

# The Downside of CFO Function-Based Language Incongruity

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## THE DOWNSIDE OF CFO FUNCTION-BASED LANGUAGE INCONGRUITY

### ABSTRACT

The prior literature on role congruity theory has revolved around demographic-based expectations, emphasizing role incongruity derived from a mismatch between prescriptive expectations of distinct roles. In this paper, we depart from this traditional focus on between-role incongruity and explore an alternative source of role incongruity by examining how language can trigger the within-role incongruity of function-based expectations. Through an analysis of conference call transcripts and contracts for 7,649 deals during 2003–2018, we show that the incongruity of function-based expectations manifested through the language of the CFO increases banks' perceived hazards, leading them to employ more debt contract covenants. In addition, by investigating the moderating effects of corresponding CEO language and media sentiment, we show how the social context and sentiment toward the firm weaken this incongruity effect. We discuss the theoretical implications of our study for future research on the sources of role incongruity and the antecedents of contract design.

**Keywords:** Role congruity theory, contract design, top executives, executive communication

Corporate executives face a set of expectations prescribing behavior that is considered appropriate for their roles. Scholars have long suggested that these role expectations might influence how people perceive and evaluate the job fitness of the executives. In particular, role congruity theorists suggest that prejudice arises when incongruity occurs between observers' expectations of distinct roles and their perception of the target (Eagly & Karau, 2002; Paustian-Underdahl, Walker, & Woehr, 2014). In other words, executives are likely to be viewed with skepticism and evaluated negatively when their perceived or observed qualities do not comply with the expectations for the role. Most existing work focuses on the perceived role incongruity through a lens of gender bias—that is, demography-based expectations—and how it affects presence in a particular position (Thébaud, 2015; Yang & Aldrich, 2014) and performance (Parker,

Mui, & Titus, 2020; Yang & Triana, 2019). For example, since leadership roles are traditionally culturally expected to be masculine (Parker et al., 2020), female leaders often encounter more disapproval than male leaders when occupying leadership positions (Eagly & Karau, 2002).

Although understanding the incongruity *between* roles (e.g., gender role vs. leader role) is important, it is also crucial to examine whether an individual meets the expectations of a particular functional role (e.g., CFO) and how the incongruity *within* that role may cause an incongruity effect that influences perceived hazards in relationships. In this study, we shift our attention to an underexplored source of role incongruity by examining how language can be the trigger of incongruity, specifically focusing on function-based expectations. We analyze the relevant observers' expectations of a professional role (Jensen, Kim & Kim, 2012) and compare them with the linguistic pattern of the target to suggest that the inconsistency between function-based expectations and the target's linguistic pattern can be an important source of the role incongruity effect that ultimately increases perceived exchange hazards. We also study how additional information mitigates this incongruity effect (and thereby the perceived exchange hazards). We specifically suggest that observers interpret the incongruity differently depending on the social context and sentiment toward the target. If the observers understand that incongruity with their expectations is consistent with the actions of the target's social context (e.g., actions of his/her social milieu), the incongruity becomes less consequential. Furthermore, if the sentiment toward the target is positive, the observers interpret the incongruity less negatively, reducing the perceived hazards.

In this study, considering that firms rely on governance mechanisms to manage exchange hazards in their relationships with other organizations (Cao & Lumineau, 2015; Reuer, Ariño, Poppo, & Zenger, 2016), we are interested in how the role incongruity effect influences the

contractual governance used to address perceived hazards. We specifically address the following two research questions: (1) *How does role incongruent language influence the observer's perceived hazard?* and (2) *How is such a relationship moderated by factors that influence the interpretation of incongruity?* To test our theoretical model, we collected CFOs' public use of language (using conference call transcripts) and analyzed the consequences of the linguistic attributes that are incongruent with the CFO's role expectations in debt contracts.

Debt contracts provide a suitable empirical context for testing our theory. First, it is well established how bankers utilize covenants to mitigate the potential hazards in debt contracts (Nikolaev, 2010). To protect itself from defaulting borrowers, a bank outlines covenants in a debt contract to control its risk exposure, to monitor post-contract changes in credit quality, and to mitigate potential agency conflicts (Anderson & Sundaresan, 1996; Bharath, Sunder, & Sunder, 2008; Gârleanu & Zwiebel, 2008). Usually, debt covenants state boundaries or thresholds for certain financial ratios that the company cannot breach. For example, a contract with multiple covenants can mandate a firm to maintain maximum capital expenditures of \$50,000,000, maximum debt to EBITDA of 2.75, a maximum leverage ratio of 0.3, and minimum EBITDA of \$90,000,000. Second, debt contracts involve two transacting partners, clearly defining the observer (i.e., banks) and the target (i.e., borrowing firm's chief financial officer). In this setting, we focus on CFOs over CEOs because CFOs determine the firm's capital structure and negotiate with banks when entering debt contracts (Desai, 2008; Frank & Goyal, 2007). With everything else being equal, the level of perceived hazards derived from CFOs' function-based language incongruity may influence the design of debt contracts. As such, debt contracts provide an appropriate setting to study role incongruity and the micro-foundational aspects of governance choices.

Consistent with our arguments, our results suggest that a significant positive relationship

exists between CFO function-based language incongruity and the number of covenants in the debt contract. We also find that this positive relationship is weakened when the CFO shows consistency with the linguistic pattern of the CEO. Moreover, the positive relationship between CFO function-based language incongruity and the number of covenants is weaker for firms portrayed positively by the media.

Our study makes three main contributions. First, we extend role congruity theory by exploring a new mechanism that can trigger a role incongruity effect. Compared with previous studies that focus on the incongruity among expectations of the distinct roles held by an individual, we highlight that the role incongruity effect can arise from the mismatch between the individual's exhibited linguistic pattern and the expectations of that individual's particular functional role. Thus, we move away from the traditional *between*-roles analysis of incongruity and investigate *within*-role incongruity. Specifically, we depart from a unified perspective of the "leadership" role and investigate a particular functional role in the firm (i.e., the CFO in our study), allowing us to gain a more nuanced understanding of the function-based role expectations and the ultimate source of role incongruity. Because functional roles can be embodied in how individuals communicate, our study extends role congruity theory by suggesting that language operates as an underexplored trigger of role incongruity. By doing so, we also identify important mitigating factors to this incongruity effect.

Second, we contribute to the literature on interorganizational contracts by extending the recent attention to individuals as the primary actors of contracts. Whereas existing research focuses on the influence of individuals' occupations—engineer, lawyer, or manager—in contracting decisions (e.g., Argyres & Mayer, 2007; Bercovitz & Tyler, 2014), we highlight the role of an individual's linguistic attributes (and incongruity with their expectations) in shaping perceived

hazards, which consequently influences contract design. As such, we extend the broad literature addressing the antecedents of contract design (see Schepker, Oh, Martynov, & Poppo, 2014; Van der Valk, Lumineau, & Wang, 2020 for recent reviews).

Third, by drawing on role congruity theory, we extend the inquiry about the perceptual dimension of the link between exchange hazards and governance decisions. While research has given much attention to the relationships between exchange hazards and governance choices, “in reality, managers make governance decisions based on their perceptions of behavioral uncertainty” (Cuypers, Hennart, Silverman, & Ertug, 2021: 122). To improve our understanding of how exchange hazards are perceived and then incorporated into the decisions that managers make, we analyze how the CFO’s linguistic attributes are associated with perceived exchange hazards that affect debt contract design.

## **THEORETICAL BACKGROUND**

### **Role (In)Congruity from *Between* Roles to *Within* Role**

Role congruity theory is grounded in status characteristics theory and social role theory (Biddle, 1986; Carli & Eagly, 1999). According to role congruity theory, people believe that one must possess certain qualities to be effective in specific roles (Eagly, Wood, & Diekmann, 2000). It also argues that people generally believe that individuals with a particular set of characteristics tend to hold distinct roles (Diekmann & Schneider, 2010). Therefore, traditional research is focused on the incongruity of prescriptive expectations between demographic and functional roles (e.g., gender role vs. leader role). For instance, Eagly and Karau (2002) argue that the disparity between observers’ expectations related to gender roles and their expectations regarding certain qualities for a leader (e.g., functional role) leads to skepticism and negative evaluations for individuals who are not associated with the “correct” prescriptive expectations. In this case, women are more likely

to be characterized as compassionate, soft, modest, and friendly, whereas men tend to be considered more competitive, goal-oriented, and powerful. At the same time, effective leaders are known to possess qualities such as decisiveness, assertiveness, and confidence. Hence, the convergence of these prescriptive expectations with gender and leadership roles proves incongruent for women leaders, eliciting negative reactions and doubt from observers (Eagly & Karau, 2002).

The literature has further developed into investigating a comparison between demography-based expectations and the target's behavior in triggering the role incongruity effect (e.g., Ferguson, 2018; Schock, Gruber, Scherndl, & Ortner, 2019). These studies argue that the role incongruity effect occurs because the descriptive behavior is not congruent with demography-based expectations even though it is congruent with function-based expectations. For instance, agentic women experience backlash, by which they are devaluated for showing actions that are not congruent with their demography-based expectations (Heilman & Okimoto, 2007; Okimoto & Brescoll, 2010; Rudman & Glick, 1999, 2001; Rudman, Moss-Racusin, Phelan, & Nauts, 2012).

Overall, the prior literature on role congruity theory has emphasized expectations associated with demographic characteristics, focusing on the incongruity between roles played by the same individual. However, the effect of between-role incongruity focusing on demography-based expectations remains largely inconclusive. For example, both Francis, Hasan, and Wu (2013) and Xu, Li, and Chang (2016) investigate the effect of CFO gender on contract design. They nevertheless report completely opposite results. Whereas Francis et al. (2013) show that female CFOs are favored in terms of the loan contract design, Xu et al. (2016) show that female CFOs face discrimination. Similarly, unlike prior research in which female executives are disadvantaged because of the incongruity between gender and leadership role expectations and the incongruity

between gender role expectation and behavior, Hill, Upadhyay, and Beekun, (2015) and Jeong and Harrison (2017) show that females executives are compensated more and that firms led by female CEOs are likely to have more desirable long-term financial performance because they can offer unique resources relative to their male counterparts. Similarly, Wang, Markóczy, Sun, and Peng (2019) provide evidence that women whose behavior is congruent with the leadership role can narrow the compensation gap.

