

Master Thesis Erasmus School of Economics

Accounting, Auditing & Control

The Gender Effect on Analyst Forecasting Accuracy: Evidence from Female Executive Speakers on Earnings Calls

Abstract

This thesis analyses the relationship between gender diversity in executive roles, particularly female executives' speaking duration in earnings conference calls, and analyst forecast accuracy. Analysing conference call transcripts of North American firms from 2002 to 2023, the study posits and finds that a higher volume of female executives' speech reduces analyst forecasting errors and dispersion. This research contributes to the literature on gender diversity in management and emphasizes the role of gender diversity in potentially enhancing forecast accuracy and disclosure practices.

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Table of Contents

1.0 Introduction	3
2.0 Literature Review and Hypothesis Development.....	4
2.1 The impact of Gender Diversity on Reporting Quality	4
2.2 The role of Gender Diversity in Improving Forecast Accuracy.....	5
2.3 Importance and Setup of Earnings Conference Calls.....	5
2.4 Earnings Conference calls and Gender diversity.....	6
3.0 Research design.....	7
3.1 Methodology	7
3.2 Sample Selection	9
4.0 Results	10
4.1 Descriptive Statistics	10
4.2 Multivariate regression analysis	12
4.3 Additional analysis	14
5.0 Conclusion.....	16
6.0 References	17
7.0 Appendix	19
A: Variable list	19

1.0 Introduction

The discourse on gender diversity within executive positions has steadily evolved, becoming a critical conversation piece in both the corporate world and academic research. Central to this discussion is the idea that diversity, specifically the inclusion of women in high-level positions, can lead to various improvements within an organisation. These improvements range from better financial results to more innovative decision-making processes and more robust corporate governance. Among the myriad aspects influenced by gender diversity, this thesis seeks to explore the association between female executive participation during earnings conference calls and the accuracy of analysts' predictions.

Two primary reasons underline the importance of this research. The first issue is that, in spite of remarkable progress towards attaining gender equality in recent years, women continue to be underrepresented within the executive cadre of companies. This trend persists even amidst mounting evidence suggesting that integrating women into these roles could be highly beneficial for organisations. The second matter pertains to the critical role that analysts' forecasts play in shaping financial markets. These forecasts have a direct influence on investment decisions, helping reduce informational asymmetries and uncertainties that can potentially sway investor behaviour. Consequently, exploring ways to enhance the precision of these forecasts carries substantial weight. This thesis, therefore, aims to bridge the gap between these two distinct realms: gender diversity in executive positions and the precision of analysts' forecasts.

Analysing a comprehensive dataset on earnings conference calls of North American companies, we put forward two hypotheses, each positing that the level of engagement by female executives during earnings conference calls is inversely related to both analyst forecast errors and dispersion, respectively.

The research acknowledges certain limitations. Primarily, the amount spoken by female executives may not fully capture their influence or communication effectiveness. Despite this, the thesis contributes to the ongoing dialogue on gender diversity in executive positions. By shedding light on an uncharted facet of this topic, it not only deepens our understanding of the gender diversity landscape but also provides companies, analysts, and policymakers with valuable insights. The hope is that this study will serve as a catalyst for further research into the far-reaching impacts of gender diversity on financial communication and the broader market dynamics.

2.0 Literature Review and Hypothesis Development

Numerous studies have investigated the association between a company's financial disclosure and the accuracy of analyst forecasts. Despite the existence of regulatory disclosure standards for publicly traded companies, the amount and quality of information disclosed can vary greatly depending on the company and its management discretion.

The goal of this paper is to exploit the setting of earnings conference calls, dissimilarities in gender traits and their association with analyst forecasting abilities. The discussion session of the earnings conference calls is unscripted and would lead to more genuine responses from executives. This allows for an improved research setting to where dissimilarities between male and female executives that participate in earnings calls and speak to analyst will be more pronounced.

2.1 The impact of Gender Diversity on Reporting Quality

According to Dechow et al. (2010) we can define earnings quality as follows: “Higher quality earnings provide more information about the features of a firm’s financial performance that are relevant to a specific decision made by a specific decision-maker”. The paper furthermore concludes that although the term “earnings quality” is widely used in research there is no single point of measurement regarding the quality of earnings. According to descriptive evidence from the study, a firm’s choice of accounting principles is one of the many firm operational characteristics that are connected to the various proxies for earnings quality.

