

Conference Call Topics, Manager Roles, and Market Response: Should Managers Stick
to their Topic?

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This study examines the interplay between managers' role (CFO or CEO) and their predominantly addressed topics during conference call presentations and the associated short-term market reaction. We employ a topic modeling methodology to identify the underlying topics of presentations. In contrast to most recent studies on conference calls, we do not focus on stylistics but on the thematic content. Our results show that in terms of market reaction it is most beneficial, if the CFO of the firm, rather than the CEO, addresses the *financial* topic. Vice versa, it seems to be perceived more positive by the market if the *strategic* topic is discussed by the CEO. These results hold true considering the interaction of both managers during the presentation. It is most advantageous if either both are primarily discussing the *financial* topic or the CFO does so while the CEO addresses *strategic* issues. Overall, our findings help to optimize conference call design as this is an easy-to-implement lever and should thus be of substantial interest to IR and communication teams of firms.

Introduction

Moving away from the mere announcement of quarterly results, earnings conference calls are considered as an important strategic communication tool by a growing number of executives. Most publicly traded firms host conference calls during which managers describe the performance and strategy of the firm and afterwards face a question-and-answer (Q&A) session with analysts (Kimbrough, 2005; Price, Doran, Peterson, & Bliss, 2012). Commonly, several members of the top management team, including the CEO, are attending the conference calls reflecting their increasing importance. The initial presentation is mostly either held by the CFO, the CEO or jointly by both. It can be more and more observed that additional information is provided during the presentations to close the loop between business strategy and operational results to satisfy stakeholders need for information (Ruggeri, Holley, & Schuldenfrei, 2017). Thus, managers aim to bridge the gap towards the firm's

stakeholders by reducing information asymmetries (Tasker, 1998). The unparalleled open nature of conference calls makes them a powerful tool for disclosing information to investors and analysts. However, they represent a double edged sword: while its open nature allows managers to evaluate and justify particular decisions and actions in depth, it may also backfire, for example, in case of unintended disclosure of bad news (L. D. Brown, Call, & Clement, 2015; Hollander, Pronk, & Roelofsen, 2010; Larcker & Zakolyukina, 2012; Li, Minnis, Nagar, & Rajan, 2014; Matsumoto, Pronk, & Roelofsen, 2011). But what is the optimal strategy to design conference calls? Putting yourself as an executive into the shoes of your stakeholders: deliver delighting and surprising facts explaining potentially remaining questions after earning releases (Ruggeri et al., 2017)? Does it matter which topics are addressed and by whom - the CEO or the CFO? Firk, Hennig, and Wolff (2020) show the benefits of a balanced information composition based on the balanced scorecard concept as a framework for conference call preparation. This evidence suggest that it is valued by the market if not only financial data is discussed. Although literature as well as practice indicate prevailing uncertainty, decisions regarding the content beyond financials and the design of conference calls have been underexplored in literature (Rehm, 2013).

The aim of this research project is to analyze the short-term market reaction to the thematic content of conference call presentations and investigate further the importance of which manager is communicating about the specific topics. Thus, we strive to derive recommendations for companies to design their conference calls effectively and to prevent common pitfalls. In doing so we seek ‘[...] beyond an understanding of *’how* texts are being said’ to a broader understanding of *’what* is being said” (Huang, Leheavy, Zang, & Zheng, 2018, p. 2848). This is the main contribution of topic modeling application to textual analysis of financial disclosure. We intend to achieve this by applying such a topic modeling methodology, namely Latent Dirichlet Allocation (LDA).

Prior literature investigates short-term market effects, e.g., on cumulative abnormal returns (CAR) (e.g. Cicon, 2017; Pan et al., 2018) as well as long-term

impacts, e.g. on cost of capital indicating a long-term reduction in information asymmetry (S. Brown, Hillegeist, & Lo, 2004; Firk et al., 2020). However, while there is a substantial academic literature on stylistics and on the way information is provided, the actual underlying topics received less attention. Extensive research has been done on conference calls aggregated tone (e.g. Davis, Ge, Matsumoto, & Zhang, 2015; Henry & Leone, 2016; Price et al., 2012) and language, like extremeness (Bochkay, Hales, & Chava, 2020), concreteness (Pan et al., 2018), complexity (Bushee, Gow, & Taylor, 2018) non-plain English (Brochet, Naranjo, & Yu, 2016) and deception (Larcker & Zakolyukina, 2012). Diurnal (Chen, Demers, & Lev, 2018) as well as lack of spontaneity (Lee, 2016) have been further factors of investigation. Another research stream concentrates on the information provided during conference calls especially on information content in terms of incremental information as well as information transfer (Brochet, Kolev, & Lerman, 2018; Cicon, 2017; Demers & Vega, n.d.; Matsumoto et al., 2011). Furthermore, a balanced composition of information is suggested as beneficial (Firk et al., 2020). These are fruitful first insights into which topics are advantageous to raise in conference calls but neglects the effect of who - the CEO or the CFO - is addressing several topics. In contrast to the role of analysts, so far only little research is devoted to the impact of managers and their roles during conference calls. Green, Jame, and Lock (2019) measure CEO extraversion by speech patterns and Li et al. (2014) focus on the portion of speech of the CEO deriving the location of knowledge within in the management team. It is surprising that scarcely any analysis is digging deeper into the topics addressed during conference calls as well as the role the CEO and the CFO are playing. We want to catch up by applying topic modeling. Using Latent Dirichlet Allocation (LDA), deploying a likelihood approach, we detect the latent topics (clusters of text) of conference call presentations. LDA represents an unsupervised machine learning approach offering key advantages, like being replicable as well as generative and thus free of researcher bias (Blei & Lafferty, 2007; Dyer, Lang, & Stice-Lawrence, 2017; Lewis & Young, 2019). Due to the possibility of processing large amount of data using LDA, we investigate 61,157 conference call presentation transcripts of publicly

listed US-firms between 2002 and 2018 where presentations were held by either by the CEO, the CFO or both of them.

Our main findings present two underlying key topics of conference call presentations which we labelled *strategic* and *financial*. Existing literature suggest a positive impact of a more balanced information composition, meaning not purely financial data, of conference calls. Beyond that, we expect that the positive effect depends on the manager's role communicating about the *strategic* topic, i.e., the topical effect on CAR is moderated by the manager's role. More specifically, we hypothesize that the effect of a more intensive discussion of the *strategic* topic is amplified by being addressed by the CEO. This assumption is mainly based on the importance of CEOs' attentional focus (Yadav, Prabhu, & Chandy, 2007).

Vice versa, this means a more positive market response to a higher proportion of the *financial* topic on short-term market reaction, if the CFO is raising it. Further we assume that a 'classical role model' - CFOs are coping the *financial* issues while CEOs are communicating the *strategic* insights - has a positive impact on market response, if considering the interplay of CEO and CFO during the presentation. This is due to the assumption, that the location of knowledge is reflected by the speaking parts of managers during conference calls (Li et al., 2014). Hence, stakeholders' expectations, of CFO's role as financial expert and the CEO as the most knowledgeable in strategic affairs, lead to the perception of a more competent information transfer if topics are related to their official role.

To test our prediction we classify each presentation according to its latent topic distribution. We regress on CAR to analyze the short-term market impact. Our findings suggest that a presentation dominantly addressing the *financial* topic is significantly positively associated with CAR. This especially holds true if it is held by the CFO of the firm as there is a positive significant interaction effect between CFO and discussed *financial* topic. Vice versa, CEOs providing strategy-related insights during conference calls impact the market response positively. We also find strong evidence that if both managers are contributing to the presentation a clear and classical

allocation of roles, CFO is addressing *financial* and CEO *strategic* issues, is appreciated by the market. A significant positive impact on CAR is also triggered by a minor or no focus on the *strategic* topic during the presentation, i.e., if both managers predominantly share *financial* information. When placed in light of conference calls major objective to further explain quarterly earnings, these findings are not surprising. We control for aggregated tone, future-orientation, uncertainty, length of presentation and financial key performance indicators. To check the robustness of our findings, we ran a battery of tests. First, we investigate alternative estimation-windows as well as methods regarding the calculation of CAR to measure the short-term market response. Second, we test an alternative specification of our dependent variable. Across all of the robustness tests, the results remain similar.