Contrasting empirical results might suggest that the prior literature has ignored an important source of role incongruity, overlooking the complexity of expectations of functional roles (Jensen et al., 2012; Vough, Cardador, Bednar, Dane, & Pratt, 2013). CEOs (e.g., Wang et al., 2019), CFOs (e.g., Francis et al., 2013; Xu, Shi, Qin, Zhang, & Tang, 2021), project managers (Parker et al., 2020), and political figures (e.g., Eagly & Karau, 2002) are all examples of “leaders” but have distinct responsibilities with different expectations attached to the nature of their job. By investigating the relevant observers’ expectations of a professional role (Jensen et al., 2012) and comparing them with the linguistic pattern of the target, we suggest that language can be an important source of within-role incongruity. Specifically, we argue that incongruity within function-based expectations and the descriptive observations manifested in the language of the target is an underexplored aspect of perceived hazards in interorganizational relationships that may influence governance choices. We examine this issue in the context of debt contract design.

### **Contract Design Research and Debt Contracts**

A contract is a fundamental mechanism for governing transactions between organizations. Devising safeguards to prevent information, motivation, and/or commitment problems (i.e., opportunism) is crucial to contracting (Parkhe, 1993; Williamson, 1985). The literature has devoted significant effort to analyzing the antecedents of contract design (Van der Valk et al., 2020).



Designing effective contracts comes at a cost. Such contracts take longer to draft and are costlier to monitor and enforce after formation. However, these costs might be deemed necessary for firms because they provide additional safeguards to reduce the possibility of performance losses from exchange hazards (Mesquita & Brush, 2008; Poppo & Zenger, 2002; Schilke & Lumineau, 2018). Prior research has shown that exchange hazards lead to contracts with more covenants or provisions (Lou & Otto, 2020; Malhotra & Lumineau, 2011; Reuer & Ariño, 2007).

Historically, corporate financing has been concerned with possible exchange hazards that most often stem from the agency cost of debt finance in the face of managerial moral hazards (Jensen & Meckling, 1976). The agency costs of debt are mainly related to the investment problem stemming from the agency conflict between the suppliers of financial resources and management and the agency conflict between debt holders and shareholders. The first type of conflict occurs when managers pursue personal wealth at the expense of the firm's capital suppliers, such as debt holders and shareholders (Fama & Jensen, 1983). The second type of conflict occurs when shareholders forego positive net-present-value investment opportunities that are in debt holders' interest (Myers, 1977) or when shareholders overinvest in risky projects that could provide them with greater benefits but increase the risk of borrower default. To address these conflicts of interest between a firm's debt holders and management or shareholders, debt contract covenants are considered to serve as the corresponding safeguard to protect debt holders against activities that transfer wealth from them to other agents (Chava & Roberts, 2008).

Financial and net worth covenants place restrictions on the borrowing firm, allocating control rights to the lenders (i.e., the banks) when violated (Drucker & Puri, 2008). Although covenants in debt contracts enable banks to address the agency costs of debt, it is difficult for a bank to decide how many covenants should be included in a contract without complete information

on the borrowing firm because covenants are costly to draft, monitor, and enforce (Chava & Roberts, 2006). If the contract has too few covenants, the lenders are held liable for future potential hazards. By comparison, if the contract has too many covenants, the lender bears additional *ex post* costs to reform and reconstruct it (Chava & Roberts, 2006). To explore the factors that influence the design of the debt contract, finance scholars have devoted much attention to identifying information asymmetry between lenders and borrowers (Gârleanu & Zwiebel, 2008). For instance, Hollander and Verriest (2016) focused on how the bank's ability to gather information varies with its distance from the borrower. They argued that geographic proximity can reduce the information asymmetry between partners and show that contracts have more covenants when two parties are further apart.

Research on debt contract design has also begun to study other factors that influence the design of debt contracts. In particular, this literature has studied corporate governance factors. Research has highlighted factors, such as board composition (Anderson, Mansi, & Reeb, 2004), auditor turnover (Alzoubi, 2018; Baylis, Burnap, Clatworthy, Gad, & Pong, 2017; Chen, He, Ma, & Stice, 2016), and top management team (TMT) characteristics (e.g., compensation, tenure, demographics; Barua, Davidson, Rama, & Thiruvadi, 2010; Begley & Feltham, 1999; Francis et al., 2013; Nasution & Jonnergård, 2017), that influence the integrity and quality of the financial accounting reports that banks are concerned with. This literature also investigates the influence of borrowing firm characteristics on contract design (e.g., Adam, Burg, Scheinert, & Streitz, 2014; Bae & Goyal, 2009; Demerjian, 2007; Myers, 1977).

Whereas existing studies have discussed diverse factors influencing contract design, the role of individuals—especially key executives such as CFOs—involved in financing transactions remains largely underexplored. Specifically, little is known about how the key executive affects

the perceived hazards in the transaction, which ultimately influence governance choices. In this study, we aim to investigate how the CFO's role-incongruent language can shape hazards perceived by the bank and thus influence the debt contract design.

### **The CFO as the Key Executive to Influence Debt Contract Design**

In the debt contract setting, CFOs play a particularly crucial role, even more so than the CEO because the CFO's role is to drive capital structure decisions and determine how the firm is financed (Desai, 2008; Frank & Goyal, 2007). Traditionally, most corporate finance researchers and practitioners have suggested a limited role for CFOs. However, recent research has shifted to consider a CFO as an active decision maker who creates value by undertaking actions for the firm related to the capital assets and liabilities of the firm (e.g., Agarwal, 2013; Zorn, 2004). Therefore, to better understand the capital structure, with a particular focus on the areas of debt contract design, understanding the CFO's role is critical (Graham & Harvey, 2001).

Furthermore, substantial research has shown that lenders pay more attention to CFOs than CEOs. For example, Francis et al. (2013) revealed that banks view the CFO, but not the CEO or other executives, as the primary executive who makes the firm's financing decisions and, in turn, affects its lending decisions. Moreover, Frank and Goyal (2007) have shown that the pay-for-performance sensitivity of leverage adjustment is greater for the CFO than for the CEO and that CFO fixed-effect models explain more of the variation in a firm's capital structure than CEO fixed-effect models. These findings are also consistent with studies that find a strong relationship between the CFO's characteristics and the leverage of his or her company (e.g., Chava & Purnanandam, 2010; Geiger & North, 2006; Huang & Kisgen, 2013; Jiang, Petroni, & Wang, 2010; Matsunaga & Yeung, 2007; Peni, 2008). Because CFOs play an important role in financing transactions and communicating with external constituents, their exhibited linguistic attributes are

expected to affect the perceived hazards in any transaction between a bank and a firm (Dzieliński, Wagner, & Zeckhauser, 2017; Zorn, 2004). Thus, understanding how the perception toward the CFO of the borrowing firm influences debt contract design is important. We investigate this issue by drawing on role congruity theory.

## HYPOTHESES DEVELOPMENT

### **CFO Role Expectations, CFO Function-based Language Incongruity, and Number of Covenants**

Research on role theory has pointed out numerous issues that might hinder clearly identifying the relevant expectations of a role, including a lack of consensus about the role expectations of various observers (Jensen et al., 2012; Sarbin & Allen, 1968). In most cases, different groups generate different role expectations (Biddle, 1986). Thus, it is crucial to clearly identify the relevant dimensions that the observers in our context (i.e., bankers) seek in a CFO. Furthermore, as observed by Dichter (1985: 75), “[role expectation] describes not individual traits or qualities, but the total impression an entity makes on the minds of others.” Thus, for the observer, it is not simply a single expectation of a dimension at play but how the overall expectation of various dimensions is evaluated as an ensemble. To derive the relevant language attributes that are incongruent with CFO role expectations, we performed an extensive literature review of the executive communication and expectations derived from CFO job descriptions and identified four observable language attributes—optimism, risk taking, promotion focus, and future focus—from which bankers potentially derive incongruity with the CFO’s role.<sup>1</sup>

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<sup>1</sup> First, we systematically searched for articles published in the EBSCO Management Collection using the term “CFO” in the title, abstract, and author keywords from 2000 to 2018. Since the search word “CFO” yielded too many results (18,054 articles), we specified our search words as “CFO job description”, “CFO expectation”, and “CFO language.” Each search yielded 21, 94 and 27 articles, respectively. Second, to identify the articles relevant to our study, we read the abstract and introduction of each of these 142 articles. Through this procedure, we found 15

First, the *exhibited optimism* of the CFO may engender incongruity because CFOs are generally known to be “naysayers,” “human calculators,” “cold analysts with no sense of humor,” or “the devil’s advocate” (Lipton & Finzi, 2016; Shi, Zhang, & Hoskisson, 2019). As observed by Chen and Shi (2019), “[The CFO is] basically a gatekeeper who brings the high-flying CEO down to earth.” Practitioner literature also often describes the CFO as an “impartial, cool-headed advisor” (Huyett & Koller, 2011). Therefore, when people observe CFOs talking optimistically, they tend to sense inappropriateness.

Second, the CFO’s *risk taking* is considered incongruent with his or her expected role because the main roles of the CFO include scrutinizing the firm, conducting in-depth due diligence, and analyzing the risk involved (Nolop, 2012). Compared with the CEOs, CFOs tend to be less risk tolerant (De Oliveira Kuhn, Komander, Graf-Vlachy, & König, 2019; Graham, Harvey, & Puri, 2013).

Third, it is unusual for a CFO to be *promotion-oriented* for new strategies or ideas because he or she is expected to be the corporate “watchdog” (Tulimieri & Banai, 2010). Many observers find CFOs talking about strategy and vision rather atypical (De Oliveira Kuhn et al., 2019). For instance, Chen, Meyer-Doyle, and Shi (2018) argue that a promotion-oriented CFO cannot provide diverse opinions and scrutiny of the relative merits of different strategies such that he or she cannot perform the right CFO role.

Fourth, people tend to sense incongruity when they observe *future-focused* CFOs. Practitioners and researchers have focused on the nature of CFOs’ expectations relating to those

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relevant articles that directly pertain to the expectations related to the function of the CFO. Third, after thoroughly reviewing these articles in detail, we identified four characteristics (i.e., optimism, risk taking, promotion focus, and future focus) that capture CFO incongruity in the extant literature. In addition to this systematic literature review, we conducted semi-structured interviews with corporate bankers active in the industry (each with more than 5 years of experience as corporate bankers). These interviews confirmed that the exhibited optimism, risk taking, promotion focus, and future focus of CFOs are incongruent with their expectations about the CFO’s role.

of a “historian” (Baxter & Chua, 2008; Granlund & Lukka, 1998). The CFO’s main task is to protect the firm’s financial health (Arthaud-Day, Certo, Dalton, & Dalton, 2006) or measure the footfall and not look over the horizon (Tulimieri & Banai, 2010). CFOs’ primary areas of responsibility are still rather traditional, such as financial accounting, treasury, and management accounting (Becker, Krämer, Staffel, & Ulrich, 2011; Bremer, 2010; Lüdtke, 2010), which are less related to future-focused tasks.