In general, there is agreement in academic literature that there is an association between accruals and the quality of earnings for a firm. Where the strength of the association has been debated, Schipper and Vincent (2003) suggest that accruals, or a portion of them, have a negative impact on earnings quality. Several studies document the gender effect on earnings quality. Srinidhi et al. (2011) provide suggesting evidence that in the case of US firms a positive correlation exists between the presence of female directors and earnings quality. In a similar study by Barua et al. (2010) the researchers provide compelling evidence that female CFOs tend to exhibit lower discretionary accruals compared to those with male CFOs which subsequently leads to a higher quality of earnings numbers for these firms.

Previously conducted research indicates that having female executives in firms leads to an enhancement in the quality of earnings with regards to accruals. Regarding an additional underlying association between increased quality of earnings in the presence of female executives, Francis et al. (2015) examines the effect of female CEOs on accounting conservatism. The authors find strong empirical evidence that female CFOs tend to be less aggressive in accounting application which subsequently leads to higher earning quality. In a paper by Zalata et al. (2019) the authors explore the inherent differences between male and female CEOs behavior and subsequently earnings quality is for a large sample US firms. In this paper the authors explore if the reason between male and female counterparts is based on an ethical versus risk-version base. Based on their results, the authors suggest the reason for dissimilarities in financial

reporting decisions between female and male CEOs is that female CEOs are prone to be more risk averse compared to their male counterparts, rather than a higher ethical sensitivity among female CEOs. The authors conclude that the decrease in risk appetite subsequently leads to higher reporting quality in the case of female CEOs.

2.2 The role of Gender Diversity in Improving Forecast Accuracy

In addition to research on executive heterogeneity and earnings quality as mentioned in the previous section, another area of literature examines the association between gender in top executive positions and analysts' forecasting accuracy. Prior literature indicates that the users of accounting information which includes financial analysts heavily rely on earnings quality. In a study performed by Salerno (2013) that examines the association between earnings quality, which is proxied by the level of accruals, and analyst forecast accuracy. The results suggest a positive association between earnings quality and analyst forecast accuracy.

.A study performed by Hwang et al. (2017) examines the association between female CFO-led companies and analyst' forecast accuracy. The authors findings suggest a positive association between female CFOs and analyst' earnings forecast accuracy. Suggesting that female CFOs tend to report financial information of higher quality in comparison to their male counterparts.

A more recent paper by Datta et al. (2022) finds that the presence of a female CEO is positively associated with decrease in forecasting errors and forecasting dispersion. The results suggest that the presence of a female CEO is positively associated with more accurate analyst' forecasting accuracy. In a paper by Francoeur et al. (2022) the authors examine the traits female CEOs potentially possess that lead to better analyst forecasting accuracy. The authors provide evidence that female CEOs supply additional useful information to investors and analysts compared to male counterparts. The paper reveals that female CEOs submit longer 10-K disclosures that feature more exhibits and more unique words. The authors furthermore find that financial analysts depend more on the additional disclosure of female CEOs when making their own predictions compared to their male counterparts.

2.3 Importance and Setup of Earnings Conference Calls

Earnings conference calls are methods for companies to increase disclosure and conversate with investors and analysts. These earnings conference calls consist of two parts being the presentation and the discussion session. Matsumoto et al. (2011) examine the presentation and discussion segment of earnings conference calls around regular earnings releases. The authors find that both segments of the call convey additional information about the firms' earnings, with the discussion segment being more informative in comparison to the presentation segment.

The primary audience in earnings conference calls are analysts who participate in the discussion session to ask directed questions about the firm. In the realm of information disclosure and its impact on financial analysts, Bowen et al. (2002) conducted a study to investigate the effect of earnings conference calls on the forecasting accuracy of analysts. The authors reported

that the simple act of hosting an earnings conference call by a company has a positive effect on the forecasting properties of analysts. The informativeness and disclosure quality of information during earnings conference calls plays a significant role in improving the accuracy of financial analysts' predictions. An additional study examining the informativeness of earnings conference calls found comparable results, which is that the hosting these calls is associated with a decrease in analyst forecasting errors (Kimbrough, 2005).

2.4 Earnings Conference calls and Gender diversity

As previously mentioned, earnings conference calls are a vital aspect of corporate disclosure as they provide investors and analysts with valuable information about a company's financial performance. Recent studies have explored the association between gender diversity in executive positions and their role on earnings conference calls. In a study performed by Francis et al. (2020) the authors examine the visibility of female executives on earnings conference calls. The authors finding suggest that female executives tend to have shorter discourse during earnings conference calls but receive more questions from analysts. Despite this, female executives demonstrate greater certainty in their responses and exhibit less hesitation, which suggests a superior ability to answer analysts' questions compared to their male counterparts. Furthermore, the authors find that gender equality on earnings conference calls leads improves analyst forecasting abilities. The authors state that gender equality on earnings conference lowers information asymmetry and subsequently enhances analyst forecast accuracy.