This paper contributes to the literature in a number of ways. First, in contrast to most of the recent literature, which concentrates on the impact of stylistics and the way how information is provided, we identify underlying topics and examine the importance of who, CEO or CFO, talks about respective issues. Second, we contribute to accelerate the adoption of natural language processing (NLP) methods in finance and accounting literature. Third, we provide further insights for practitioners into opportunities for value creation for firms by design choices of conference calls which are easy to realize. By considering the inter-dependencies between speaker and thematic content addressed when composing information for conference calls, firms can easily optimize their communication strategy.

The remainder of the paper is organized as follows. In the next section we review the literature and develop our hypotheses. Section 3 describes the sample and the applied methodology. Our empirical findings as well as our robustness checks are provided in section 4. Section 5 contains a supplemental analysis and section 6 concludes.

Literature Review and Hypotheses Development

'Superficiality' of existing research on earnings conference call

The prior research using textual analysis on financial disclosure is almost exclusively focused on language stylistics rather than the actual topics addressed. Most of the attention to date has focused on aggregated tone. Loughran and McDonald (2011) develop wordlists based on 10-K filings and thus customized to financial texts. Whereof the most famous and common wordlists are build to measure positive and negative tone. They show that their wordlists better reflect tone in financial context than domain unspecific wordlists and further link their measures to market reactions like 10-K filing returns, trading volume and return volatility. Their research paved the way for tone investigation of earnings conference calls. Tone, interpreted as expression of private information about expected future developments, is related to current and future firm performance (Price et al., 2012). This is consistent with Allee and Deangelis (2015) finding that tone dispersion, measured as the degree to which tone is spread evenly throughout a conference call presentation, affects investors' and analysts' responses as well as current and future firm performance. In this context, Davis et al. (2015) provide evidence for a manager-specific component influencing conference call tone and associated returns. This component is interpreted as manager-specific optimism (pessimism if negative). In this vein, Chen et al. (2018) show that diurnal has an impact on executives mood during the discussion session. The time-of-the-day-induced negative tone leads to temporal stock mispricings. Bochkay, Chychyla, and Nanda (2019) find that usage of extreme language while controlling for positive and negative language is not only reflecting hyperbole but reality and triggers stronger market reactions in terms of trading volume and stock price movements. Further studies focus on different additional factors influencing market reaction which are also not explicitly conference call content related like concreteness (Pan et al., 2018), complexity (Bushee et al., 2018), non-plain English (Brochet et al., 2016), deception (Larcker & Zakolyukina, 2012) and lack of spontaneity (Lee, 2016).

Another prominent research stream focuses on information content of conference

calls. Predominantly, existing studies are measuring the informativeness of conference calls via changes in analysts' forecast errors and dispersion (e.g. Bassemir, Novotny-Farkas, & Pachta, 2013; Bowen, Davis, & Matsumoto, 2002) or abnormal absolute returns during each portion of the call (Matsumoto et al., 2011). Kimbrough (2005) provide evidence that when conference calls are hosted in conjunction with an earnings announcement the market underreacts less to current earnings relative to when a call is not held. Additional information and future implications of currently announced earnings, made available during conference calls, result in more timely analyst and investor reactions. Contrary, Cicon (2017) develops a modified version of the cosine-similarity measure from NLP. He examines additional information provided by management in the Q&A session by comparing word vectors of manager-specific contributions during the presentation and the Q&A part of the conference call. Unlike investigating additional information Hollander et al. (2010) discover that a withhold of information by managers during the Q&A session is interpreted negatively by analysts. Brochet et al. (2018) analyze the intra-industry information transfer. Using intra-day data, they find a much larger co-movement of returns between firms hosting conference calls and their non-announcing industry peers during the conference call windows than its associated earnings announcement window. This illustrates conference calls' meaning for market reactions in comparison to the mere announcement of quarterly earnings. As conference calls offer critical opportunities for analysts and investors to monitor and update their view on management teams as well as their investment decisions, they entail high financial stakes (Matsumoto et al., 2011). Consequently, especially conference call presentations provide critical windows for management teams to communicate important information and evaluate performance. If this task is performed well it will be beneficial otherwise if done poorly, consequences can become costly (Li et al., 2014).

In contrast to these studies, focusing mainly on the informativeness of conference calls, Firk et al. (2020) provide first insights into their thematic content. They show that a balanced information composition based on the balanced scorecard concept leads

to lower cost of capital driven by reduced information asymmetries. Similarly, Huang et al. (2018) compare the thematic content of conference calls to analyst reports issued timely after conference calls to examine analysts' information intermediary roles. They provide evidence that analysts play the information intermediary roles by explaining and confirming company disclosures and by discovering information beyond them.

The role of CEO and CFO in conference calls

Although management literature, especially the upper echelons theory (Hambrick, 2007; Hambrick & Mason, 1984), emphasizes the importance of managers' individual-specific attributes for their decision-making and hence effects on corporate-level decisions, these have received less attention in the finance and accounting literature in particular regarding corporate disclosure. Usually, the CEO and the CFO are the managers giving the presentation and leading through conference calls (Davis et al., 2015). Despite their important role, manager or role-specific impact is still underexplored in literature. First insights are provided, e.g., by Bochkay et al. (2019). In their study, they examine the effect of CEO's tenure on their disclosure style. Over the course of tenure, CEOs' forward-looking statements and relative optimism is declining due to uncertainty reduction. In this context, Davis et al. (2015), focusing on CEOs and CFOs, find an impact of a manager-specific tone style on overall tone in conference calls and thus on its associated market response. Li et al. (2014) provide evidence that location of knowledge is revealed in conference calls. CEOs speak more during conference calls, if they have relatively more knowledge than the other management team members. CEOs having a larger speech share are higher compensated. If CEOs' compensation and their portion of speech fall apart, firms show a lower industry-adjusted Tobin's Q. These studies contribute first fruitful insights into the importance of manager-specific roles in conference calls and resulting market reaction. Nevertheless, all three are still merely focusing on stylistics and not considering the thematic content of conference calls.

Building on this line of research, we use LDA to detect the underlying topics

which can be interpreted as generation of unbiased wordlists. We expect that these can be distinguished regarding purely financial and strategic topics because conference calls are hosted to provide managers the opportunity to describe the financial performance as well as strategic decisions of the firm during the presentation (Kimbrough, 2005; Price et al., 2012). Based on the unveiling of relative-knowledge location during conference calls (Li et al., 2014) and a prevailing association of the role of the CFO being generally more knowledgeable in financial issues than the CEO, we hypothesize that the finance-related topics trigger more positive market reactions if firms CFO is speaking about these. Because thus, provided information is perceived as more credible by investors and analysts as it is presented by the apparent most knowledgeable corporate representative. Vice versa, we expect market response to be more positive if CEOs are talking about strategic issues, e.g., balanced scorecard's customer perspective due to his anticipated greater competence in this field. This means we assume overall that the manager's role moderates the effect of a higher proportion of financial topics during conference call presentations.

Use of LDA in related context

Lewis and Young (2019) state that LDA is one of the most exiting text analysis techniques recently emerging in accounting and finance. In contrast to manual coding, it enables researchers to process a massive collection of documents at low costs and results in a reliable as well as replicable clustering of text in topics (Huang et al., 2018; Lewis & Young, 2019). The main focus to date has been on the incremental information content in 10-K filings of verbal discussions particularly in the Management Discussion and Analysis (M&DA) beyond the basic financial statements and accompanying footnotes (Lewis & Young, 2019). For instance, Hoberg and Lewis (2017) employ LDA to investigate the content of a firm's MD&A in years surrounding fraud. Similarly, N. C. Brown, Crowley, and Elliott (2020) analyze the incremental informativeness of the thematic content of entire 10-K-filings to predict intentional misreporting using a rolling five-year-window. Further studies examine the topical trends leading to the increased

length of 10-K-filings over the years (Dyer et al., 2017) and how investors' risk perception is influenced by the types of risks discussed in 10-K-filings (Bao & Datta, 2014). Huang et al. (2018) employ LDA to contrast the topics discussed in analyst reports to those of the associated conference calls.