Therefore, role incongruity occurs when CFOs exhibit high optimism, risk taking, promotion focus, and future focus. When an individual with a functional role is linked with an overall impression that causes incongruence in the mind of the observer, regardless of the individual’s specific demographic characteristic, this perceived incongruity involves a hazard potential. Thus, a borrowing firm’s CFO who exhibits linguistic attributes that are incongruent with banks’ expectations to describe the firm’s past performance and prospects might trigger role incongruity and therefore make the bank perceive that the firm might misrepresent its capability, renege on promises previously agreed upon, or intentionally fail to fulfil its responsibilities. For example, the incongruence between the bank’s expectations toward the CFO and the observed linguistic attributes can lead the bank to question the firm’s performance and other operational aspects. In turn, the bank is likely to become suspicious of information disclosed by the firm and its credit risk, ultimately increasing the bank’s concern over exchange hazards related to financing the firm and motivating it to include more covenants in debt contracts. This incongruity is the source of a negative bias and is perceived as a source of hazard in the transaction. Hence, we propose the following hypothesis:

*Hypothesis 1. The level of CFO function-based language incongruity is positively related to the number of covenants in debt contracts.*

## **Moderating Effects of Corresponding CEO Language and Media Sentiment: Interpretation of CFO Language Incongruity**

People do not self-select into demographic categories, making demography-based expectations resistant to change (Hilton & Von Hippel, 1996). Therefore, when focused on demographic characteristics, the perception of incongruity can hardly be influenced because demographically based expectations such as gender or race roles are generally fixed and tend to not be open to interpretation. Thus, past studies on how to mitigate the role incongruity effect point to the observers being in the same category as the target (e.g., Rocha & Van Praag, 2020) or the salience of the demographic characteristics (e.g., Parker et al., 2020; Wang et al., 2019). However, Hogg, Terry, and White (1995) argue that human actions and interactions are shaped by interpretations of the situations, where interpretations are based on shared meanings communicated with others. Therefore, incongruity from function-based expectations can be modified by additional information or interactions with the observer (Stryker, 2007).

Communication research emphasizes an individual's perception of the social interaction in a particular situation (Burgoon, 1993). Expectations are an individual's enduring cognition about the anticipated behavior of others, which are products of social norms (Burgoon, 2015; Burgoon & Walther, 1990). Violating these expectations instigates a process of interpretation by the observer that, in turn, shapes how the violation act is evaluated (Burgoon & Hale, 1988; Burgoon & LaPoire, 1993). Two factors that can particularly influence the interpretation of the violation are the social context (e.g., consistency with social milieu) of the violator on the one hand and the sentiment toward the violator on the other hand (Burgoon, 2015). Depending on these two factors, the observer may interpret the same violation differently, such that the evaluation of the violation can be different. We build on this literature to investigate how a CEO's linguistic pattern

and the media sentiment moderate the role incongruity effect.

***Moderating effect of corresponding CEO language.*** The consistency of the action with the social milieu or among organizational members plays an important role in establishing the context (Ashforth, Rogers, Pratt, & Pradies, 2014; Schein, 1990). The negative evaluation is weakened when observers understand that the act that violated their expectations is considered the violator's social norm (Burgoon, 1993; Jussim, Coleman, & Lerch, 1987). For instance, people generally expect others to respect personal space when talking to one another. Therefore, if one violates this expectation by coming too close, people will negatively perceive the violator (i.e., main effect). However, if these people had additional information that closely approaching is socially accepted or even promoted in the violator's culture when talking to others, the negative evaluation from the expectation violation is weakened or even neutralized (Burgoon & Hale, 1988).

As such, even though the CFO's incongruent linguistic pattern might initially increase the observer's perceived hazard, if this linguistic pattern is consistent with the broader social context—the CEO exhibits similar patterns with the CFO—the concern raised by the incongruity is weakened. The observer interprets the incongruity in the context of the CFO's organization and understands that the function-based incongruent language is actually consistent with the broader organization. However, if the CFO's language is incongruent on its own, without any consistency with how the CEO speaks, the evaluation is more negative. Therefore, we hypothesize the following:

*Hypothesis 2: Corresponding CEO language weakens the relationship between CFO function-based language incongruity and the number of covenants in debt contracts.*

***Moderating effect of media sentiment positivity.*** The media record and influence public knowledge and opinions about firms (Carroll & McCombs, 2003; Deephouse, 2000; Shi, Connelly,



& Cirik, 2018). Firms can benefit from positive media coverage because it provides them with important legitimacy and reputational benefits (Deephouse, 2000; Pollock & Rindova, 2003). How the media cover the borrowing firm is important because sentiment toward violators influences the interpretation of the incongruity with the expectation and moderates the evaluation of such observations (Burgoon, 2015).

When the media positively portrays the borrowing firm, bankers' sentiment toward the firm is likely to be more positive, influencing the CFO's interpretation of incongruent language. If an entity that is highly regarded behaves incongruently with observers' expectations, observers tend not to perceive the behaviors as intentional and may interpret the violation as suitable and appropriate behavior, evaluating it less negatively (Burgoon, 1993). However, the same act committed by a negatively regarded entity may be interpreted as increasing the possibility of hazard. To illustrate, when banks observe a CFO that exhibits linguistic patterns incongruent with their expectations and the media portrays the borrowing firm negatively, the bank will be even more concerned. Therefore, positive media coverage might mitigate the perceived hazard caused by a CFO's incongruent language because the positive sentiment toward the firm is likely to weaken bankers' perceptions of the CFO's incongruent linguistic patterns. Hence, we propose the following hypothesis:

*Hypothesis 3: Media sentiment positivity weakens the relationship between CFO function-based language incongruity and the number of covenants in debt contracts.*

## **METHOD**

### **Empirical Setting and Data Description**

We obtained data on firms' debt contracts from the DealScan database. This empirical setting is well suited for testing our hypotheses for several reasons. First, debt contracts are some

of the most prevalent types of contracts and a predominant source of new external funding for U.S. corporations (Bharath et al., 2008). The flows of fund data from the Federal Reserve System show that during the past decade, there have been \$780 billion in net debt security issuances but only \$2 billion for equities. Among the debt issues, bank loans accounted for 54% of total debt (Graham, Li, & Qiu, 2008). Second, empirical evidence exists that banks are some of the important consumers of earnings conference calls (Heinrichs, Park, & Soltes, 2019). Banks collect substantial information regarding the borrowing firm's ability to repay its debt (Coyne & Stice, 2018). Therefore, the linguistic pattern of the borrowing firm's CFO is likely to be a key concern for the bank in making loans, which is central to the underlying logic of our arguments.

To examine the effect of CFO function-based language incongruity on contract design, we analyzed conference call transcripts of CFOs. We obtained conference call transcripts from Thomson Reuters' StreetEvents database. With more than 280,000 transcripts, StreetEvents offers the largest available archive of corporate disclosures. The types of transcripts included in this study encompass quarterly earnings conference calls, corporate conference calls, conference presentations, and analyst conference calls because these events are different forms of corporate disclosures.

Prior research has used letters to shareholders in annual reports to capture top managers' communication and cognition (Fanelli, Misangyi, & Tosi, 2009; Gamache, McNamara, Mannor, & Johnson, 2015; Kaplan, 2008; Loomis & Meyer, 2000). However, compared with letters to the shareholders, we believe that focusing on conference call transcripts is better suited for our study. First, letters to shareholders are of great value when the focus of attention is on CEOs (instead of CFOs) because the structure of these letters is often CEO-centric rather than CFO-centric (Duriiau, Reger, & Pfarrer, 2007; Eggers & Kaplan, 2009; Gamache et al., 2015). Focusing on earnings

conference calls enables us to directly capture the language of the CFO—the focus of our study. Second, letters to the shareholders as written communication filter out many cues that are otherwise available for the audience through verbal communication, such as conference calls (DesJardine & Shi, 2021; Shi & DesJardine, in press). In contrast, focusing on CFO speeches in conference calls allows us to capture a holistic view of CFOs' communicative style. Therefore, conference call transcripts represent an appropriate measure of CFOs' personalized communication styles and cognitive processes (Dzieliński et al., 2017; Larcker & Zakolukina, 2012).

Our sample construction started with all U.S. firms covered by the Thomson Reuters' StreetEvents database that are not financial instruments. We then merged our sample with the DealScan database to identify firms that have signed at least one debt contract. This search resulted in 6,105 firms with 13,171 deals between 2003 and 2018. Afterward, we merged our sample with financial data obtained from Compustat and the Center for Research in Security Prices (CRSP); executive data, including executive compensation and salary data collected from Capital IQ and Execucomp; and media data from the Dow Jones edition of the RavenPack database. In this process, we removed firms that were not covered by the Compustat or CRSP database and excluded CFOs whose identification information did not match the Capital IQ and Execucomp databases. As a result, we were able to retrieve a sample of 7,649 deals with 1,915 firms within our sample period.

## **Measures**

***Dependent variable.*** We followed the prior literature in measuring our dependent variable, *number of covenants* (Bradley & Roberts, 2015; Demerjian, 2017; Nikolaev, 2010; Prilmeier, 2017). Covenants require the borrower to maintain certain accounting measures of financial health. Should the predefined threshold be violated, lenders obtain the right to accelerate the debt or hold

the bargaining power to renegotiate. All else being equal, a contract with more covenants gives the lender more stringent control over the borrower. For example, a contract with a single cash flow covenant is considered less strict than a contract with both a cash flow covenant and a net worth covenant because the latter has a higher probability of violation (Chava & Roberts, 2006). Therefore, to construct the number of covenants, we counted the number of covenants used in a debt contract (Bradley & Roberts, 2015; Demerjian, 2017; Prilmeier, 2017). The measure was unweighted because previous contract research found that the relative importance of each clause was either unclear or did not provide any additional information for their estimations (Lui & Ngo, 2004; Lumineau & Malhotra, 2011; Malhotra & Lumineau, 2011; Reuer & Ariño, 2007). The exhaustive list of covenants and examples is presented in Appendix A.

***Independent variable.*** Our independent variable is *CFO function-based language incongruity*. To analyze CFOs' language use in conference calls, we employed the Linguistic Inquiry Word Count (LIWC), which is software for computerized text processing that has emerged as a useful tool in various management studies (e.g., Pennebaker, Booth, & Francis, 2007). LIWC includes an array of built-in dictionaries that analyze textual data in various dimensions. In our study, we use a positive emotion dictionary (e.g., happy, pretty, and good) to capture exhibited optimism, a risk focus dictionary to capture exhibited risk taking (e.g., trust, lose, and tentative), and a future focus dictionary (e.g., may, will, and soon) to capture exhibited future focus. In addition to the dictionaries provided in LIWC, we have incorporated regulatory focus dictionaries developed by Gamache et al. (2015) to capture the linguistic exhibition of promotion focus (e.g., achieve, hope, and grow).