A different study by Miller et al. (2022) examines the effects gender diversity on earnings conference calls and their capital market consequences. The authors find that the capital market tends to respond positively when female executives participate in these calls, but this effect is only significant when female executives speak up more frequently during the calls. Contrarily, De Amicis et al. (2020) find that executive gender during earnings conference calls does not seem to have a significant impact on the capital market. In this paper the authors focus on the dissimilarities in sentiment of the earnings conference call between female and male senior executives. The results demonstrate that female executives adopt a tone that is more optimistic and less ambiguous than their male counterparts. The optimistic and precise tone of female executives does not seem to convey any additional information, but rather seems to be a linguistic characteristic that sets them apart from male executives.

Additionally Falconieri and De Amicis (2022) examine the style of disclosure during crisis times for individual firms. The authors find indicate that during a crisis, certain personal traits of managers have dissimilar effects on the way they communicate. Notably, gender is the exclusive characteristic that has a significant impact on the tone of the communication. In particular, female executives exhibit a more positive outlook and provide clearer information compared to their male counterparts. Contrarily, experience and overconfidence seem to only affect the amount of information presented. Furthermore, the impact of executive characteristics such as age and ethnicity on the communication style seems to be less substantial.

Despite the profuse body of literature on the impact of executive gender diversity analyst forecasting abilities, the direct effect of having female executives speak during earnings conference calls on analyst forecast accuracy remains largely unexplored. To date, few studies have examined whether having female executives answer analysts during earnings conference calls has any significant impact on the accuracy of analyst forecasts. The lack of research on the impact of gender diversity during earnings conference calls on analyst forecast accuracy represents a significant gap in the literature. This is an important aspect to consider since forecast accuracy is a crucial indicator for stakeholders.

Based on the existing literature, there is evidence to suggest that companies with gender-diverse executive teams are associated with higher analyst forecast accuracy due to differences in earnings quality. Furthermore, previous studies have shown that earnings conference calls, and in particular the discussion section, are an effective method to increase firms' disclosure and subsequently improve analyst forecasting accuracy.

In this study, I try to bridge the above streams of literature by examining how the gender of top executives, namely, executives, affects earnings forecast accuracy. Particularly, if the amount spoken by female executives during the discussion session of is associated with increased analyst forecasting accuracy. Ultimately, the amount spoken by female executives should subsequently lead to a decrease in analyst forecasting errors. Furthermore, the amount spoken by female executives should decrease dispersion between individual analysts (higher consensus among analysts). Following this rationale, I will test two hypotheses in this paper being:

H1: Amount spoken by female executives during the earnings conference calls discussion section is negatively associated with analysts' forecasting errors.

H2: Amount spoken by female executives during the earnings conference calls discussion section is negatively associated with analyst dispersion.

3.0 Research design

3.1 Methodology

The association between the amount spoken by female executives' gender during the earnings conference call and analyst forecast accuracy will be assessed by regression models evaluating two measures of forecast accuracy. The research design that is most fitting in this setting will be an Ordinary Least Square regression based on the two dependent variables being *ForecastError* and *ForecastDispersion*.

Following a tailored approach of the Datta et al. (2022) paper to quarterly data. $ForecastError_{i,t}$ for firm i in quarter t is defined as the absolute value of the difference between the $medianEPS_{i,t}$ consensus analyst forecasts made prior to a firm's fiscal quarterly presentation and the I/B/E/S $actualEPS_{i,t}$, scaled by $QuarterlyOpen_{i,t}$ stock price. According to Datta et

al. (2022) *ForecastError* is related to analysts' assessments of a firm's financial disclosures in addition to corporate transparency, information availability, and uncertainty.

$$ForecastError_{i,t} = \frac{|medianEPS_{i,t} - actualEPS_{i,t}|}{QuarterlyOpen_{i,t}}$$

Following a tailored approach of the Datta et al. (2022) paper to quarterly data. *ForecastDispersion*_{*i,t*} for firm *i* in quarter *t* is defined as the standard deviation of analyst forecast *sdEPS*_{*i,t*} prior to a firm's fiscal quarterly presentation, scaled by *QuarterlyOpen*_{*i,t*} stock price. *ForecastDispersion* is related to the level of analyst consensus and uncertainty about future performance.