To the best of our knowledge, ours is the first research to focus directly on the thematic content of conference calls' narratives and investigates the meaning of managers' role, CEO or CFO, linked to topics addressed. We believe that LDA has the potential to be a powerful tool for discovering the topical content of conference calls. It is free of researchers' bias in so far as it does not require predetermined word dictionaries and enables us to evaluate a large sample of transcripts consistently and objectively (N. C. Brown et al., 2020).

Research Design

Our analysis consists of two steps: In the first step, the latent topics of conference call presentations' are identified applying LDA and topic proportions are estimated. In the second step, we utilize these posterior topic probabilities to classify each transcript, separated by speech portions of the CEO and the CFO, and measure the effect on the market reaction associated with the conference call presentation by regressing on CAR.

Sample and Data

Because of data availability we limit our sample to publicly listed US-firms and follow Huang et al. (2018) by obtaining all available earnings conference calls from Thomson Reuters's StreetEvents Database from 2002 to 2018. Thus we can feed the algorithm with as much data as possible to exploit its full performance capability discovering the latent topics. In total, we identified 99,014 transcripts in which the presentation has been held by either the CEO or the CFO, or both together. Further, we extract the respective speech portions of CEOs and CFOs in order to analyze these separately. Thereof we remove all speech portions with less than 100 words due to lack of meaningfulness. The firms' financial data matching the conference calls is collected from the Center for Research in Security Prices (CRSP) and Compustat. The

cumulative abnormal returns are drawn from the Eventus in Wharton Research Data Service (WRDS). Our final sample consists of 1,262 firms yielding 61,138 observations.

Latent Dirichlet Allocation (LDA)

LDA, as a Bayesian computational method, is used to infer underlying ('latent') topics in a corpus of documents using the 'dirichlet' family of probability distributions in the estimation where words are allocated to topics ('allocation') (Dyer et al., 2017). Only based on a few simple assumptions, the LDA model simulates human writing. It assumes a two-step approach of text generation. Firstly, a topic is chosen randomly. Secondly, based on the word distribution of the selected topic, a word is randomly drawn to explain the respective topic. By repeating these two steps, a complete document is created word by word (Miller, 2017). The LDA model presumes a fixed number of topics per document and that the topic proportions in each document as well as the words of each topic are distributed following a Dirichlet distribution (Blei & Lafferty, 2007; N. C. Brown et al., 2020).¹

Originally developed by Blei and Lafferty (2007) LDA is one of the most common and frequently used topic model algorithms in NLP. It is an unsupervised machine learning approach and works similarly to cluster or factor analysis (N. C. Brown et al., 2020). LDA reduces the exceptional dimensionality of text data by grouping words to topics based on word co-occurrences within one document (Huang et al., 2018). It relies on the well-known 'bag-of-words' (BOW) approach which assumes that the word order within documents is not essential to determine the context or sentiment, (Azmi Shabestari, Moffitt, & Sarath, 2020). In contrast to the BOW approach, LDA does not require predefined word lists (N. C. Brown et al., 2020). The algorithm operates iteratively. It finally assigns a probability of appearance to each topic within a document as well as to each word within a topic (Azmi Shabestari et al., 2020). Because the LDA model uses Bayesian analysis a document can consist of multiple topics and a specific word may appear within several topics. The word's relative

¹ Required specifications, such as the Dirichlet parameters α and β , will be explained later on.

probability would vary depending on the respective topic (Miller, 2017). Considering multiple meanings of words in various contexts represents a differentiating feature of LDA (N. C. Brown et al., 2020).

LDA offers several advantages over manual coding. First, the algorithm can classify the content of a massive collection of documents whereas manual coding of such an amount would be too time consuming (N. C. Brown et al., 2020; Huang et al., 2018). Second, it does not need human coders' subjective judgment and thus classifies topics in a replicable as well as reliable manner (Huang et al., 2018). Third, its generative nature is a unique distinguishing factor and the key advantage of this unsupervised machine learning approach. In contrast to supervised algorithms LDA is free of researcher bias as it does not require predetermined keywords, word lists or topic categories (N. C. Brown et al., 2020; Huang et al., 2018; Lewis & Young, 2019).

To improve the interpretability and increase the computational load of the LDA model, we perform some common preprocessing steps. First, we remove symbols and numeric values and tokenize the text into single words² (Palmer, Eickhoff, & Muntermann, 2018). Second, we removed very frequently occurring words without important meaning for the thematic content known as stopwords like 'a', 'the', 'of' (Dyer et al., 2017). We use the English stopword list of the Natural Language Toolkit (nltk)³, which is well-accepted in NLP, and added accounting specific stopword lists containing, e.g., various currencies (Loughran & McDonald, 2011).⁴ Thirdly, we apply lemmatization in order to group items with same meaning to a single item. Lemmatization, e.g., transforms verbs to their basic forms and reduces nouns to their single forms (Allahyari et al., 2017).

Determining the number of topics we follow a similar approach to Azmi Shabestari et al. (2020) who are using LDA to create one weighted dictionary and combine it with N. C. Brown et al. (2020) approach to find the optimal number of

² We additionally tokenized to bi- and trigrams but without improvement of topical quality.

³ <http://www.nltk.org/>.

⁴ The stopword lists of (Loughran & McDonald, 2011) are available at <https://sraf.nd.edu/textual-analysis/resources/>.

topics ($n=31$) by simulation. According to Palmer et al. (2018) it is legitimate to adapt the number of topics in regard of the research goal to extract more aggregated or more granular topics. In this case, we are interested in gaining broader topics addressed by managers, leading to a final number of two topics. These are interpretable as two objectively generated and weighted wordlists of the thematic content of conference call presentations. Matching the fact that conference calls serve for managers to describe the performance and strategy of the firm during the presentation (Kimbrough, 2005; Price et al., 2012) one topic is strongly financial-related while the other treats strategic issues. Therefore, we labeled the identified topics *financial* and *strategic*.

Two hyperparameters on corpus level, the Dirichlet parameters α and β , have to be predefined as well (Blei & Lafferty, 2007). The optimal value depend on different text characteristics, i.e., genre, size of vocabulary, number of topics, and so on (Huang et al., 2018). These parameters determine the document-to-topic and the-topic-to-word composition. A low α would produce documents consisting of a few dominant topics, while a high α results in documents composed of almost all topics. Similarly, a low β leads to topics containing only a small number of dominant words, whereas if choosing a high β topics will be determined by a vast amount of words. Commonly used values are $\alpha=0.1$ and $\beta=0.01$ (Huang et al., 2018; Kaplan & Vakili, 2015; Palmer et al., 2018; Steyvers & Griffiths, 2006). Depending on the research objective and the analyzed text type it makes sense to deviate from these values (Palmer et al., 2018). Since we are only focusing on two underlying topics we set $\alpha=0.1$.⁵ For β we chose a slightly higher value, $\beta=0.02$, than in previous studies to counteract the relatively small number of topics by having them described by a higher amount of words in return.

