)
Return	0.00583	-0.00034	0.00306	-0.00002
	(15.11)***	(3.26)***	(14.59)***	(0.10)
Sales growth	0.00394	-0.00008	0.00198	-0.00042
	(3.69)***	(0.32)	(4.36)***	(2.36)**
Market cap.	0.00161	-0.00073	0.00013	-0.00053
	(10.71)***	(8.14)***	(0.93)	(13.05)***
EPS growth	0.00034	-0.00001	0.00013	-0.00001
	(5.03)***	(0.56)	(3.42)***	(0.74)
Firm age	-0.00060	-0.00021	0.00015	-0.00014
	(2.26)**	(3.13)***	(1.15)	(2.15)**
Constant	0.00713	0.01917	0.00877	0.02643
	(4.35)***	(30.68)***	(6.99)***	(60.16)***
Year and quarter FE	Yes	Yes	Yes	Yes
Industry FE	No	No	No	No
Adjusted R-squared	0.11	0.04	0.07	0.06
N	45,575.00	45,575.00	45,575.00	45,575.00

Appendix IV

Table A. Market reaction to earnings conference calls (CAR 0, 1)

This table compares the market reaction (CAR) to *Tone persistence* (column 1) across the MD and the Q&A sessions, MD and Q&A optimism (columns 2 and 6), abnormal MD and Q&A optimism (column 3 and 7), MD and Q&A vagueness (columns 4 and 8), and abnormal MD and Q&A vagueness (columns 5 and 9) between the group of earnings call delivered by female managers (either the CEO, or the CFO), and a control group, consisting in those conference calls where both the CEO and CFO are men. *Female* is a dummy variable equal to one if either the CEO or the CFO is a woman. The variable *Controls* includes all the control variables from Eq. (10). Panel A reports results computed on the full sample of conference calls. Panel B reports results calculated using a nearest neighbor (1:1) propensity score matching procedures. Propensity scores are estimated from the probit regression model described by Equation (4). All continuous variables are winsorized at the 1st and 99th percentiles. Standard errors are clustered at the industry level. Significance on 10%(*), 5%(**), or 1%(***) is indicated.

Panel A	Tone	MD				Q&A			
	pers.	Opt.	Ab. opt.	Vag.	Ab. vag.	Opt.	Ab. opt.	Vag.	Ab. vag.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Tone	0.00093	0.31693	0.33952	-0.16544	-0.16967	0.52726	0.54574	-0.15877	-0.16397
	(4.63)***	(10.96)***	(10.80)***	(3.51)***	(3.17)***	(10.77)***	(11.09)***	(3.41)***	(3.49)***
Female	0.00295	-0.00271	-0.00184	-0.00056	-0.00138	-0.00056	-0.00173	-0.00355	-0.00120
	(1.28)	(1.50)	(1.41)	(0.21)	(1.16)	(0.37)	(1.38)	(1.19)	(0.99)
Female*Tone	-0.00076	0.05707	0.06443	-0.05675	-0.06031	-0.12929	-0.11851	0.12994	0.13894
	(2.46)**	(0.94)	(0.87)	(0.38)	(0.36)	(1.97)*	(1.78)*	(0.98)	(0.95)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year/qtr. FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-0.01176	-0.00776	-0.00816	-0.00312	-0.00641	-0.01298	-0.00814	-0.00262	-0.00604
	(1.71)	(1.10)	(1.17)	(0.42)	(0.96)	(1.98)*	(1.21)	(0.35)	(0.87)
Adjusted R^2	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
N	54,806.00	54,806.00	54,806.00	54,806.00	54,806.00	54,806.00	54,806.00	54,806.00	54,806.00
Panel B	Tone	MD				Q&A			
	pers.	Opt.	Ab. opt.	Vag.	Ab. vag.	Opt.	Ab. opt.	Vag.	Ab. vag.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Tone	0.00092	0.28418	0.29898	-0.13389	-0.14757	0.59197	0.60624	0.10952	0.11517
	(1.84)*	(6.62)***	(5.97)***	(0.89)	(0.91)	(4.47)***	(4.46)***	(1.57)	(1.54)
Female	0.00252	-0.00385	-0.00195	0.00042	-0.00139	-0.00053	-0.00197	0.00311	-0.00136
	(0.55)	(1.90)*	(1.19)	(0.11)	(0.87)	(0.24)	(1.21)	(1.04)	(0.87)
Female*Tone	-0.00069	0.12418	0.12630	-0.12698	-0.09824	-0.15907	-0.14517	-0.24814	-0.24458
	(1.15)	(1.56)	(1.31)	(0.60)	(0.41)	(1.21)	(1.05)	(1.89)*	(1.81)*
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year/qtr. FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.00058	0.01076	0.00953	0.00943	0.00643	-0.00066	0.00480	0.00410	0.00600
	(0.06)	(1.51)	(1.37)	(1.02)	(0.90)	(0.09)	(0.69)	(0.58)	(0.86)
Adjusted R^2	0.09	0.09	0.09	0.08	0.08	0.09	0.09	0.08	0.08
N	9,592.00	9,592.00	9,592.00	9,592.00	9,592.00	9,592.00	9,592.00	9,592.00	9,592.00