$$ForecastDispersion_{i,t} = \frac{sdEPS_{i,t}}{QuarterlyOpen_{i,t}}$$

The Datta et al. (2022) paper assesses the link between gender diversity and analyst forecasting accuracy by introducing a dummy variable which has the value of one when the firm has female CEO or CFO. The independent variable that captures earnings conference call diversity I introduce as a substitution in the Datta et al. (2022) model is *FemaleWordRatio*. Which is the percentage of words said by female executives during the discussion part of the earnings conference call over total words during the discussion part.

$$FemaleWordRatio_{i,t} = \frac{Amount\ of\ words\ said\ by\ female\ executives_{i,t}}{Total\ amount\ of\ words\ said\ by\ executives_{i,t}} * 100\%$$

Additional firm control variables used in both regressions following the Datta et al. (2022) paper are: analyst following (*analysts*), forecast horizon (*horizon*), firm size (*assets*), leverage (*leverage*), loss (*loss*), earnings-to-price ratio (*E/P*), growth opportunity (*MTB*), research and development intensity (*R&D/Sales*) and profitability (*ROA*). Firm control variable definitions are presented in Appendix A. All variables are winsorized at the one percent cutoff at both tails to minimize the effect of outliers in the data. Control variables used in the regression models apart from horizon, are lagged by one period.

$$FE/FD_{i,t} = \beta_0 + \beta_1 FemaleWordRatio_{i,t-1} + \beta_2 Analyst_{i,t-1} + \beta_3 Horizon_{i,t} \\ + \beta_4 Assets_{i,t-1} + \beta_5 Leverage_{i,t-1} + \beta_6 Loss_{i,t-1} + \beta_7 E/P_{i,t-1} + \beta_8 MTB_{i,t-1} \\ + \beta_9 R\&D/Sales_{i,t-1} + \beta_{10} ROA_{i,t-1} + \varepsilon_{i,t}$$

Shown above is the regression model used to assess the association between words said by female executives during earning conference calls and analyst forecasting error. Both hypotheses will be tested using the same model control variables. Following the Datta et al. (2022) paper I run the model using industry (3-digit SIC code) and time (quarterly) fixed effects to address any possible effects specific to industries and macroeconomic conditions.

3.2 Sample Selection

The data regarding the discussion part of the earnings conference call is retrieved from Refinitiv StreetEvents earnings conference call transcripts. The transcripts are scraped on company and speaker level using Python. This dataset allows for the identification of the number of words said per executive per earnings conference call. The resulting dataset is merged with Compustat North America on firm level to exclude any non-North America firms. In addition to filtering non North American firms, the merging process allows for CUSIP 6-digit identification of the firms which is necessary for the further merging process.

This dataset is merged on firm level and individual executive level to Execucomp (North America) to retrieve firm level executive gender. Executive names that cannot be merged with Execucomp to retrieve the executive’s gender, are computed using gender identification software in R by using the executives’ first names as input.

After identification of the speaking executives during the earnings conference call, the initial sample of firms and executive names is matched with the Institutional Brokers’ Estimate System (I/B/E/S) databases. This database allows for the identification of analyst estimates used in the dependent variables *ForecastError* and *ForecastDispersion*. Furthermore, actual firm quarterly earnings and forecast horizon are retrieved from I/B/E/S.

Ultimately, the resulting dataset is merged with Compustat (North America) to retrieve firm quarterly financial information based on CUSIP 6-digit firm codes. Observations with missing quarterly financial information in Compustat have been dropped. The final dataset consists of 73679 firm-quarter observations (from 2339 unique firms) during the period 2002-2023. The sampling selection is presented in Table 2.

TABLE 2: Sample Selection	
	N
Firm Quarterly Earnings Conference Calls	312826
<i>Less: non North American firms</i>	(155047)
Final: Firm Quarterly Earnings Conference Calls North America	157779
<i>Less: Firms missing data in Compustat</i>	(84100)
Final: Firm Quarterly Earnings Conference Calls North America	73679
Table 2 outlines the sampling procedure.	

4.0 Results

4.1 Descriptive Statistics

Preparatory to the regression analysis, I present the increase in words said by female executives in firm years from the period 2000-2023 in Table 3. During this period the visibility of females on earnings conference calls has increased from 6.80 to 20.62%.