To develop our independent variable measure, we first extracted CFO speeches from conference calls based on the title and name in the transcripts. Most transcripts consist of two

sections: the managerial discussion section (MDS) and the questions and answers section (Q&A). We used their speeches in the MDS because this section tends to be formal and prepared, which allows banks to interpret CFOs' language and corresponding roles at face value. In contrast, CFO speeches in the Q&A are often driven by analyst interrogations (Mayew & Venkatachalam, 2012), making it difficult to capture the linguistic pattern that a CFO is willing to exhibit. We first estimated exhibited optimism for each CFO speech in conference calls as the percentage of positive emotion words to the total number of words spoken (Das & Chen, 2007; Tetlock, 2007). We then calculated the weighted average of exhibited optimism across all CFO speeches in a year to measure CFO exhibited optimism. We then followed the same procedure used to measure CFO-exhibited risk taking, CFO-exhibited promotion focus, and CFO-exhibited future focus. In the next step, to capture the overall representation (Ditcher, 1985) of function-based incongruity portrayed by the CFO, we conducted principal component analysis (PCA) on these four language attributes. PCA is one of the most widely applied tools to summarize common patterns of variation among variables (Jolliffe & Cadima, 2017). Using PCA, we developed a unique index of CFO language attributes that are perceived to be incongruent with the CFO role. The results of the PCA are presented in Table 1 Panel A<sup>2</sup>. We recast the data along the first two principal component axes (Kaiser, 1991; Nunnally & Bernstein, 1994) to obtain the variable CFO function-based language incongruity. We present examples of high and low CFO function-based language incongruity in Appendix B.

***Moderating variables.*** Our first moderator is *corresponding CEO language*. External observers, such as bankers, are likely to evaluate whether the CFO's (incongruent) language is

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<sup>2</sup> Using the four language attributes of the CFO, we computed the eigenvectors to identify the principal components using the STATA code "pca". We used varimax rotation to account for the maximum variance of the data (the STATA code "rotate"). We used the STATA code "predict" to recast the data along the principal component axes.

accepted in the organization by comparing the same dimensions with the CEO. The observability of the linguistic pattern between the executives is important because a system of observable patterns is the core of the context (Watkins, 2013). Based on this logic, we measured the social context—that is, the consistency with social milieu—exhibited by capturing the corresponding CEO language. To construct the measure of corresponding CEO language, we first identified all CEOs of the firms that we included in our sample. We then extracted all speeches by each of these CEOs during the year in which the firm signed the debt contract with the bank. Finally, using PCA, we developed an index of CEO language based on four dimensions that we used to measure CFO function-based language incongruity (i.e., optimism, risk taking, promotion focus, and future focus) and applied this index to represent corresponding CEO language. The results of the PCA are provided in Table 1 Panel B.

**[Insert Table 1 around here]**

Our second moderator is *media sentiment positivity*. To measure media sentiment positivity, we collected news article information from the RavenPack database during our sample period and used the Dow Jones edition. This edition records and analyzes the news articles published on the Dow Jones Newswires, the Wall Street Journal, and Barron's, as well as MarketWatch (Twedt, 2016). Practitioners and scholars have regarded these media outlets as the most believable and trustworthy business news sources. To ensure the relevance of the news articles, we selected articles with the topic of business and a relevance score of 100, which means that the covered firms are central to the articles (Dai, Parwada, & Zhang, 2015; Dang, Moshirian, & Zhang, 2015). We then used the text-based sentiment calibrations offered by RavenPack to evaluate the sentiment of each news article. Specifically, we used the composite sentiment score (CSS), which captures the sentiment of a news article by examining the emotionally charged words and phrases in the article

and by estimating the short-term market effects. For example, the construction of the CSS score involves a series of data training, validating, and testing based on the intraday fluctuations in the portfolios of large-cap stocks. The value of the CSS ranges between 0 and 100, with a value higher than 50 indicating positive sentiment and lower than 50 denoting negative sentiment (Bushman, Williams, & Wittenberg-Moerman, 2017). We calculated the average CSS of all business news articles related to the firm for each year in our sample period to create the variable media sentiment positivity.

**Control variables.** We incorporated a host of control variables to capture the effects of other potential determinants of the number of covenants in debt contracts. First, we considered control variables that represent the characteristics of the loan. We controlled for the natural logarithm-transformed amount of the loan (*deal size*) because lenders are more precautionary as the loan size increases (Bae & Goyal, 2009; Ge, Kim, & Song, 2012; Reuer, Ariño, & Mellewig, 2006). We also accounted for the varying levels of loan maturity (*average maturity*) (measured as the duration of the deal in months). Empirical evidence has shown that a loan's short maturity serves to mitigate asymmetric information between the lender and the borrower (Ortiz-Molina & Penas, 2008). Moreover, the primary purpose of the loan, such as a leveraged buyout (LBO), acquisition line, capital expenditure, and others, can influence the bank's risk evaluation because the purpose is directly related to the riskiness of the firm's activities (Almeida, Campello, & Hackbarth, 2011). To account for this factor, we included *loan purpose* fixed effects. Finally, we also controlled for the loan price (Bradley & Roberts, 2015; Moir & Sudarsanam, 2007). *Price* was measured as the (logarithm transformed) interest spread that the borrower pays in basis points over the London Inter-bank Offered Rate (LIBOR) for each dollar drawn down.

Next, we included several variables that are specific to the borrower. To control for the

borrower's ability to repay debt, we included the variable *current ratio*. The current ratio is a liquidity ratio that measures a company's ability to pay short- and long-term obligations (Compustat: *at/lct*). We also controlled for the firm's profitability using *return on assets* (ROA) (Compustat: *ni/at*). To control for the availability of capital (Dushnitsky & Lenox, 2005) and to address the free cash flow hypotheses of agency costs (Jensen, 1986), we included a cash flow measure: *cash holding ratio* (Compustat: *che/at*). To account for the level of slack resources (Tong & Li, 2011), we controlled for the *size* of the borrowing firm, which is logarithm transformed to reduce skewness (Compustat: *ln(at)*). Because highly leveraged firms have greater incentives to increase the riskiness of assets (Bae & Goyal, 2009; Myers, 1977), we controlled for the degree of *leverage* (Compustat: *(dltt+dlc)/at*). Financially constrained firms are more prone to restate their financial statements (Bowen, Dutta, & Zhu, 2018), receive more covenants (Christensen & Nikolaev, 2012), and more likely to experience bankruptcy (Altman, 1968). To control for this factor, we included the variable *financially constrained*. Financially constrained equals 1 if the Altman's Z-score (Altman, 1968)<sup>3</sup> is less than 1.8 and 0 otherwise. Last, following Nini, Smith, and Sufi (2012), we controlled for the total number of *prior covenant violations* by the borrowing firm in the previous five years.

Moreover, we included a number of control variables related to the lending banks. Debt loans are often made through a syndication; thus, we controlled for the characteristics of the leading bank. Following previous studies, we considered the lead arranger—the major lender that drives and facilitates the completion of a deal—as the lender of interest (Hollander & Verriest, 2016). To classify lenders as lead arrangers, we rely on DealScan's lender role variable. If a loan

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<sup>3</sup> Altman's Z-score =  $1.2*[(act-lct)/at]+1.4*(re/at)+3.3*(ebit/at)+0.6*mkvalt+1*(sale/at)$ , where all variables in italics are Compustat data items. As an alternative measure, we also used other proxies for financial distress, including the KZ index (Kaplan & Zingales, 1997). The results are unchanged.



has multiple lead arrangers, we considered all of them as the lenders of interest following the approach suggested by Gatev and Strahan (2009). Using the lender link table provided by Schwert (2018), we first matched all lenders from DealScan with identifiers of their respective bank holding companies. After matching the lead bank with its identifier, we first controlled for the prior *number of transactions* between the borrower and the bank (Bharath, Dahiya, Saunders, & Srinivasan, 2009), which was measured as the number of prior transactions between the focal firm and the lead bank in the deal. Then, we used the Directions Application Programming Interface (API)—a service provided by the Google maps platform to calculate the distance between locations—to measure the distance between the borrower and the bank. We controlled for the logarithm-transformed *distance* because the bank’s ability to collect information is likely to vary with its distance to the borrower (Hauswald & Marquez, 2006; Hollander & Verriest, 2016). Finally, we created dummy variables for the bank’s identifiers to control for *lead bank* fixed effects to alleviate the concern that other unobservable bank characteristics can drive the debt contract design.

Furthermore, we controlled for a broad array of CFO- and governance-related factors. First, CFO demographic characteristics, as the most observable attributes, might influence lending banks’ estimation of CFOs’ role congruity (Kilduff, Angelmar & Mehra, 2000; Tsui, Egan, & O’Reilly, 1992; Wiersema & Bentel, 1992). Therefore, we controlled for CFO gender, race, and age. *CFO gender* takes the value of 1 for male CFO and 0 for female CFO. *CFO race* takes the value of 1 for white CFO and 0 for CFOs who are not identified as white. *CFO age* is measured by years since a CFO was born. We took into account three individual-level governance controls (Fields, Fraser, & Subrahmanyam, 2012; Vermeer, 2005): *CFO tenure*, *CFO salary*, and *CFO bonus*. CFO tenure was measured by the number of years an executive has served as the CFO of a firm. CFO salary and CFO bonus were from Capital IQ and Execucomp. We took the natural logarithm of

these variables to reduce their skewness.

Lending banks are concerned with characteristics related to the corporate governance of borrowing firms. For example, the board's independence might influence the integrity of the financial accounting reports (Anderson et al., 2004). For this reason, we controlled for *board independence*, which was measured as the ratio of the number of outside directors to the board size. We collected board information from Boardex. In addition, the auditing literature has shown that a relationship exists between audit quality and debt financing (Alzoubi, 2018; Baylis et al., 2017; Chen et al., 2016). Audit firm tenure adversely affects audit quality (e.g., Al-Thuneibat, Al Issa, & Baker, 2011; Dunn & Mayhew, 2004). To address this issue, we controlled for the number of times *auditor turnover* occurred based on data from Audit Analytics, which measures the number of times the auditor changed in a year.<sup>4</sup>

In addition, other linguistic factors in conference calls might affect the design of a debt contract. To address this concern, we controlled for linguistic dimensions that are orthogonal to the linguistic dimensions that are incongruent with the expected CFO role. Based on LIWC dictionaries, we measured *CFO (CEO) exhibited pessimism* as the number of negative emotion words (e.g., hate, worthless, and enemy) by a CFO (CEO) during a conference call, scaled by the total number of words (Das & Chen, 2007; Tetlock, 2007). In addition to pessimism, we follow the same procedure to calculate and control for *CFO (CEO) past focus*, *CFO (CEO) present focus*, and *CFO (CEO) prevention focus*. For CFO (CEO) temporal focuses, we relied on the dictionaries of temporal orientation focus in LIWC and separately controlled for the ratio of the CFO's (CEO's) use of past (e.g., ago, did, and talked) and present (e.g., today, is, and now) focus words to the total number of words spoken during a conference call. Using the regulatory focus dictionaries

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<sup>4</sup> Our results are robust to five- and three-year window periods.

developed by Gamache et al. (2015), we measure CFO (CEO) prevention focus as the percentage of prevention words (e.g., accuracy, avoid, and prevent) to the total number of words spoken during a conference call.