Compared to lengthy documents like 10-k-filings, conference calls presentation are of much smaller volume especially if CEOs and CFOs speech portions are analyzed separately. Therefore, we think that our two topics capture the main latent topics of conference calls presentation. Nevertheless, we ensure the validity of our model by providing several validation tests. First, we calculate the perplexity of our model. The

⁵ We also test α =’auto’ meaning that we let the algorithm itself find the optimal α for our model resulting in $\alpha=0.10154502$ which corresponds exactly to the recommended value if rounded

perplexity is one of the most common evaluation measures for topic models. It can be interpreted as the average number of equally probable words a model chooses between, and thus indicating how 'perplexed' this model is by unseen data (Bao & Datta, 2014; Blei, Ng, & Jordan, 2003). The lower the perplexity, the less confused the model and hence the better its' predictive power as it is a monotonically decreasing function of the log-likelihood (Bao & Datta, 2014; Blei & Lafferty, 2007; Blei et al., 2003; Dyer et al., 2017; Huang et al., 2018). Lower perplexity leads to better-fitting models. The best-fitting models are usually based on a high number of topics but at cost of topics' interpretability for humans because of overfitting (Chang, Boyd-Graber, Wang, Gerrish, & Blei, 2009; Dyer et al., 2017; Kaplan & Vakili, 2015). The perplexity score of our model (350.3)⁶ indicates higher generalizability to comparable models used by, e.g., Bao and Datta (2014); Dyer et al. (2017); Huang et al. (2018). This confirms our models' predictive performance although selecting only two topics. Second, we address the semantic validity by the word intrusion task (Bao & Datta, 2014; Chang et al., 2009; Dyer et al., 2017). Originally developed by (Chang et al., 2009) this task serves to measure the fit between inferred topics by the LDA model and natural human concepts. For this purpose, a subject is provided with six randomly ordered words per inferred topic whereof five actually belong to the respective topic. The sixth word is a specious word, inserted by us, which has to be identified. Without any disagreements the intruder word could be identified to 100% confirming the topics' interpretability.⁷ These results verify that both our topics have human-identifiable semantic coherence (Chang et al., 2009).

Third, we let independent coders label our topics despite our prediction tests do not depend on the topic labels but on the quantitative topic proportions (N. C. Brown et al., 2020). Even though the manual topic labeling would not concern our empirical analysis, we strive to confirm our label assignment as reasonable and thus the interpretability of our topics. The topic labeling process itself is regarded as a

⁶ per-word perplexity estimated based on a held-out corpus of 1,116 documents with 481,008 words.

⁷ n = 10 (graduate students).

validation of their semantic meaningfulness. We follow Bao and Datta (2014); N. C. Brown et al. (2020); Hoberg and Lewis (2017); Huang et al. (2018) by reading the first highly probable words of each topic to label these, resulting in our formerly introduced topic labels of *financial* and *strategic*. These labels are confirmed by 10 graduate students who all labeled the topics either *financial* or *finance* and the second one either *strategic* or *strategy* as well. We regard these labels as uniformly confirming our initial labels so that we stick to *financial* and *strategic*.

In a nutshell, we interpret the evidence from the conducted validation tests as proof of effectiveness of our model in terms of detecting and quantifying the topics in conference calls presentations.

Independent variable

Finally, our validated LDA model is used to classify each conference call transcript according to its underlying topic proportions (Blei & Lafferty, 2007). The respective topic proportion varies between 0 and 1 and always sums up to 1. Since we only have two topics these are complementary, the higher the financial proportion of a presentation the lower the *strategic* one and vice versa. This proportion (Prop_financial) represents one of our explanatory variables. Besides we use a CFO dummy variable (coded 1 if presentation part is held by the CFO and 0 if presentation part is held by the CEO).

Dependent variable

We follow prior research in the finance and strategy literature by using an event study approach (Pan et al., 2018). The aim is to examine the short-term market reaction to conference call design, i.e., which topics are addressed and by which manager. These effect of conference calls on firm value, based on investors' assessment, can be measured by abnormal returns. Abnormal returns are the difference between the calculated expected return of a security and its observed return (Fama, 1991).⁸ To

⁸ Estimated by using capital asset pricing model (CAPM): $AR_{it} = R_{it} - (\alpha_i + \beta_i R_{mt})$ where R_{it} = return on stock i for day t; R_{mt} = return on the market portfolio for day t; α_i = constant; β_i = beta of stock i (measure of non-diversifiable risk).

calculate the required parameters for the estimation, α and β , we follow prior research and use a maximum of 250 day estimation period starting at day -249 and ending at day +1 after the event date. Following S. Brown and Warner (1985) we define the event date (date of the conference call) of a given security as day 0. The event window comprises three days $(-1||1)$ in order to capture information leakage surrounding the event date. Thus, we measure the short-term market reaction to conference call design using cumulative abnormal returns over the event window $((CAR(-1||1))$ (Henry & Leone, 2016).⁹

Main Empirical Analysis

Results of LDA and Descriptive Statistics

Figure 1 illustrates the most probable words describing the two main underlying topics, *financial* and *strategic*, of the analyzed conference calls. The *financial* topic is described by words like, e.g., 'operating', 'cost', and 'margin', while words like, e.g., 'development', 'market', and 'customer' belong with high probability to the *strategic* topic.

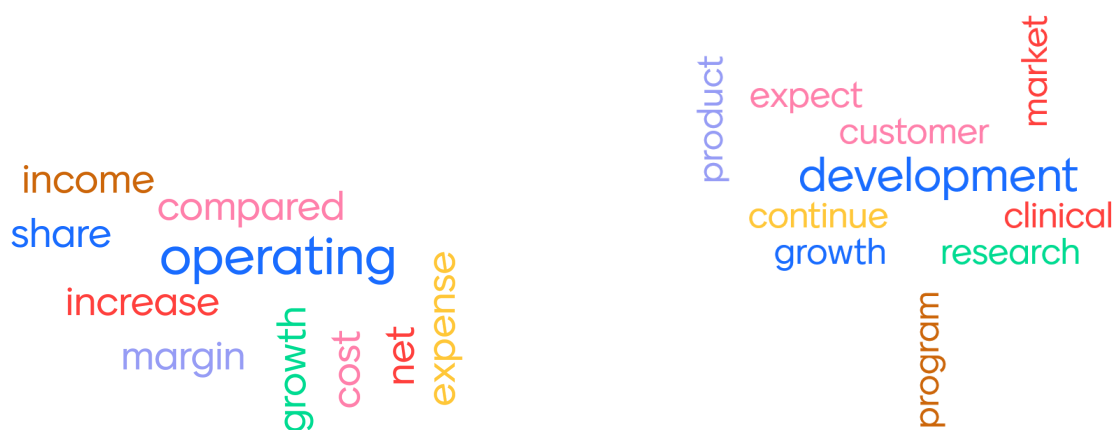


Figure 1. Wordclouds for the latent topics: *financial* (left) and *strategic* (right)

Table 1 shows the distribution of conference call presentation transcripts over our sample period. In total 61,157 conference call transcripts are included in the

⁹ We test for robustness of our results (see section 4.4. Robustness tests) considering varying estimation as well as event windows and further estimated AR by extending the capital asset pricing model by Fama & French factors (5-factor model plus momentum).

investigation. The sample appears to be consistently distributed over CFOs (29,979) and CEOs (31,178). The growing total number of conference call transcripts over our sample period emphasizes their increasing importance in corporate disclosure.

Table 1
Sample distribution per year

Year	CFO	CEO	N
2002	307	280	587
2003	754	734	1,488
2004	1,069	1,075	2,144
2005	1,099	1,095	2,194
2006	1,111	1,129	2,240
2007	1,362	1,412	2,774
2008	1,582	1,653	3,235
2009	1,669	1,709	3,378
2010	1,811	1,905	3,716
2011	1,848	1,943	3,791
2012	1,833	1,921	3,754
2013	1,705	1,765	3,470
2014	2,319	2,443	4,762
2015	2,549	2,666	5,215
2016	2,760	2,889	5,649
2017	3,340	3,521	6,861
2018	2,861	3,038	5,899
Sum	29,979	31,178	61,157

Table 2 displays the summary statistics for the regression variables. Tow-sided t-test confirms that the mean (0.3%) of our dependent variable (CAR) is significantly different from 0. The average of our binary CFO variable amounts to round about 0.5. The proportion of the *financial* topic addressed during conference calls presentation (Prop_financial) is on average 0.705 and varies substantially. As the perception and consequently the market reaction of the conference call highly depends on the tone (Loughran & McDonald, 2011), we include a tone measure (Tone) calculated by using the ratio of the difference of the number of positive and negative words and the length (total number of words) of the presentation. On average Tone is slightly more negative (-0.013). Similarly, we account for future focus (Future focus) with a ratio of the difference of the number of words related to the future and the past which is divided by

the total number of words as well. The mean of Future focus is -0.04 and thus the analyzed conference call presentations are on average marginally more past focused. To control for the level of uncertainty (Uncertainty) we employ a ratio of the count of uncertainty-related words and conference calls length. The mean of Uncertainty amounts to 0.012. For these measures we rely on well-established wordlists. For calculating Tone and Uncertainty we use the sentiment wordlists of Loughran and McDonald (2011) tailored for financial context and our Future focus measure is based on wordlists of Linguistic Inquiry and Word Count (LIWC) Dictionaries (Pennebaker, Francis, & Booth, 2001). We control for the length (Length) of conference call presentations by using the total number of words. The mean Length is 1,259 words. Further controls are key financial variables for CAR consistent with previous research (Bochkay et al., 2019; Cicon, 2017).