TABLE 3: Average FemaleWordRatio per year			
Year	Percent	Year	Percent
2002	6.80	2013	7.83
2003	7.31	2014	8.43
2004	7.87	2015	8.98
2005	7.12	2016	9.66
2006	6.66	2017	9.40
2007	6.70	2018	9.50
2008	6.73	2019	10.64
2009	7.23	2020	11.32
2010	7.21	2021	11.23
2011	7.43	2022	11.85
2012	7.14	2023	20.62

Table 3 shows the average FemaleWordRatio per financial year for the full sample

Table 4 Panel A presents the descriptive statistics for the full sample of 73679 earnings conference calls transcripts. The main independent variable *FemaleWordRatio* has a mean of 8.7790 and a standard deviation of 19.9042. Furthermore the descriptive statistics regarding the full sample reveal that the *ForecastError* and *ForecastDispersion* have a mean of 0.0190 and 0.0113 and a standard deviation of 0.0853 and 0.0518 respectively. Table 4 Panel B presents the subsample where the *FemaleWordRatio* is larger than zero. Hence representing the descriptive statistics for firm earnings conference calls where at least one female executive was present and has had the opportunity to speak. The descriptive statistics regarding the two dependent variables *ForecastError* and *ForecastDispersion* remain largely unchanged in this subsample. Indicating that on average, having at least one female executive speak during an earnings conference call does not lead to a significant increase in forecasting accuracy. The main independent variable in this subsample using the threshold does change significantly, the descriptive statistics reveal that *FemaleWordRatio* has a mean of 24.9203 and a standard deviation of 26.8770.

Table 4 Panel C presents the correlation matrix of variables used in the regression analyses. It becomes evident from the correlation matrix that the main independent variable is significant at a 1% level. However, given the values from the correlation matrix the main independent variable *FemaleWordRatio* does not seem to be highly correlated with the dependent variables *ForecastError* and *ForecastDispersion*. The results from the correlation matrix can be

used as an indication of the association between the variables. Showing a relatively low positive association between words said by female executives and analyst forecasting error.

TABLE 4: Descriptive Statistics and Correlation Matrix						
Panel A: Full Sample (N=73697)						
<i>Variables</i>	N	Mean	SD.	p25	Median	p75
<i>FemaleWordRatio</i>	73679	8.7790	19.9042	0.0000	0.0000	5.6540
<i>analyst</i>	73679	9.4830	6.9146	4.0000	7.0000	13.0000
<i>horizon</i>	73679	33.9900	12.4104	26.0000	33.0000	39.0000
<i>assets</i>	73679	6761.14	18603.23	322.30	1185.44	4449.30
<i>leverage</i>	73679	51.3790	27.3639	31.3980	49.9370	66.3990
<i>loss</i>	73679	32.3700	46.7874	0.0000	0.0000	100.0000
<i>E/P</i>	73679	-0.0082	0.0657	-0.0076	0.0081	0.0164
<i>MTB</i>	73679	4.6240	9.1723	1.6160	2.8600	5.3030
<i>R&D/Sales</i>	73679	0.4947	2.2798	0.0033	0.0586	0.1679
<i>ROA</i>	73679	-0.4750	5.4263	-0.8556	0.9023	2.1194
<i>FE</i>	73679	0.0190	0.0853	0.0006	0.0019	0.0059
<i>FD</i>	73679	0.0113	0.0518	0.0004	0.0010	0.0032
Panel B: Subsample (N=25947)						
<i>Variables</i>	N	Mean	SD.	p25	Median	p75
<i>FemaleWordRatio</i>	25974	24.9203	26.8770	4.9744	12.1492	37.51868
<i>analyst</i>	25974	10.0900	7.1287	5.0000	8.0000	14.00
<i>horizon</i>	25974	34.2600	12.4201	27.0000	33.0000	39.00
<i>assets</i>	25974	8266.80	21723.47	342.17	1416.8500	5354.70
<i>leverage</i>	25974	52.6110	27.9333	32.3310	50.8620	68.198
<i>loss</i>	25974	34.9700	47.6876	0.0000	0.0000	100.00
<i>E/P</i>	25974	-0.0110	0.0697	-0.0122	0.0075	0.016121
<i>MTB</i>	25974	5.0470	10.6325	1.6910	3.0030	5.6524
<i>R&D/Sales</i>	25974	0.9669	4.6168	0.0000	0.0590	0.19329
<i>ROA</i>	25974	-0.9613	6.0856	-1.5399	0.8217	2.0960
<i>FE</i>	25974	0.0204	0.0886	0.0006	0.0020	0.0062500
<i>FD</i>	25974	0.0122	0.0529	0.0004	0.0011	0.0036793