Finally, we included *year* fixed effects to account for time trend factors that might influence the main relationship. We also controlled for potential variations in language use across industries by including 4-digit *SIC* industry fixed effects.

### **Analysis**

Prior to the analysis, we made three adjustments to mitigate potential biases. First, we winsorized all continuous independent, moderating, and control variables at 1% and 99%. Second, we adjusted all variables related to monetary values for inflation by converting dollar values to 2018. Third, we standardized all continuous predictors and control variables. In addition, our dependent variable, number of covenants, is a count variable. Two possible methods for analyzing count dependent variables are negative binomial regression and Poisson regression. We used negative binomial regression because we observed overdispersion in our dependent variable ( $\mu=1.05$ ,  $\sigma=1.16$ ). In addition, because we have multiple observations for the same firm, we cluster standard errors by firms to mitigate the estimation bias arising from the potential residual correlations of the same firm (Petersen, 2009).

## **RESULTS**

Table 2 provides the descriptive statistics and correlations for all the variables used in the analysis. To address the potential collinearity concern, we calculated the variance inflation factor (VIF) after running a linear OLS regression model. The VIF has a maximum value of 4.27 and a mean value of 1.90, which is lower than the recommended threshold of 10 (Hair, Black, Babin, Anderson, & Tatham, 1995; O'Brien, 2007).

**[Insert Table 2 around here]**

We present the results of our primary analysis in Table 3. Model 1 tests the direct effect of CFO function-based language incongruity, which is the main explanatory variable of interest. Models 2 and 3 examine the effects of moderating variables that are expected to weaken the main effects, and Model 4 is the fully saturated model with all relevant variables.

Hypothesis 1 predicted that CFO function-based language incongruity is positively associated with the number of covenants in debt contracts. Consistent with this argument, in Model 1 of Table 3, the coefficient of CFO function-based language incongruity is positive and statistically significant ( $\beta=0.05$ ,  $p<0.01$ ), supporting Hypothesis 1. Given that the negative binomial regression is a nonlinear model, the marginal effects of our independent variable vary across different levels (Hilbe, 2011). In terms of economic magnitude, the number of debt covenants increases by 10.51% when CFO function-based language incongruity increases from its mean minus one standard deviation to its mean plus one standard deviation.

**[Insert Table 3 around here]**

Hypothesis 2 predicted that the positive relationship between CFO function-based language incongruity and the number of covenants in debt contracts is moderated by corresponding CEO language, meaning that a weaker effect occurs when CEOs show similar linguistic patterns in the observable dimensions compared with that of the CFO. As shown in Model 2 of Table 3, the interaction term—CFO function-based language incongruity  $\times$  corresponding CEO language—is negative and statistically significant ( $\beta=-0.02$ ,  $p<0.05$ ). We graphed the interaction effect in Figure 1. The slope of the graph is steepest for a low level of corresponding CEO language and flattest for a high level of corresponding CEO language. Thus, Hypothesis 2 is supported.

**[Insert Figure 1 around here]**

For Hypothesis 3, we posited that the media sentiment positivity negatively moderates the relationship in the first hypothesis such that the positive relationship between CFO function-based language incongruity and number of covenants in debt contracts is weaker when media sentiment positivity is high. We show the result in Model 3 of Table 3, where the interaction term—CFO function-based language incongruity  $\times$  media sentiment positivity—is negative and statistically significant ( $\beta=-0.03$ ,  $p<0.01$ ). The graph of this interaction effect is shown in Figure 2. The slope of the graph is steepest for a low level of media sentiment and flattest for a high level of media sentiment, thus supporting Hypothesis 3.

**[Insert Figure 2 around here]**

When interpreting the interaction effect in nonlinear models, existing research suggests that we should not rely solely on the significance and sign of the interaction term because interaction effects also depend on the coefficient of the interacted variables and the value of other variables (Hoetker, 2007; Wiersema & Bowen, 2009). Therefore, we investigate the interaction effects by examining the marginal effect of CFO function-based language incongruity when the moderators take on different values (i.e., low, medium, and high). We use mean-1 s.d., mean, and mean+1 s.d. to represent the low, medium, and high levels of moderating variables. We find that the marginal effect of CFO function-based language incongruity on the number of covenants is weaker when corresponding CEO language is high ( $\beta=0.02$ ,  $z=1.23$ ) than when it is low ( $\beta=0.07$ ,  $z=3.86$ ). The marginal effect of CFO function-based language incongruity can be found in Table 4 Panel A.

We also find that the marginal effect of CFO function-based language incongruity on the number of covenants is stronger when media sentiment positivity is low ( $\beta=0.08$ ,  $z=4.24$ ) than when it is high ( $\beta=0.01$ ,  $z=0.70$ ). These results are reported in Table 4 Panel B.

[Insert Table 4 around here]

Finally, Model 4 in Table 3 presents the fully saturated model, and the coefficient estimates for the interaction terms are consistent with the results reported in Models 1–3.

### **Robustness Check and Supplementary Analyses**

Our findings suggest that banks are likely to place more covenants in contracts with the borrowing firm when the CFO exhibits linguistic patterns incongruent with their expectations of a CFO. In this section, we conduct additional analyses to check for robustness, rule out alternative explanations, and provide additional insights into the relationship between CFO function-based language incongruity and the number of covenants.

***Potential curvilinear relationship.*** Our detailed analysis of prior studies indicates that the extant literature on role congruity theory does not suggest any nonlinear effect of incongruity (Diekmann & Hirnisey, 2007; Eagly & Karau, 2002; Parker et al., 2020). However, to address the issue of a potential nonlinear effect of CFO function-based language incongruity, we added the squared and cubed terms of CFO function-based language incongruity as a robustness check. If a nonlinear effect of CFO function-based language incongruity exists, either the quadratic or the cubic term should have been statistically significant. As observed in Table 5 Panel A, these coefficients are not significant. Furthermore, to partially address the issue of nonlinearity caused by the threshold (i.e., there exists a threshold above which incongruity is viewed negatively), we employ the 25%, 50%, and 75% thresholds and the mean level of CFO function-based language incongruity. We replaced the value of CFO function-based language incongruity as 0 when the value is lower than the threshold because the net evaluation of the incongruity lower than the threshold does not trigger the bank for perceived hazard. Other than the 25% threshold, the results remain robust and are provided in Table 5 Panel B.

[Insert Table 5 around here]

*Addressing potential endogeneity with instrumental variable estimation using a heteroscedasticity-based instrument (IVHI).* To apply the instrumental variables (IV) method, three conditions must be satisfied: (1) the instrument should be orthogonal to the error term; (2) the instrument must exhibit meaningful correlations with the endogenous variable; and (3) the instrument must be properly excluded from the model to ensure that its effect on the dependent variable is only indirect. Finding an appropriate instrument (i.e., meeting the three conditions simultaneously) is often problematic and the major obstacle when using the IV technique. To overcome this obstacle, Lewbel (2012) proposed another method for identifying structural parameters in regression models with endogenous or mis-measured regressors in the absence of traditional instruments. Lewbel (2012) posits that identification is achieved in this situation by having regressors that are uncorrelated with the product of heteroskedastic errors, which is a feature of statistical models in which error correlations are the result of unobserved common factors (Baum, Lewbel, Schaffer, & Talavera, 2013).

Following the process proposed by Lewbel (2012), generated instruments can be constructed from the auxiliary equations' residuals multiplied by each of the included exogenous variables in mean-centered form.<sup>5</sup> We ran instrumental variable regressions using heteroskedasticity-based instruments (IVHI regressions) with the STATA code "ivreg2h". The results from the IVHI methods are reported in Table 6. The dependent variable number of covenants and the coefficient estimate of CFO function-based language incongruity is positive and statistically significant ( $\beta=0.06$ ,  $p<0.001$ ). Compared with our main models, the statistical and

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<sup>5</sup>  $Z_j = (X_j - \bar{X}) \cdot \epsilon$ , where  $\epsilon$  is the vector of residuals from the first-stage regression of each endogenous regressor on all exogenous regressors, including a constant vector.

economic significance remained equivalent, providing further evidence that supports our main argument.

**[Insert Table 6 here]**

***Ruling out information asymmetry explanation.*** Prior studies have shown how information asymmetry between the bank and the borrowing firm impacts debt contract design (Bharath et al., 2009; Gârleanu & Zwiebel, 2008; Graham et al., 2013). If our current results are driven by information asymmetry between the banks and the borrowers, an increased level of information asymmetry between the borrowers and the banks should strengthen our main effect. We investigated the moderating effect of geographical distance between the borrower and the bank. Geographic proximity is known to possibly reduce the level of information asymmetry among the transacting partners (Hauswald & Marquez, 2006; Hollander & Verriest, 2016). Therefore, if the results were truly because of an increase in information asymmetry, a strengthening effect of distance should occur. However, the results shown in Table 7 Panel A indicate no significant interaction effect of distance. Thus, we fail to find evidence that supports the influence of information asymmetry on the number of covenants.

***Examining the role of auditor industry expertise.*** The choice of an auditor firm can influence the credibility of the firm. We expect that hiring an industry-specialist auditor increases the credibility of the firm because an industry-specialist auditor is likely to increase the firm's perceived auditing quality (Lim & Tan, 2008; Reichelt & Wang, 2009). Therefore, even though the CFO's language is incongruent with the expectation of the role, the perceived hazard caused by incongruity is expected to be weaker for firms that hired an industry-specialist auditor than those that hired a non-specialist auditor (Callahan, Peters, & Zhang, 2019).

Following the prior literature, we concentrate on market share sufficiency to measure



auditor industry expertise on either a national or city level (Reichelt & Wang, 2009).<sup>6</sup> The underlying logic of this definition is that auditor expertise increases when the auditor has a sufficiently large market share in a specific sector. Empirically, we consider an auditor as an industry specialist if it has a market share greater than 30% on a national level and 50% on a city level.