Table 2
Descriptive statistics

Statistic	N	Mean	St. Dev.	Min	Q1	Q3	Max
CAR	61,138	0.003	0.074	-0.144	-0.043	0.049	0.152
Prop_financial	61,157	0.705	0.320	0.001	0.477	0.999	1.000
CFO	61,157	0.490	0.500	0	0	1	1
Return on assets	61,064	-0.002	0.132	-19.540	-0.003	0.021	5.027
Earnings surprises	58,606	0.087	0.091	0.007	0.027	0.108	0.353
Market value	53,699	8,081.4	34,912.8	0.132	308.5	2,468.9	835,310.8
Firm size	61,127	1,161	5,966	-90.2	41.2	355.9	138,793
Length	61,157	1,259	710	100	773	1,591	11,913
Tone	61,157	-0.013	0.025	-0.141	-0.030	0.004	0.117
Future focus	61,157	-0.040	0.014	-0.121	-0.049	-0.031	0.071
Uncertainty	61,157	0.012	0.009	0.000	0.006	0.016	0.131

Effects of Conference Calls Design on Short-term Market Reaction

Table 4 provides the results of our regression. Model (1) shows the isolated association of our explanatory variables and market response. The significant positive coefficient of the interaction in model (2) implies an amplification of the positive effect of a more intense discussion of the *financial* topic on CAR, if the CFO is addressing it. These results persist controlling for conference calls sentiments as well as key financial figures. Model (3), (4) and (5) are random effect (RE) models, of which model (4) additionally controls for industry effects and model (5) controls for industry as well as year effects.¹⁰ Our findings are still valid at same magnitude at a 5% significance level.

Our results thus indicate a robust positive effect of a more intense discussion of the *financial* topic during conference calls on market response. The CFO variable significantly moderates the effect of a higher proportion of the *financial* topic on CAR as the magnitude is 0.009 times bigger (model (3) and (4)). This means in return that if the CEO addresses the *strategic* topic more intensively, the market reaction will be more positive as if the CFO does. This is related to prior literature providing evidence that location of relative-knowledge is revealed in conference calls (Li et al., 2014). Analysts and investors may assume or at least subconsciously expect that the role-specific knowledge of the CFO is higher with regard to *financial* and that of the CEO to *strategic* issues. Overall, the findings support our assumption suggesting that regarding the short-term market reaction it is definitely of importance to which proportion a conference call presentation is based on the *financial* and the *strategic* topic and which member of the management team takes over which part as well. More precisely, the market response is more positive if the *financial* topic is addressed by the CFO and the *strategic* content is discussed by the CEO. Our controls are in accordance with our expectations. Return on assets and earnings per share as performance measures have a positive highly significant effect on CAR (e.g. Cicon, 2017). In contrast, a high level of uncertainty affects CAR slightly negatively. In line with prior literature a more positive

¹⁰ We applied random instead of fixed effects model since our key explanatory variable (CFO) is mainly constant over time (dummy variable) (Wooldridge, 2018).

tone has a highly significant positive impact on the short-term market reaction (e.g. Price et al., 2012).

Table 3
Regression Results

<i>Dependent variable:</i>	<i>CAR</i>				
	<i>OLS</i>		<i>RE</i>		
<i>Model:</i>	(1)	(2)	(3)	(4)	(5)
CFO	-0.002*** (0.001)	-0.002 (0.003)	-0.002 (0.003)	-0.002 (0.003)	-0.002 (0.003)
Prop_financial	0.006*** (0.001)	0.008*** (0.001)	0.008*** (0.002)	0.009*** (0.002)	0.008*** (0.002)
Return on assets		0.008*** (0.002)	0.007*** (0.002)	0.008*** (0.002)	0.008*** (0.002)
Earnings per share		0.001*** (0.0002)	0.001*** (0.0002)	0.001*** (0.0002)	0.001*** (0.0002)
Market value		-0.000 (0.000)	-0.000* (0.000)	-0.000* (0.000)	-0.000* (0.000)
Firm size		-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Length		-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)
Tone		0.303*** (0.017)	0.323*** (0.017)	0.330*** (0.018)	0.335*** (0.018)
Future focus		0.019 (0.025)	0.021 (0.026)	0.020 (0.026)	0.016 (0.026)
Uncertainty		-0.047 (0.038)	-0.055 (0.041)	-0.060 (0.041)	-0.068* (0.041)
CFO x Prop_financial		0.009*** (0.003)	0.009** (0.004)	0.009** (0.004)	0.009** (0.004)
Industry dummy	No	No	No	Yes	Yes
Year dummy	No	No	No	No	Yes
Constant	-0.0004 (0.001)	0.003** (0.001)	0.003* (0.001)	0.003 (0.005)	0.001 (0.005)
Observations	61,138	53,669	52,950	52,950	52,950
R ²	0.0004	0.009	0.009	0.009	0.010
Adjusted R ²	0.0004	0.009	0.009	0.009	0.010

Note:

*p<0.1; **p<0.05; ***p<0.01

Effects of CFO's and CEO's topic-related interplay

For the analysis of the topic-related interplay of CFO and CEO we matched the speech portions of CFOs and CEOs of the same conference call. We coded a categorical

Table 4
Regression Results

<i>Dependent variable:</i>	<i>CAR</i>				
	<i>OLS</i>		<i>RE</i>		
<i>Model:</i>	(1)	(2)	(3)	(4)	(5)
CFO	-0.002*** (0.001)	-0.002 (0.003)	-0.002 (0.003)	-0.002 (0.003)	-0.002 (0.003)
Prop_financial	0.006*** (0.001)	0.009*** (0.001)	0.010*** (0.002)	0.010*** (0.002)	0.010*** (0.002)
Return on assets		0.012*** (0.002)	0.012*** (0.002)	0.012*** (0.002)	0.012*** (0.002)
Earnings surprises		0.032*** (0.004)	0.039*** (0.004)	0.039*** (0.004)	0.038*** (0.004)
Market value		-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Firm size		-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Length		-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)
Tone		0.327*** (0.017)	0.347*** (0.018)	0.354*** (0.018)	0.356*** (0.018)
Future focus		0.013 (0.026)	0.016 (0.027)	0.017 (0.027)	0.014 (0.027)
Uncertainty		-0.048 (0.039)	-0.055 (0.041)	-0.055 (0.041)	-0.060 (0.041)
CFO x Prop_financial		0.009** (0.004)	0.009** (0.004)	0.009** (0.004)	0.009** (0.004)
Industry dummy	No	No	No	Yes	Yes
Year dummy	No	No	No	No	Yes
Constant	-0.000 (0.001)	-0.001 (0.001)	-0.002 (0.002)	-0.002 (0.005)	-0.004 (0.005)
Observations	60,000	51,541	51,502	51,502	51,502
R ²	0.0004	0.010	0.010	0.011	0.012
Adjusted R ²	0.0004	0.010	0.010	0.010	0.011

Note:

*p<0.1; **p<0.05; ***p<0.01

variable with four specifications illustrated in Table 5. The dominant topic is determined by a portion equal or greater than 0.5 of the respective topic within the speech part of the manager.