TABLE 4 (continued)												
Panel C: Correlation Matrix (N=73697)												
(1)	<i>FemaleWordRatio</i>	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(2)	<i>analyst</i>	0.03										
(3)	<i>horizon</i>	0.02	-0.29									
(4)	<i>assets</i>	0.07	0.41	-0.18								
(5)	<i>loss</i>	0.04	-0.17	0.26	-0.16							
(6)	<i>leverage</i>	0.01	0.12	-0.02	0.25	-0.02						
(7)	<i>E/P</i>	-0.03	0.15	-0.22	0.10	-0.56	-0.06					
(8)	<i>MTB</i>	0.02	0.10	-0.04	-0.03	0.04	-0.02	0.04				
(9)	<i>R&D/Sales</i>	0.06	-0.08	0.13	-0.06	0.26	-0.10	-0.22	0.03			
(10)	<i>ROA</i>	-0.05	0.20	-0.27	0.15	-0.68	-0.02	0.70	-0.01	-0.43		
(11)	<i>FE</i>	0.02	-0.13	0.16	-0.06	0.22	0.05	-0.41	-0.05	0.13	-0.31	
(12)	<i>FD</i>	0.02	-0.13	0.17	-0.06	0.24	0.04	-0.40	-0.04	0.17	-0.34	0.81

Table 4, Panel A shows descriptive statistics of the full sample for the dependent and independent variables. Variables are defined in Appendix A.
Table 4, Panel B shows descriptive statistics for the dependent and independent variables of the subsample with speaking female executives on earnings conference calls. Variables are defined in Appendix A.
Table 4, Panel C shows the Pearson correlation between all variables used in the regressions, bolded values are significant at the 1% level. Variables are defined in Appendix A.

4.2 Multivariate regression analysis

The results regarding the Ordinary Least Squares regression of words said by female executives during earning conference calls and analyst forecasting error are presented in Table 5. It is noteworthy that the findings diverge from my original hypotheses, as I do not observe the anticipated negative association between *FemaleWordRatio* and *ForecastError* or *ForecastDispersion*.

Column (1) to (2) presents the model including firm control variables for the association between words said by female executives during earnings conference calls and analyst forecasting error. In the first two columns it becomes apparent that the *FemaleWordRatio* is positively associated with *ForecastError* and *ForecastDispersion*, coefficients are significant at the 1% level. Furthermore Column (3) to (4) reveal that the results remain largely unchanged when incorporating industry and time fixed effects. However, incorporating fixed effects into the model does decrease the coefficient of the main independent variable and the level of significance. Industry and time fixed effects lower the significance of the coefficient *FemaleWordRatio* on *ForecastError* and *ForecastDispersion* to 5% and 10% respectively.

I furthermore discover that in all models presented in Table 5, the number of analysts covering the firm, firm size, negative net income, earnings-to-price ratio, market to book ratio decrease analyst forecasting error. Whereas the forecasting horizon, leverage and R&D/Sales

increases the forecasting error. The presented control variables are significant at the 1% level in all models.

The results in Table 5 suggest that higher percentage of words said by female executive during earnings conference calls is associated with an increased *ForecastError*. In terms of economic magnitude, a one standard deviation increase in *FemaleWordRatio* increases the value of *ForecastError* by 0.000995 ($= 0.00005 \times 19.9042$), representing 0.05237% ($=0.000995/0.0190$) of the mean of *ForecastError* in Column (1). Given the similarity of coefficients in coefficients of interest and standard deviations of the dependent variables, the economic magnitude of the results is in the range of 0.03-0.06% of the dependent variables means.

While the results presented are significant at various levels, it is important to discuss the significant limitations regarding my analysis. The economic significance of number of words said by female executives on earnings conference calls and analyst forecasting accuracy are minimal which could originate from different sources.

The model used from the Datta et al. (2022) is tailored to fit an earnings conference call fitting. The original paper focusses solely on the presence of female CEO or CFO in a firm. Tailoring the model to my setting comes with additional difficulties and omitted variables. The ratio of words said by female executives is somewhat related to having a male or female CEO/CFO in place. However, in the case of my analysis a certain firm could either have a female CEO/CFO which does or does not speak during earnings conference calls. In addition to this, my main independent variable does not capture the actual position of the female executive in the firm, but solely the gender of the firms' earnings conference call speaker. In addition to omitting variables in the realm of executive hierarchy, the model does not control any executive characteristics which could be associated with forecasting accuracy like executive age and linguistic features.