Three dummy variables account for whether the hired audit firm is a specialist (i.e., at the city level, national level, and both city and national levels). As expected, our results shown in Table 7 Panel B suggest that hiring a specialist auditor firm weakens the incongruity effect ( $\beta=-0.06$ ,  $p<0.05$  from Model 1).

*Examining the effect of prior covenant violations.* We speculated that the borrowing firm's record of covenant violations affects a banker's perceived exchange hazard due to a CFO's role incongruent language. As such, we investigated the moderating effect of the number of prior covenant violations by the borrowing firm. Banks will perceive higher potential exchange hazard from a CFO showing incongruity if the firm has a record of covenant violations compared to firms that do not. Therefore, we can expect that the past record of covenant violations strengthens the main effect. As our results in Table 7 Panel C show, prior covenant violations significantly and positively moderate the positive relationship between CFO function-based language incongruity and the number of covenants ( $\beta=0.03$ ,  $p<0.05$ ). This result is consistent with our conjecture that incongruity with function-based expectation leads to defensive outcomes.

**[Insert Table 7 around here]**

*Examining the direct effects of four linguistic attributes.* We conducted additional

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<sup>6</sup> We also define an auditor as a specialist by focusing on auditor dominance (Mayhew & Wilkins, 2003). That is, we consider an auditor firm as a dominant auditor (i.e., industry specialist) if the auditor occupies the largest market share in a two-digit SIC sector (on either city or national level) and its market share is at least 10% greater than the second largest industry leader. The results are robust to these definitions.

analyses focusing on the individual direct effects of each linguistic attribute that we used to measure our independent variable. As shown in Table 8, the CFO exhibited optimism and future focus is positively related to the number of covenants included in the contract. The coefficient for the CFO exhibited risk taking is not significant ( $\beta=-0.01$ , *n.s.*), implying that the CFO exhibited risk taking may not influence banks' perceptions of exchange hazards. On the one hand, CFOs exhibiting strong risk taking may be incongruent with their role expectations. On the other hand, banks may perceive that CFOs who exhibit strong risk taking may be attentive to risks in their decision making. This may explain this non-significant finding. In addition, the coefficient for the CFO exhibited promotion focus is unexpectedly negatively related to the number of covenants included in the contract ( $\beta=-0.03$ ,  $p<0.05$ ). We speculate that this result might be due to the empirical setting of our research. From our extensive literature review on CFOs and CFO expectations, while it is generally believed that CFOs should not exhibit promotion-focused characteristics (Chen et al., 2018; De Oliveira Kuhn et al., 2019), the expectation could be different for CFOs in our sample. In our empirical setting, all CFOs were using bank financing to initiate a project. In this sense, the CFOs in our sample can be perceived as having a strong promotion focus, because they were pursuing new projects that were expected to yield positive net present value. If a firm's CFO is behaving in a promotion-focused manner (i.e., pursuing a financial project) but speaking differently, the bank could interpret this mismatch negatively. We encourage future research to investigate how each characteristic might differ in distinct industries or contexts in detail.

**[Insert Table 8 around here]**

## **DISCUSSION**

Contract design has been rarely studied at the micro-foundational level. Drawing upon

role congruity theory, we argue and provide empirical evidence that the perceptions of individuals in the transacting counterparty can shape the perceived hazards that have a profound impact on contract design. We find that a CFO's linguistic patterns that are incongruent with the expectations of the CFO role are positively associated with the number of covenants in the debt contract. We also find that such an association is moderated by the consistency between a CEO's linguistic patterns and media sentiment, which influences the interpretation of the incongruity.

### **Theoretical Implications**

First and foremost, we contribute to role congruity theory by investigating important factors that have been neglected in the literature. We analyze the complex nature of expectations related to functional roles and study the within function-based incongruity to examine how role-related language can operate as an important source of role incongruity. Thus, we extend the literature on role congruity by highlighting an overlooked dimension of incongruity. In the same way that each CFO communicates distinctively, individuals may embody their professional functions in a more or less congruent manner with the expectations of their target audience. We specifically show how language can work as a central vector to convey incongruity with professional expectations. Furthermore, only limited research exists on how to mitigate role incongruity effect (see Parker et al., 2020 for an exception). Because demography-based expectations are associated with the characteristics with which people are born, these expectations are resistant to change, making it difficult to attenuate the incongruity effect. In contrast, shifting our attention to the within function-based expectation and the language used by the target enables us to investigate factors that could influence the interpretation of incongruity. Thus, our study points to the importance of contextual factors that might either attenuate or exacerbate the perception of incongruity. Specifically, our findings suggest that consistency with a CEO's

linguistic patterns and media sentiment positivity can weaken the CFO-role incongruity effect.

Furthermore, our study extends prior research on contract design (e.g., Schepker et al., 2014) by shifting the focus toward perceived hazards concerning the individuals involved in the transaction, providing a more nuanced understanding of the *ex ante* factors of contract design. Our analysis specifically complements the handful of studies that have started to explore the role of individuals in contracting (Argyres & Mayer, 2007; Bercovitz & Tyler, 2014). By incorporating role congruity theory into the contract literature, we suggest that the incongruity between the expectations of a particular executive role in the counterparty and the observed behavior of that executive increases the perceived exchange hazards, enhancing the perceived need for safeguards in the transaction and increasing the number of covenants. More broadly, our study extends the inquiry about the perceptual dimension of exchange hazards (Cuypers et al., 2021; Oliveira & Lumineau, 2019) by investigating an underexplored set of antecedents to contract design. Therefore, our analysis represents a starting point to further understand the microfoundations of contract design with a focus on the role of the perceived behaviors of transacting individuals in contract decisions. We invite future research to extend our study by examining the interplay of perceived individual behaviors in the counterparty and the contract drafter's attributes, such as the occupation role, in contract design.

### **Managerial Implications**

The results have important implications for the management of stakeholders' expectations and contractual relationships. First, our findings suggest that to determine the perceived credibility of the candidate to meet stakeholders' expectations, the corporate board should account for not only the candidate's characteristics described in the application package or observed during the interview process but also the stakeholder's expectations of the occupation role and their

perception toward the candidate. On the one hand, firms need to develop a good understanding of the traditional expectations of each role. On the other hand, they need to ensure that candidates fit with such expectations to avoid incongruity that might elicit suspicion from external stakeholders.

Second, our study suggests that convincing stakeholders that the firm is free from hazards because it simply has the “right” characteristics and shows the “correct” behavior is not enough to enhance the credibility of the firm when presenting externally. In particular, firms could lower the exchange hazards perceived by partners by prudently selecting executives who speak adequately in that position. Also crucial is managing strategic communication when executives present to external stakeholders. Firms should be careful of *who* represents the firm, *how* he or she speaks, *to what extent* the communication accords with the communication delivered by the other executive, and *what opinion and stance* the public media has about the firm.

From a prescriptive viewpoint, executives need to understand their roles and the expectations that stakeholders have of that role and use language congruent with their roles and role expectations to avoid the role incongruity that leads to increased perceived hazard by the partner. Prior studies have paid extensive attention to sell-side analysts and investors as important stakeholders (e.g., Fanelli et al., 2009; Pan, McNamara, Lee, Haleblan, & Devers, 2018), but our investigation shows that bankers are important stakeholders as well. Therefore, it is important to understand how these diverse groups of stakeholders might have different expectations vis-à-vis specific executive roles.

### **Limitations and Future Research**

This study has several limitations that provide opportunities for future research. First, although we provide empirical evidence that supports our arguments using detailed information on CFOs’ use of public language and attempt to control for heterogeneity across banks, we do not

directly measure whether banks have different expectation levels regarding CFOs or different tolerance levels for role incongruity. Therefore, surveys or field studies are useful for understanding the extent to which the expectations of CFOs may vary across banks. In a broader sense, this approach can also enhance our understanding of different tolerance levels (e.g., in terms of the pre-existing threshold) that banks have regarding the top management team. Future research can further investigate why the influence of the bank's expectations of executives varies among firms and how this variation influences strategic decisions.

Second, the conclusion drawn from the findings in our research setting might be limited in terms of its generalizability to other types of contractual designs. The findings of this study might reflect unique features of the banking industry and debt contracting activity. In theory, we suggest that banks hold their expectations of what a CFO's ideal character should be when they are lending to a firm. However, for other contexts, an ideal characteristic associated with a specific role might not exist. It is also possible that the expectations of other types of executive roles play a more important role in determining strategic decision making in other contexts. Thus, future research could examine whether role congruity theory of the executive is applicable in other settings.

Finally, although we propose an effect of the CFO's incongruent language on the number of covenants included in a contract, we cannot provide decisive performance implications. For example, given that CFOs who speak incongruently with a bank's expectations receive debt contracts with more covenants, it is unclear whether those financed projects perform better or worse than projects under the governance of debt contracts with fewer covenants. Investigating the conditions under which the expected value of the firm's loan projects translates into better performance conditioned on the number of covenants in the debt contract would be worthwhile.

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**Table 1**  
**Principal Component Analysis of CFO Function-based Language Incongruity and Corresponding CEO Language**

<b>Panel A. CFO function-based language incongruity</b>		
<b>Component</b>	<b>Eigenvalue</b>	<b>Proportion</b>
Component 1	1.32	0.33
Component 2	1.21	0.30
Component 3	0.83	0.21
Component 4	0.64	0.16
<b>Eigen vectors</b>	<b>Comp 1</b>	<b>Comp 2</b>
CFO exhibited optimism	0.44	0.55
CFO exhibited risk taking	-0.59	-0.15
CFO exhibited promotion focus	-0.17	0.77
CFO exhibited future focus	0.65	-0.30

<b>Panel B. Corresponding CEO language component</b>		
<b>component</b>	<b>Eigenvalue</b>	<b>Proportion</b>
Component 1	1.40	0.35
Component 2	0.99	0.25
Component 3	0.95	0.24
Component 4	0.65	0.16
<b>Eigenvectors</b>	<b>Comp 1</b>	
CEO exhibited optimism	0.60	
CEO exhibited risk taking	-0.11	
CEO exhibited promotion focus	0.68	
CEO exhibited future focus	-0.41	