Table 6 presents the results of the investigation of this interplay of CFO and CEO within a conference call presentation. In line with expectations the effect of a CFO

Table 5

Categorical variable: Interplay of CFO and CEO

Variable	Dominant topic of CFO	Dominant topic of CEO
CFO_strat_CEO_strat	strategic	strategic
CFO_strat_CEO_fin	strategic	financial
CFO_fin_CEO_strat	financial	strategic
CFO_fin_CEO_fin	financial	financial

mainly addressing the *financial* topic whereas the CEO specifies *strategic* aspects is significantly positive. Market reaction also seems to be more positive if CFO and CEO dominantly discuss the *financial* topic compared to both predominantly discussing *strategic* topics. When placed in light of the initial objective of conference calls, these findings are not surprising. Especially, as dominantly *financial* does not mean exclusively *financial* and a mainly *strategic* dominated conference call may be interpreted as an obfuscation tactic concealing bad news. The highly significant positive effect of Tone is larger for CEO speech share than for CFO speech portion. A high level of uncertainty within the CEO talk impacts CAR significantly negative. These results indicate, that investors and analysts are more sensitive to CEOs' than CFOs' sentiments. This might be the case, since it is the primary role of the CEO to set the firms' general direction (Hambrick & Mason, 1984). CEOs' attentional focus and thus the firm's future developments are reflected in his communication (Yadav et al., 2007). Therefore, CEO communication is of high importance for stakeholders to anticipate future firm performance and strategic direction. Given the importance of CEOs' attention, it seems logical that his sentiments also exert a correspondingly strong influence, and especially stronger than that of the CFO, on market reaction.

Table 6
Regression Results - Interdependencies

<i>Dependent variable:</i>	CAR	
	<i>OLS</i>	<i>RE</i>
<i>Model:</i>	(1)	(2)
CFO_strat_CEO_fin	0.013 (0.014)	0.014 (0.014)
CFO_fin_CEO_strat	0.007** (0.003)	0.007** (0.003)
CFO_fin_CEO_fin	0.010*** (0.003)	0.010*** (0.003)
Return on assets	0.007** (0.003)	0.006* (0.004)
Earnings per share	0.001*** (0.0003)	0.001*** (0.0003)
Market value	-0.000 (0.000)	-0.000 (0.000)
Firm size	-0.000 (0.000)	-0.000 (0.000)
Length CFO	-0.000** (0.000)	-0.000** (0.000)
Tone CFO	0.166*** (0.025)	0.177*** (0.026)
Future focus CFO	0.013 (0.036)	0.017 (0.038)
Uncertainty CFO	-0.004 (0.045)	-0.010 (0.048)
Length CEO	-0.000*** (0.000)	-0.000*** (0.000)
Tone CEO	0.284*** (0.027)	0.299*** (0.028)
Future focus CEO	0.002 (0.038)	0.003 (0.039)
Uncertainty CEO	-0.139* (0.082)	-0.146* (0.085)
Constant	0.006 (0.004)	0.007* (0.004)
Observations	24,356	24,356
R ²	0.013	0.013
Adjusted R ²	0.012	0.012

Note: *p<0.1; **p<0.05; ***p<0.01

Robustness tests

To validate our results, we conduct a number of tests. First, we applied other event windows to check the duration of the effect. Table 7 shows the results for selected

different event windows $(0||1)$, $(0||2)$ and $(-3||3)$ (Pan et al., 2018).¹¹ Our results hold true for event windows up to 2 days after the conference call (CAR $(0||2)$). Hence, the impact is, as expected, only a short-term effect. Second, we used the Fama & French factors (5-factor model plus momentum) instead of the market model to estimate the CAR applying the same event windows (see model (2) (CAR $(-1||1)_{\text{FF}}$)). Thus, we obtain comparable results. Third, we regress on a different dependent variable in Table 8. Using buy-and-hold-abnormal-returns (BHAR) and getting similar results, further supports our preceding analysis (e.g. Bochkay et al., 2019).

¹¹ In Appendix C Table C1 additionally contains RE models for the same event windows providing similar results.

Table 7

Robustness tests - alternative estimation and event windows (OLS)

<i>Dependent variable:</i>	CAR (0 1)	CAR (0 2)	CAR (-1 1) _{ff}	CAR (-3 3)
<i>Model (OLS):</i>	(1)	(2)	(3)	(4)
CFO	-0.001 (0.003)	-0.001 (0.003)	-0.001 (0.003)	0.0001 (0.004)
Prop_financial	0.006*** (0.001)	0.006*** (0.002)	0.006*** (0.001)	0.007*** (0.002)
Return on assets	0.011*** (0.002)	0.012*** (0.003)	0.003 (0.002)	0.051*** (0.006)
Earnings per share	0.001*** (0.0002)	0.001*** (0.0002)	0.001*** (0.0002)	0.0002 (0.0003)
Market value	-0.000 (0.000)	-0.000* (0.000)	-0.000* (0.000)	-0.000 (0.000)
Firm size	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Length	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)
Tone	0.294*** (0.016)	0.295*** (0.017)	0.299*** (0.016)	0.292*** (0.019)
Future focus	0.007 (0.025)	-0.006 (0.026)	0.022 (0.025)	-0.011 (0.030)
Uncertainty	-0.049 (0.037)	-0.037 (0.040)	-0.047 (0.038)	-0.039 (0.045)
CFO x Prop_financial	0.008** (0.003)	0.007** (0.004)	0.007** (0.003)	0.005 (0.004)
Constant	0.003** (0.001)	0.002 (0.001)	0.005*** (0.001)	0.001 (0.002)
Observations	53,673	53,673	53,669	53,651
R ²	0.009	0.008	0.009	0.008
Adjusted R ²	0.009	0.008	0.008	0.008

Note:

*p<0.1; **p<0.05; ***p<0.01

Table 8
Robustness test - alternative dependent variable

<i>Dependent variable:</i>	BHAR	
	<i>OLS</i>	<i>RE</i>
<i>Model:</i>	(1)	(2)
CFO	-0.003 (0.003)	-0.002 (0.003)
Prop_financial	0.008*** (0.001)	0.008*** (0.002)
Return on assets	0.008*** (0.002)	0.008*** (0.002)
Earnings per share	0.001*** (0.0002)	0.001*** (0.0002)
Market value	-0.000 (0.000)	-0.000* (0.000)
Firm size	-0.000 (0.000)	-0.000 (0.000)
Length	-0.000*** (0.000)	-0.000*** (0.000)
Tone	0.306*** (0.017)	0.327*** (0.017)
Future focus	0.019 (0.025)	0.020 (0.026)
Uncertainty	-0.047 (0.038)	-0.055 (0.041)
CFO x Prop_financial	0.009*** (0.003)	0.009** (0.004)
Constant	0.002 (0.001)	0.002 (0.001)
Observations	53,669	52,950
R ²	0.009	0.009
Adjusted R ²	0.009	0.009
<i>Note:</i>	*p<0.1; **p<0.05; ***p<0.01	

To ensure the robustness of the results regarding the interplay of CFO and CEO during conference call presentation, we applied various thresholds coding the categorical variable. We obtain similar results as well as confirmation that a mixture of addressed topic (*financial* and *strategic*) by CEO or/and CFO is less favourable in terms of market response than the 'classical role distribution' or a dominantly *financial* presentation (see Appendix C2).