TABLE 5: Earnings Conference Call Diversity and Forecasting Accuracy using the full sample N=73679				
Variable	FE (1)	FD (2)	FE (3)	FD (4)
<i>FemaleWordRatio</i>	0.00005*** (3.22)	0.00003*** (3.04)	0.00004** (2.44)	0.00002* (1.70)
<i>analyst</i>	0.00496*** (-10.14)	-0.00117*** (-3.93)	-0.00507*** (-8.43)	-0.0010*** (-2.78)
<i>horizon</i>	0.00939*** (9.96)	0.00545*** (9.54)	0.00728*** (6.33)	0.0029*** (4.22)
<i>assets</i>	-0.00509*** (-22.54)	-0.00354*** (-25.85)	-0.00661*** (-22.89)	-0.0047*** (-26.79)
<i>leverage</i>	0.00021*** (18.51)	0.00013*** (18.66)	0.00025*** (19.90)	0.0002*** (20.15)
<i>loss</i>	-0.00013*** (-14.74)	-0.00008*** (-15.13)	-0.00015*** (-16.55)	-0.0001*** (-16.55)
<i>E/P</i>	-0.50750*** (-82.60)	-0.26490*** (-71.10)	-0.51210*** (-81.88)	-0.2724*** (-72.25)
<i>MTB</i>	-0.00029*** (-9.14)	-0.00016*** (-8.31)	-0.00027*** (-8.31)	-0.0002*** (-7.75)
<i>R&D/Sales</i>	0.00127*** (9.10)	0.00127*** (15.05)	0.00048*** (3.35)	0.0006*** (6.47)
<i>ROA</i>	-0.00003 (-0.38)	-0.00063*** (-11.27)	0.00062*** (6.44)	-0.0001* (-1.77)
<i>Intercept</i>	0.02197*** (5.77)	0.01326*** (5.74)	0.12480*** (6.10)	0.0827*** (6.70)
<i>Industry and time F.E.</i>	no	no	yes	yes
<i>Adj. R-Squared</i>	0.19	0.19	0.22	0.23
<i>N</i>	73679	73679	73679	73679

Table 5 shows the results of the *FemaleWordRatio* on *ForecastError* and *ForecastDispersion* with firm control variables and Industry and Time fixed effects. Detailed variable definitions are provided in Appendix A. T-statistics are provided in parentheses. *, **, and *** indicate statistical significance at the 10%, 5% and 1% levels, respectively.

4.3 Additional analysis

Next, I test whether the skewness of *FemaleWordRatio* in the full sample data has an effect by isolating the subsample where at least one female executive has spoken on a firm quarterly earnings conference call.

Presented in Table 6 are the results of the regression using this threshold. The original sample of N = 73679 is reduced to N= 25947. Results presented in Table 6 closely resemble previous results regarding the full sample. Interestingly, the coefficients of interest remain significant at a 1% level for Column (1) to (2) but change in Column (3) to (4) to 1% and 5% respectively.

The results in Table 6 confirm that higher percentage of words said by female executive during earnings conference calls is associated with an increased *ForecastError*, using a threshold in the subsample. In terms of economic magnitude, a one standard deviation increase in *FemaleWordRatio* increases the value of *ForecastError* by 0.001344 ($= 0.00005 \times 26.877$), representing 0.065875% ($= 0.00995/0.0204$) of the mean of *ForecastError* in Column (1). Given the similarity in coefficients of interest and standard deviations of the dependent variables, the economic significance of the results is in the range of 0.05-0.08% of the dependent variables means. These findings compliment previous results that the economic magnitude of number of words said by female executives on earnings conference calls and analyst forecasting error are minimal.

Variable	FE (1)	FD (2)	FE (3)	FD (4)
<i>FemaleWordRatio</i>	0.00005*** (2.74)	0.00003*** (3.02)	0.00005** (2.43)	0.00003*** (2.71)
<i>analyst</i>	-0.00482*** (-5.87)	-0.00119** (-2.39)	-0.00569*** (-5.40)	-0.00122* (-1.92)
<i>horizon</i>	0.00731*** (4.47)	0.00577*** (5.81)	0.00155 (0.74)	0.00004 (0.03)
<i>assets</i>	-0.00508*** (-13.57)	-0.00342*** (-15.04)	-0.00713*** (-14.14)	-0.00502*** (-16.47)
<i>leverage</i>	0.00019*** (9.86)	0.00011*** (9.23)	0.00021*** (10.13)	0.00012*** (9.79)
<i>loss</i>	-0.00017*** (-11.65)	-0.00011*** (-11.64)	-0.00020*** (-12.90)	-0.00012*** (-12.72)
<i>E/P</i>	-0.51960*** (-51.64)	-0.28670*** (-46.97)	-0.53810*** (-51.94)	-0.30370*** (-48.50)
<i>MTB</i>	-0.00033*** (-6.52)	-0.00017*** (-5.39)	-0.00033*** (-6.28)	-0.00018*** (-5.52)
<i>R&D/Sales</i>	0.00035* (1.78)	0.00073*** (6.12)	0.00021** (-1.97)	0.00002 (0.18)
<i>ROA</i>	-0.00034** (-2.35)	-0.00062*** (-6.98)	0.00041*** (2.64)	0.00000 (0.05)
<i>Intercept</i>	0.03205*** (4.80)	0.01324*** (3.27)	0.25820*** (7.55)	0.15950*** (7.72)
<i>Industry and time F.E.</i>	no	no	yes	yes
<i>Adj. R-Squared</i>	0.20	0.21	0.22	0.23
<i>N</i>	25947	25947	25947	25947