**Table 2**  
**Descriptive Statistics and Correlation Matrix**

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1 Number of covenants	1.05	1.16	1.00														
2 CFO function-based language incongruity	0.00	1.15	<b>-0.09</b>	1.00													
3 Corresponding CEO language	0.00	1.19	0.00	<b>0.07</b>	1.00												
4 Media sentiment positivity	49.74	1.20	-0.01	<b>0.14</b>	<b>0.07</b>	1.00											
5 Number of transactions	1.41	2.20	<b>-0.06</b>	<b>0.12</b>	-0.02	<b>0.05</b>	1.00										
6 Board independence	0.70	0.13	<b>-0.03</b>	<b>0.21</b>	0.02	0.01	<b>0.09</b>	1.00									
7 Auditor turnover	0.03	0.19	<b>0.03</b>	<b>-0.04</b>	-0.02	-0.02	<b>-0.03</b>	<b>-0.02</b>	1.00								
8 CFO exhibited pessimism	0.01	0.00	<b>0.03</b>	<b>-0.35</b>	<b>0.05</b>	<b>-0.21</b>	<b>-0.08</b>	0.00	<b>0.03</b>	1.00							
9 CFO exhibited past focus	0.03	0.01	<b>0.06</b>	<b>-0.32</b>	-0.02	<b>-0.04</b>	<b>-0.08</b>	<b>-0.08</b>	0.01	<b>0.11</b>	1.00						
10 CFO exhibited present focus	0.06	0.02	<b>-0.05</b>	<b>0.55</b>	<b>-0.19</b>	<b>0.05</b>	<b>0.09</b>	<b>0.14</b>	<b>-0.03</b>	<b>-0.32</b>	<b>-0.16</b>	1.00					
11 CFO exhibited prevention focus	0.00	0.00	<b>0.04</b>	<b>-0.35</b>	<b>-0.07</b>	<b>-0.23</b>	<b>-0.08</b>	<b>-0.05</b>	<b>0.03</b>	<b>0.44</b>	0.01	<b>-0.13</b>	1.00				
12 CEO exhibited pessimism	0.00	0.00	<b>0.04</b>	<b>-0.14</b>	<b>-0.14</b>	<b>-0.13</b>	<b>-0.03</b>	0.01	0.02	<b>0.30</b>	<b>0.05</b>	<b>-0.05</b>	<b>0.14</b>	1.00			
13 CEO exhibited past focus	0.00	0.00	-0.02	<b>-0.03</b>	<b>-0.10</b>	<b>-0.04</b>	0.02	<b>0.06</b>	0.01	<b>0.06</b>	<b>-0.05</b>	<b>0.02</b>	<b>0.22</b>	<b>0.33</b>	1.00		
14 CEO exhibited present focus	0.02	0.01	0.01	-0.02	<b>-0.22</b>	<b>-0.04</b>	-0.01	-0.01	0.01	-0.01	<b>0.20</b>	<b>0.16</b>	<b>0.03</b>	<b>0.11</b>	<b>-0.05</b>	1.00	
15 CEO prevention focus	0.08	0.02	<b>-0.05</b>	<b>0.20</b>	<b>-0.38</b>	<b>0.02</b>	<b>0.06</b>	<b>0.08</b>	<b>-0.04</b>	<b>-0.13</b>	<b>0.05</b>	<b>0.43</b>	<b>-0.05</b>	<b>-0.10</b>	<b>-0.03</b>	<b>0.26</b>	1.00
16 CFO tenure	3.32	2.87	0.00	<b>0.03</b>	-0.02	<b>0.03</b>	<b>0.15</b>	0.01	-0.02	0.00	0.02	<b>0.07</b>	-0.02	<b>0.03</b>	-0.01	<b>0.03</b>	<b>0.02</b>
17 CFO salary (ln)	7.41	6.49	<b>-0.09</b>	<b>0.07</b>	<b>0.04</b>	0.02	<b>0.07</b>	<b>0.07</b>	0.01	0.01	<b>-0.05</b>	0.00	0.00	<b>-0.04</b>	<b>0.03</b>	<b>-0.04</b>	0.00
18 CFO bonus (ln)	1.83	4.38	<b>0.04</b>	<b>-0.05</b>	-0.01	0.01	<b>-0.03</b>	<b>-0.05</b>	<b>0.05</b>	-0.01	<b>0.03</b>	<b>-0.03</b>	<b>0.03</b>	-0.01	-0.01	<b>0.04</b>	0.02
19 CFO gender	0.91	0.29	<b>0.02</b>	0.02	0.02	0.02	<b>0.02</b>	0.02	-0.01	<b>-0.03</b>	0.02	<b>0.05</b>	0.01	0.01	0.00	0.01	<b>0.03</b>
20 CFO race	0.95	0.22	-0.01	<b>0.03</b>	<b>0.02</b>	0.01	0.01	<b>0.05</b>	0.01	<b>-0.03</b>	0.00	-0.01	<b>-0.03</b>	-0.01	0.02	<b>-0.03</b>	0.00
21 CFO age	50.91	6.45	<b>-0.05</b>	<b>0.07</b>	<b>0.03</b>	0.01	<b>0.10</b>	<b>0.07</b>	-0.02	0.01	<b>0.05</b>	<b>0.08</b>	<b>-0.03</b>	0.00	0.01	-0.02	<b>0.04</b>
22 Price (ln)	4.64	1.57	<b>0.17</b>	<b>-0.13</b>	-0.01	<b>-0.10</b>	<b>-0.05</b>	<b>-0.12</b>	0.01	<b>0.04</b>	<b>0.05</b>	<b>-0.09</b>	<b>0.06</b>	0.01	<b>-0.03</b>	<b>0.03</b>	<b>-0.07</b>
23 Deal size (ln)	20.06	1.27	<b>-0.13</b>	<b>0.29</b>	-0.02	<b>0.12</b>	<b>0.23</b>	<b>0.14</b>	<b>-0.04</b>	<b>-0.17</b>	<b>-0.10</b>	<b>0.20</b>	<b>-0.20</b>	<b>-0.07</b>	0.02	<b>-0.03</b>	<b>0.11</b>
24 Leverage	0.32	0.21	<b>-0.07</b>	<b>0.02</b>	<b>-0.03</b>	<b>-0.05</b>	<b>0.10</b>	<b>-0.08</b>	0.01	<b>-0.10</b>	-0.02	0.01	<b>-0.03</b>	<b>-0.07</b>	<b>-0.07</b>	-0.01	-0.02
25 Average maturity	51.61	19.51	<b>0.03</b>	-0.01	<b>0.03</b>	<b>0.02</b>	0.00	<b>-0.07</b>	<b>0.02</b>	<b>-0.06</b>	0.02	<b>-0.04</b>	<b>-0.07</b>	<b>-0.05</b>	<b>-0.06</b>	0.02	<b>-0.03</b>
26 Current ratio	6.77	5.84	0.01	<b>-0.07</b>	<b>-0.16</b>	0.00	<b>0.03</b>	<b>-0.15</b>	-0.01	<b>-0.09</b>	<b>-0.02</b>	0.00	-0.01	<b>-0.03</b>	-0.02	0.00	-0.01
27 Cash holding ratio	0.10	0.11	0.02	<b>0.04</b>	<b>0.04</b>	<b>-0.04</b>	<b>-0.11</b>	0.02	-0.02	-0.01	0.01	<b>0.08</b>	<b>0.02</b>	-0.01	0.02	<b>-0.03</b>	<b>0.05</b>
28 Return on asset	0.04	0.09	<b>-0.02</b>	<b>0.14</b>	<b>0.08</b>	<b>0.29</b>	<b>0.02</b>	<b>0.07</b>	<b>-0.03</b>	<b>-0.15</b>	<b>-0.05</b>	<b>0.06</b>	<b>-0.22</b>	<b>-0.07</b>	<b>-0.03</b>	<b>-0.02</b>	0.01
29 Size (ln)	8.04	1.52	<b>-0.24</b>	<b>0.39</b>	<b>0.05</b>	<b>0.13</b>	<b>0.24</b>	<b>0.28</b>	<b>-0.05</b>	<b>-0.10</b>	<b>-0.13</b>	<b>0.27</b>	<b>-0.19</b>	0.01	<b>0.06</b>	-0.01	<b>0.18</b>
30 Distance (ln)	7.22	1.59	<b>-0.03</b>	<b>-0.03</b>	<b>-0.06</b>	-0.02	<b>-0.09</b>	<b>-0.07</b>	0.00	0.00	-0.02	-0.01	0.00	<b>0.04</b>	0.00	-0.01	0.00
31 Financially constrained	0.00	0.01	0.02	-0.02	-0.01	0.00	-0.01	-0.01	0.00	-0.01	0.00	-0.01	0.00	0.01	0.00	0.01	0.00
32 Prior covenant violation	7.40	7.03	<b>-0.12</b>	<b>0.16</b>	<b>0.06</b>	0.00	<b>0.30</b>	<b>0.12</b>	-0.02	<b>-0.03</b>	<b>-0.08</b>	<b>0.05</b>	<b>-0.07</b>	<b>-0.05</b>	<b>0.03</b>	<b>-0.05</b>	0.00

	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
16 CFO tenure	1.00																
17 CFO salary (ln)	0.02	1.00															
18 CFO bonus (ln)	<b>-0.05</b>	<b>0.36</b>	1.00														
19 CFO gender	<b>0.05</b>	0.00	-0.02	1.00													
20 CFO race	0.00	0.02	<b>-0.03</b>	0.01	1.00												
21 CFO age	<b>0.26</b>	<b>0.05</b>	<b>-0.07</b>	<b>0.07</b>	0.02	1.00											
22 Price (ln)	-0.02	<b>-0.04</b>	-0.01	0.02	<b>-0.03</b>	-0.02	1.00										
23 Deal size (ln)	<b>0.02</b>	<b>0.09</b>	<b>-0.02</b>	0.01	0.01	<b>0.09</b>	<b>-0.10</b>	1.00									
24 Leverage	<b>-0.05</b>	<b>0.03</b>	-0.01	<b>0.04</b>	0.00	-0.02	<b>0.14</b>	<b>0.19</b>	1.00								
25 Average maturity	0.02	<b>0.03</b>	0.01	-0.02	0.00	-0.02	<b>0.21</b>	<b>0.06</b>	<b>0.11</b>	1.00							
26 Current ratio	0.00	-0.02	0.01	0.02	<b>-0.03</b>	<b>-0.05</b>	<b>0.07</b>	<b>0.05</b>	<b>0.13</b>	<b>0.08</b>	1.00						
27 Cash holding ratio	<b>-0.05</b>	0.00	0.01	-0.02	<b>-0.02</b>	<b>-0.02</b>	<b>-0.03</b>	<b>-0.16</b>	<b>-0.24</b>	<b>-0.03</b>	<b>-0.15</b>	1.00					
28 Return on asset	<b>0.05</b>	0.00	-0.01	-0.02	0.00	<b>0.03</b>	<b>-0.12</b>	<b>0.11</b>	<b>-0.09</b>	<b>0.03</b>	<b>-0.04</b>	<b>0.11</b>	1.00				
29 Size (ln)	<b>0.04</b>	<b>0.09</b>	<b>-0.04</b>	<b>-0.03</b>	<b>0.04</b>	<b>0.13</b>	<b>-0.28</b>	<b>0.62</b>	0.00	<b>-0.12</b>	<b>-0.22</b>	<b>-0.09</b>	<b>0.16</b>	1.00			
30 Distance (ln)	0.01	0.02	0.01	0.01	<b>-0.02</b>	<b>-0.03</b>	<b>0.04</b>	<b>-0.03</b>	<b>0.08</b>	<b>0.02</b>	<b>0.08</b>	-0.01	<b>-0.04</b>	<b>-0.03</b>	1.00		
31 Financially constrained	-0.01	-0.01	0.00	0.00	0.00	0.01	0.00	-0.02	0.01	0.00	0.01	0.00	0.01	<b>-0.03</b>	0.01	1.00	
32 Prior covenant violation	<b>0.08</b>	<b>0.23</b>	<b>-0.04</b>	0.01	0.00	<b>0.12</b>	<b>0.07</b>	<b>0.21</b>	<b>0.17</b>	<b>0.09</b>	0.00	-0.02	-0.01	<b>0.15</b>	<b>0.04</b>	-0.01	1.00

Note:  $n = 7,649$ . Bolded pairwise correlations are significant at least at the 0.05 level (two-tailed).