Supplemental Analysis

To further investigate the relationship of discussed topics, the interplay of CFO and CEO as well as the impact on CAR, we perform some additional analysis. We examine the association of addressed topic by manager's role and conference call presentation's Tone. In line with prior literature, our main findings present a highly significant, positive effect of Tone on market response (CAR). Table 9 shows that a presentation, mainly focusing on the *financial* topic and held by the CFO, amplifies the highly significant, negative effect on Tone. Vice versa, the significant positive impact of a more intense discussion of the *strategic* topic on conference call presentation's Tone is more positive, if it is led by the CEO. Hence, these effects somehow overcompensate the overall positive effect of Tone on CAR (see Table 4). These additional findings confirm our results and support the assumption of the importance regarding short-term market reaction to which proportion a conference call presentation is based on the *financial* and the *strategic* topic and if it is addressed by the CFO or the CEO.

Similar results are shown in Table 10. When examining the topic-related interplay of CFO and CEO during a conference call presentation, the overall Tone¹² is significantly, positively affected if the CFO thematize predominantly *strategic* issues while the CEO talks primarily about the *financial* topic. All remaining constellations of thematic content and manager's role do not impact the overall Tone significantly different compared to a *strategic* dominated presentation. This may indicate that there is a tendency to sugarcoat current results and events when roles are distributed in this way. The effect on overall Tone is not overcompensated, but at least still outweighed by the main effect on CAR. Given our main findings this additional analysis supports our hypothesis that because of the associated knowledge of manager's role, it is beneficial if the CFO mainly addresses the *financial* topic whereas the CEO specifies *strategic* aspects. Market reaction also seems to be more positive if CFO and CEO dominantly discuss the *financial* topic compared to both predominantly discussing *strategic* topics.

¹² The dependent variable *Tone_com* measures the overall Tone of the conference call presentation and is calculated as the sum of Tone CEO and Tone CFO.

Table 9
Regression Results - Tone

<i>Dependent variable:</i> <i>Model (RE):</i>	<i>Tone</i>		
	(1)	(2)	(3)
CFO	-0.014*** (0.001)	-0.014*** (0.001)	-0.014*** (0.001)
Prop_financial	-0.026*** (0.001)	-0.027*** (0.001)	-0.025*** (0.001)
Return on assets	0.003*** (0.001)	0.003*** (0.001)	0.003*** (0.001)
Earnings per share	0.0003*** (0.00005)	0.0003*** (0.00005)	0.0002*** (0.00004)
Market value	0.000*** (0.000)	0.000*** (0.000)	0.000 (0.000)
Firm size	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)
Length	-0.000*** (0.000)	-0.000*** (0.000)	-0.000 (0.000)
Future focus	-0.018*** (0.006)	-0.018*** (0.006)	-0.012* (0.006)
Uncertainty	-0.313*** (0.010)	-0.312*** (0.010)	-0.294*** (0.010)
CFO x Prop_financial	-0.004*** (0.001)	-0.004*** (0.001)	-0.005*** (0.001)
Industry dummy	No	Yes	Yes
Year dummy	No	No	Yes
Constant	0.015*** (0.001)	0.016*** (0.004)	0.014*** (0.004)
Observations	52,968	52,968	52,968
R ²	0.120	0.127	0.139
Adjusted R ²	0.120	0.127	0.138

Note: *p<0.1; **p<0.05; ***p<0.01

In a nutshell, we interpret the evidence from the conducted additional tests as proof of the relevance of our findings. If the CFO discusses the *financial* topic, it results in a more negative Tone in general. Tone impacts CAR in a positive manner. Hence, this negative effect of a CFO addressing the *financial* topic more intensively during a conference call presentation is more than compensated regarding the overall effect on CAR. The analysis of the topic-related interplay of CFO and CEO affecting overall Tone reveals a similar opposing effect further supporting our assumptions.

Table 10
Interdependencies - Overall Tone

<i>Dependent variable:</i>	<i>Tone_com</i>		
<i>Model (RE):</i>	(1)	(2)	(3)
CFO_strat_CEO_fin	0.021*** (0.005)	0.021*** (0.005)	0.018*** (0.005)
CFO_fin_CEO_strat	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)
CFO_fin_CEO_fin	-0.00002 (0.002)	-0.0001 (0.002)	-0.0002 (0.002)
Prop_financial CFO	-0.017*** (0.002)	-0.018*** (0.002)	-0.018*** (0.002)
Prop_financial CEO	-0.023*** (0.001)	-0.025*** (0.002)	-0.020*** (0.002)
Return on assets	0.006*** (0.001)	0.005*** (0.001)	0.005*** (0.001)
Earnings per share	0.001*** (0.0001)	0.001*** (0.0001)	0.0005*** (0.0001)
Market value	0.000*** (0.000)	0.000*** (0.000)	0.000 (0.000)
Firm size	0.000*** (0.000)	0.000** (0.000)	0.000** (0.000)
Length CFO	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)
Future focus CFO	0.063*** (0.015)	0.061*** (0.015)	0.065*** (0.014)
Uncertainty CFO	-0.239*** (0.020)	-0.243*** (0.020)	-0.223*** (0.020)
Length CEO	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)
Future focus CEO	-0.093*** (0.014)	-0.093*** (0.014)	-0.074*** (0.014)
Uncertainty CEO	-0.830*** (0.031)	-0.823*** (0.031)	-0.758*** (0.031)
Industry dummy	No	Yes	Yes
Year dummy	No	No	Yes
Constant	0.007*** (0.002)	0.007 (0.009)	0.001 (0.009)
Observations	24,204	24,204	24,204
R ²	0.097	0.103	0.124
Adjusted R ²	0.096	0.102	0.122

Note: *p<0.1; **p<0.05; ***p<0.01

Conclusion

In this study we examine the short-term market effects of the design of quarterly earnings conference call presentations. We investigate the interplay between managers' role (CFO or CEO) and predominantly addressed topic during conference call presentations and the associated short-term market response. For this purpose, we identify the underlying topics by applying LDA, an unsupervised machine learning approach. Using the two main latent topics identified: *financial* and *strategic*, we classify each presentation according to its topic proportions. Based on that, we analyze the short-term market reaction measured by CAR.

Our regression results suggest that more intensive discussion of the *strategic* topic during conference call presentations is more beneficial if done by the CEO rather than the firm's CFO. Vice versa, it seems to be perceived more positive by the market if the *financial* topic is addressed by the CFO. Given the topic-related managers' interaction, the effect of a CFO mainly addressing the *financial* topic whereas the CEO specifies *strategic* aspects is advantageous. Market reaction also seems to be more positive if CFO and CEO dominantly discuss the *financial* topic compared to both dominantly discussing the *strategic* topic. When placed in light of conference calls major objective to further explain quarterly earnings, these findings are not surprising. To much focus on strategic issues might be perceived as obfuscation tactic, comparable to the use of high linguistic complexity in disclosure (Bushee et al., 2018). Our supplemental analysis supports our findings by ruling out that the effect on CAR could be driven by conference call presentations' Tone. The topic-related effect of managers interplay on Tone are even predominantly opposing. A more positive Tone as well as CFO addressing the *financial* topic more intensively during conference call presentation impacts CAR in a positive manner. But the Tone itself is affected negatively by CFOs communicating more extensively about the *financial* topic.

The practical implications of our results should be of particular interests for firms investor relations and communication teams. A clear role distribution in line with our findings represents an easy-to-implement lever to optimize short-term market reaction.

Our results are related to prior literature providing evidence that location of relative-knowledge is revealed in conference calls (Li et al., 2014). Analysts and investors may assume or at least subconsciously expect that the role-specific knowledge of the CFO is higher with regard to *financial* and that of the CEO to *strategic* issues and value a respective role distribution during conference calls. We add to the conference call literature by providing further insights focusing on their thematic content. Our findings support Firk et al. (2020) suggesting a balanced information composition, not exclusively financial, of conference calls. We extend these findings by emphasizing the importance of the role of the manager who provides specific thematic information. Similarly to Huang et al. (2018), who are comparing the thematic content of conference calls to analyst reports, we apply LDA and thus foster the adoption of NLP methods in the conference call and thus in finance and accounting literature in general.