Table 6 shows the results of the *FemaleWordRatio* on *ForecastError* and *ForecastDispersion* with firm control variables and Industry and Time fixed effects. Detailed variable definitions are provided in Appendix A. T-statistics are provided in parentheses. *, **, and *** indicate statistical significance at the 10%, 5% and 1% levels, respectively.

5.0 Conclusion

This master thesis examines the association between gender diversity in top executive positions, specifically the amount spoken by female executives during earnings conference calls, and analyst forecast accuracy. Prior literature suggests that gender diversity in executive positions is positively associated with analyst forecasting accuracy. In addition, earnings conference calls, particularly the discussion segment, are considered to be informative to analysts in addition to other (mandatory) disclosures. However, the direct impact of female executives speaking during these calls on forecast accuracy has not been extensively studied.

To address this gap in the literature, this study uses regression models to assess the association between the amount spoken by female executives during earnings conference calls and analyst forecast accuracy. Two measures of forecast accuracy, ForecastError and ForecastDispersion, are employed. The findings from previous studies provide the basis for the two hypotheses: 1) the amount spoken by female executives is negatively associated with analyst forecasting errors, and 2) the amount spoken by female executives is negatively associated with analyst dispersion.

Using a large sample of North American firms from the period 2002-2023 the results suggest that the impact of gender diversity during earnings conference calls on analyst forecast accuracy is nuanced. While the original hypothesis states that increased participation of female executives would enhance forecast accuracy, the findings suggest that other factors may be at play. This paper calls for further research of the underlying mechanisms and potential interactions between gender diversity, communication styles, and analyst forecasting abilities.

However, it is important to acknowledge limitations in this research. The main independent variable, the amount spoken by female executives during conference calls, may not capture the full spectrum of their influence or communication effectiveness, which becomes apparent from the relatively low economic magnitude.

The findings contribute to gender diversity in management literature by examining the impact of female executive speakers on earnings conference calls on analyst forecast accuracy. The findings from this study shed light on the importance of gender diversity on earnings conference calls and its role in improving forecast accuracy. The results have implications for stakeholders and provide insights into how companies can enhance their disclosure practices to benefit analysts and investors.

6.0 References

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7.0 Appendix

A: Variable list

TABLE 1: Variable Definition	
Variable	Definition
<i>FemaleWordRatio</i>	Number of words said during discussion part of quarterly earnings conference call by female executives, scaled by total words said during the discussion part of quarterly earnings conference call (Refinitiv StreetEventS)
<i>analyst</i>	Natural logarithm of the quarterly amount of analyst covering the firm (I/B/E/S)
<i>horizon</i>	Natural logarithm in days from IBES aggregation of consensus estimates to firms quarterly IBES actuals publication date (I/B/E/S)
<i>assets</i>	Natural logarithm of quarterly firm total assets (in millions) (Compustat)
<i>leverage</i>	Quarterly total liabilities divided by quarterly total assets (Compustat)
<i>loss</i>	Dummy variable indicating quarterly negative net income (Compustat)
<i>E/P</i>	Quarterly earnings per share divided by the quarterly open share price (Compustat and I/B/ES)
<i>MTB</i>	Quarterly total market capitalization divided by the quarterly book value (Compustat)
<i>R&D/Sales</i>	Quarterly research and development expense divided by the quarterly total sales (Compustat)
<i>ROA</i>	Quarterly net income divided by the quarterly total assets (Compustat)
<i>FE</i>	The absolute value of the difference between the median of analyst earnings per share forecasts made prior to a firm's fiscal quarterly presentation and the I/B/E/S actual earning per share, scaled by quarterly open stock price. (Compustat and I/B/ES)
<i>FD</i>	The standard deviation of analyst earnings per share forecasts made prior to a firm's fiscal quarterly presentation, scaled by quarterly open stock price. (Compustat and I/B/ES)