Overall, our results point to several interesting areas for future research, which can help to overcome the limitations of this study. Our current analysis is generally limited to the role of CFO and CEO. We do not consider manager-specific attributes. Future research may do so and include further possible influencing factors on managers' communication, e.g., turnover, tenure (Bochkay et al., 2019), education and work experience. Furthermore, it can be insightful to investigate even more granular topics, e.g., to analyze industry-specific thematic content of conference call presentations. Additionally, it may provide further interesting insights including the Q&A sections or analyze these separately as well, as we merely focused on the presentation part.

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Appendices

Appendix A

Data Sources and Variable Definitions

Table A1 presents all variables, their calculations and databases, we retrieved them from.

Table A1
Data Sources and Variable Definitions

Variable	Description/ Calculation	Data source
<i>Dependent variable</i>		
Cumulative abnormal returns (CAR)	CAR($-1 1$) -1 and $+1$ day around earnings conference calls, winsorized at 5th and 95th percentiles.	Eventus in Wharton Research Data Service (WRDS)
<i>Independent variables</i>		
Prop_financial	Proportion to which the conference call presentation discusses the <i>financial</i> topic. It varies between 0 and 1 (and 1 - Prop_financial consequently results in the proportion the <i>strategic</i> topic is addressed)	Conference call transcripts from Thomson StreetEvents
CFO	CFO is a dummy variable, coded 1 if the presentation part is held by the CFO and 0 if the presentation part is held by the CEO)	as above
<i>Control variables</i>		
Return on assets	Net income divided by total assets	Center for Research in Security Prices (CRSP)
Earnings per share	Net income (Loss) divided by the net number of all common shares outstanding at year-end	as above
Market value	Price closing daily multiplied by common shares outstanding	as above
Firm size	Net sales	as above
Length	number of words of conference call presentation	conference call transcript
Tone	The ratio of the difference of the number of positive and negative words to Length	as above, based on wordlists of Loughran and McDonald (2011)
Future focus	The ratio of the difference of the number of future and past words to Length	as above, based on wordlists of (Pennebaker et al., 2001)
Uncertainty	The ratio of the count of uncertainty-related words to Length	wordlist of Loughran and McDonald (2011)

Appendix B

Examples of primarily *financial* and *strategic* presentations

Appendix B presents examples of conference call presentation extracts to illustrate the transcript classification according to the latent topics. B.0.1. presents an extract of the conference call presentation of Lexicon Genetics Inc. held by Arthur Sands (Chief Executive Officer) on 10-30-2002 and B.0.2. of Sinclair Broadcast Group, Inc. hosted by David Smith (President and CEO) on 08-01-2002.

Presentation extract with high emphasis on the 'financial' topic

(Prop_financial = 0.99). ‘Thanks, Lucy. Good evening, everybody. On a monthly basis second quarter times sales including political were down 2.2 in April, up 1.1 percent in May, and up 4.4 percent in June. Local was up 5.3 percent, or up 4.6 percent excluding political, while national was down 1.8 percent or 3.4 percent excluding political. Our local revenue mix increased to 58.7 percent versus 56.7 percent from last year. Categories that were up in the quarter were services, which was up 12 percent, and auto, which was up 6.5 percent. Medical, which was up 11 percent, beer and wine was up 77 percent. Other categories included fast food, down 16 percent and retail, down 8 percent. Political was 2.3 million versus 600,000 in the second quarter last year. Our Fox and ABC stations were better performers. Our Fox affiliates were up 5.1 percent and our CBS stations were up 12.9 percent. NBC and ABC groups were up 1.3 percent each. WB stations were down 1.3 percent and UPN was down 4.5 percent, not surprising to us. [...]’

Presentation extract with high focus on the 'strategic' topic

(Prop_financial = 0.01). ‘Thank you, Phil, and good afternoon, everyone. On behalf of Lexicon Genetics I am very pleased with our strong performance through the first nine months of fiscal year 2002. I'd like to start the call by reviewing the key events of the third quarter, which demonstrate momentum in our drug discovery programs and business development strategy. We announced the discovery of a new NV validated drug target in the quarter. LG 653 is the new target for the development of potential treatment for obesity. The target was uncovered through our industrial gene

knock out program which in which mites lacking specific genes are associated with desired medical profiles. In order to advance any target into the Lexicon's discovery program the target must meet three criteria. [...]'

Appendix C

Further Robustness Checks

Table C1

Robustness tests - alternative estimation and event windows (RE)

<i>Dependent variable:</i> <i>Model (RE):</i>	CAR (0 1) (1)	CAR (0 2) (2)	CAR (-1 1) _{ff} (3)	CAR (-3 3) (4)
CFO	-0.001 (0.003)	-0.001 (0.003)	-0.0005 (0.003)	0.0002 (0.004)
Prop_financial	0.006*** (0.002)	0.006*** (0.002)	0.007*** (0.002)	0.007*** (0.002)
Return on assets	0.010*** (0.002)	0.010*** (0.002)	0.002 (0.002)	0.051*** (0.006)
Earnings per share	0.001*** (0.0002)	0.001*** (0.0002)	0.001*** (0.0002)	0.0002 (0.0003)
Market value	-0.000 (0.000)	-0.000 (0.000)	-0.000** (0.000)	-0.000* (0.000)
Firm size	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Length	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)
Tone	0.317*** (0.017)	0.317*** (0.017)	0.322*** (0.017)	0.301*** (0.020)
Future focus	0.011 (0.026)	0.011 (0.026)	0.024 (0.026)	-0.010 (0.030)
Uncertainty	-0.059 (0.039)	-0.059 (0.039)	-0.057 (0.040)	-0.037 (0.046)
CFO x Prop_financial	0.009** (0.004)	0.009** (0.004)	0.008** (0.004)	0.006 (0.004)
Constant	0.003** (0.001)	0.003** (0.001)	0.005*** (0.001)	0.001 (0.002)
Observations	52,954	52,954	52,950	52,932
R ²	0.009	0.009	0.009	0.008
Adjusted R ²	0.009	0.009	0.008	0.008

Note:

*p<0.1; **p<0.05; ***p<0.01

Robustness tests - alternative estimation and event windows (RE).

Effects of CEOs' and CEOs' topic-related interplay - different thresholds for categorical variable. Categorical variables are calculated as described in Chapter 4.3. (see Table 5) but with another threshold. Model (1) uses a threshold of 0.75 while model (2) applies a threshold of 0.8. The reference category in

this case is if CEO and/ or CEO are addressing a mixture of both topics (proportions <0.75 (1) and <0.8 (2)).

Table C2

Regression Results - Combined - Different Thresholds

<i>Dependent variable:</i>	<i>CAR</i>	
<i>Model: OLS</i>	(1)	(2)
CFO_strat_CEO_strat	0.002 (0.008)	-0.001 (0.009)
CFO_strat_CEO_fin	-0.009 (0.043)	-0.057 (0.075)
CFO_fin_CEO_strat	0.003* (0.001)	0.004** (0.002)
CFO_fin_CEO_fin	0.003** (0.001)	0.004*** (0.001)
Return on assets	0.008** (0.003)	0.008** (0.003)
Earnings per share	0.001*** (0.0003)	0.001*** (0.0003)
Market value	-0.000* (0.000)	-0.000* (0.000)
Firm size	-0.000 (0.000)	-0.000 (0.000)
Length CFO	-0.000** (0.000)	-0.000** (0.000)
Tone CFO	0.192*** (0.026)	0.193*** (0.026)
Future focus CFO	0.006 (0.038)	0.008 (0.038)
Uncertainty CFO	0.005 (0.047)	0.008 (0.047)
Length CEO	-0.000*** (0.000)	-0.000*** (0.000)
Tone CEO	0.279*** (0.028)	0.281*** (0.028)
Future focus CEO	-0.013 (0.039)	-0.011 (0.039)
Uncertainty CEO	-0.128 (0.083)	-0.128 (0.083)
Constant	0.013*** (0.003)	0.013*** (0.003)
Observations	24,195	24,195
R ²	0.012	0.013
Adjusted R ²	0.012	0.012

Note:

*p<0.1; **p<0.05; ***p<0.01