**Table 3**  
**Negative Binomial Regressions of Number of Covenants on CFO Function-based Language Incongruity**

Dependent variable: Number of covenants Variables	Model 1	Model 2	Model 3	Model 4
<b>Main Effect</b>				
CFO function-based language incongruity	0.05** (0.01)	0.04** (0.01)	0.04** (0.01)	0.04** (0.01)
<b>Interaction Effects</b>				
CFO function-based language incongruity × Corresponding CEO language		-0.02* (0.01)		-0.02* (0.01)
CFO function-based language incongruity × Media sentiment positivity			-0.03** (0.01)	-0.03** (0.01)
<b>Moderators</b>				
Corresponding CEO language	0.01 (0.01)	0.00 (0.01)	0.01 (0.01)	0.00 (0.01)
Media sentiment positivity	0.01 (0.01)	0.01 (0.01)	-0.00 (0.01)	-0.00 (0.01)
<b>Control Variables</b>				
Number of transactions	0.08*** (0.02)	0.08*** (0.02)	0.08*** (0.02)	0.08*** (0.02)
Board independence	0.04** (0.01)	0.04** (0.01)	0.04** (0.01)	0.04** (0.01)
Auditor turnover	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)
CFO exhibited pessimism	0.02 (0.02)	0.02 (0.02)	0.02 (0.02)	0.02 (0.02)
CFO exhibited past focus	0.02 (0.01)	0.02 (0.01)	0.02 (0.01)	0.02 (0.01)
CFO exhibited present focus	0.00 (0.02)	0.00 (0.02)	0.00 (0.02)	0.00 (0.02)
CFO exhibited prevention focus	-0.00 (0.02)	-0.00 (0.02)	0.00 (0.02)	0.00 (0.02)
CEO exhibited pessimism	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)
CEO exhibited past focus	-0.02† (0.01)	-0.02† (0.01)	-0.02† (0.01)	-0.02† (0.01)
CEO exhibited present focus	-0.03* (0.01)	-0.04* (0.01)	-0.03* (0.01)	-0.03* (0.01)
CEO exhibited prevention focus	-0.03† (0.01)	-0.03† (0.01)	-0.03† (0.01)	-0.03† (0.01)
CFO tenure	0.02* (0.01)	0.02* (0.01)	0.02* (0.01)	0.02* (0.01)
CFO salary (ln)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)
CFO bonus (ln)	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)
CFO gender	0.06 (0.04)	0.06 (0.04)	0.06 (0.04)	0.06 (0.04)
CFO race	-0.06 (0.05)	-0.07 (0.05)	-0.06 (0.05)	-0.07 (0.05)
CFO age	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)
Price (ln)	0.23*** (0.02)	0.23*** (0.02)	0.23*** (0.02)	0.23*** (0.02)
Deal size (ln)	0.16*** (0.02)	0.17*** (0.02)	0.17*** (0.02)	0.17*** (0.02)
Leverage	-0.02 (0.02)	-0.02 (0.02)	-0.02 (0.02)	-0.02 (0.02)

**Table 3 (Continued)**

Dependent variable: Number of covenants Variables	Model 1	Model 2	Model 3	Model 4
Average maturity	0.03* (0.02)	0.03* (0.02)	0.03* (0.02)	0.03* (0.02)
Current ratio	-0.02 (0.02)	-0.02 (0.02)	-0.02 (0.02)	-0.02 (0.02)
Cash holding ratio	-0.03† (0.02)	-0.03† (0.02)	-0.03† (0.02)	-0.03† (0.02)
Return on asset	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)
Size (ln)	-0.32*** (0.02)	-0.32*** (0.02)	-0.32*** (0.02)	-0.32*** (0.02)
Distance (ln)	-0.01 (0.01)	-0.00 (0.01)	-0.01 (0.01)	-0.00 (0.01)
Financially constrained	0.01*** (0.00)	0.01*** (0.00)	0.01*** (0.00)	0.01*** (0.00)
Prior covenant violation	0.09*** (0.02)	0.09*** (0.02)	0.09*** (0.02)	0.09*** (0.02)
Industry F.E.	Yes	Yes	Yes	Yes
Year F.E.	Yes	Yes	Yes	Yes
Loan purpose F.E.	Yes	Yes	Yes	Yes
Bank F.E.	Yes	Yes	Yes	Yes
Constant	-0.94 (0.71)	-0.98 (0.71)	-0.91 (0.71)	-0.95 (0.70)
Observations	7,649	7,649	7,649	7,649

Note: Robust standard errors are in parentheses. Two-tailed tests.

\*\*\*  $p < 0.001$  \*\*  $p < 0.01$  \*  $p < 0.05$  †  $p < 0.10$ . All predictors are standardized to facilitate interpretation.

**Table 4**  
**Marginal Effect of CFO Function-based Language Incongruity at Different Moderator Values**

<b>Panel A. Moderating effect of corresponding CEO language</b>			
Value of the moderator	Marginal effect	<i>z</i> -statistic	<i>p</i> -value
Low (mean -1 sd)	0.07	3.86	0.00
Medium (mean)	0.05	3.09	0.00
High (mean +1 sd)	0.02	1.23	0.22
<b>Panel B. Moderating effect of media sentiment positivity</b>			
Value of the moderator	Marginal effect	<i>z</i> -statistic	<i>p</i> -value
Low (mean -1 sd)	0.08	4.24	0.00
Medium (mean)	0.05	3.03	0.00
High (mean +1 sd)	0.01	0.70	0.49

**Table 5**  
**Robustness Checks**

<b>Panel A. Curvilinearity</b>		<b>Model 1</b>	<b>Model 2</b>		
<b>Variables</b>		<b>Squared</b>	<b>Cubed</b>		
CFO function-based language incongruity squared		-0.01 (0.01)	-0.01 (0.01)		
CFO function-based language incongruity cubed			0.00 (0.00)		
CFO function-based language incongruity		0.04** (0.01)	0.04* (0.02)		
Other controls		Yes	Yes		
Constant		-0.92 (0.71)	-0.94 (0.71)		
Observations		7,649	7,649		

<b>Panel B. Threshold</b>		<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>	<b>Model 4</b>
<b>Variables</b>		<b>25%</b>	<b>50%</b>	<b>75%</b>	<b>Mean</b>
CFO function-based language incongruity		0.03 (0.02)	0.04† (0.02)	0.03† (0.02)	0.04† (0.02)
Other controls and fixed effects		Yes	Yes	Yes	Yes
Constant		-0.93 (0.72)	-0.94 (0.72)	-0.94 (0.72)	-0.95 (0.72)
Observations		7,649	7,649	7,649	7,649

Note: Robust standard errors are in parentheses. Two-tailed tests.

\*\*\*  $p < 0.001$  \*\*  $p < 0.01$  \*  $p < 0.05$  †  $p < 0.10$ . All predictors are standardized to facilitate interpretation.

**Table 6**  
**Instrumental Variable Estimation using Heteroscedasticity-based Instrument**

Dependent variable: Number of covenants		<b>Model 1</b>	<b>Model 2</b>
Variable			
CFO function-based language incongruity		0.06*** (0.01)	0.05*** (0.02)
Control variables		Yes	Yes
Industry F.E.		Yes	Yes
Year F.E.		Yes	Yes
Loan purpose F.E.		Yes	Yes
Bank F.E.		No	Yes
Constant		0.69 (0.53)	2.03*** (0.24)
Observations		7,649	7,649

Note: Robust standard errors are in parentheses. Two-tailed tests.

\*\*\*  $p < 0.001$  \*\*  $p < 0.01$  \*  $p < 0.05$  †  $p < 0.10$ . All predictors are standardized to facilitate interpretation.

**Table 7**  
**Supplementary Analysis**

<b>Panel A. Information Asymmetry</b>		<b>Model 1</b>		
<b>Variables</b>				
CFO function-based language incongruity		0.05**		
		(0.01)		
CFO function-based language incongruity × Distance (ln)		-0.00		
		(0.01)		
Distance (ln)		-0.01		
		(0.01)		
Other controls and fixed effects		Yes		
Constant		-1.47		
		(0.94)		
Observations		7,649		

<b>Panel B. Audit Specialist</b>	<b>Model 1</b>		<b>Model 2</b>	<b>Model 3</b>
	<b>National</b>		<b>City</b>	<b>Both</b>
CFO function-based language incongruity	0.06***		0.07***	0.08***
	(0.02)		(0.02)	(0.02)
CFO function-based language incongruity × Audit specialist	-0.06*		-0.08***	-0.08***
	(0.03)		(0.02)	(0.02)
Audit specialist	-0.08**		-0.07**	-0.06*
	(0.03)		(0.03)	(0.03)
Other controls and fixed effects	Yes		Yes	Yes
Constant	-0.98		-0.92	-0.93
	(0.72)		(0.73)	(0.74)
Observations	7,647		7,647	7,647

<b>Panel C. Prior Covenant Violation</b>		<b>Model 1</b>		
<b>Variables</b>				
CFO function-based language incongruity		0.05***		
		(0.01)		
CFO function-based language incongruity × Prior covenant violation		0.03*		
		(0.01)		
Prior covenant violation		0.10***		
		(0.02)		
Other controls and fixed effects		Yes		
Constant		-1.00		
		(0.73)		
Observations		7,649		

Note: Robust standard errors are in parentheses. Two-tailed tests.

\*\*\*  $p < 0.001$  \*\*  $p < 0.01$  \*  $p < 0.05$  †  $p < 0.10$ . All predictors are standardized to facilitate interpretation.

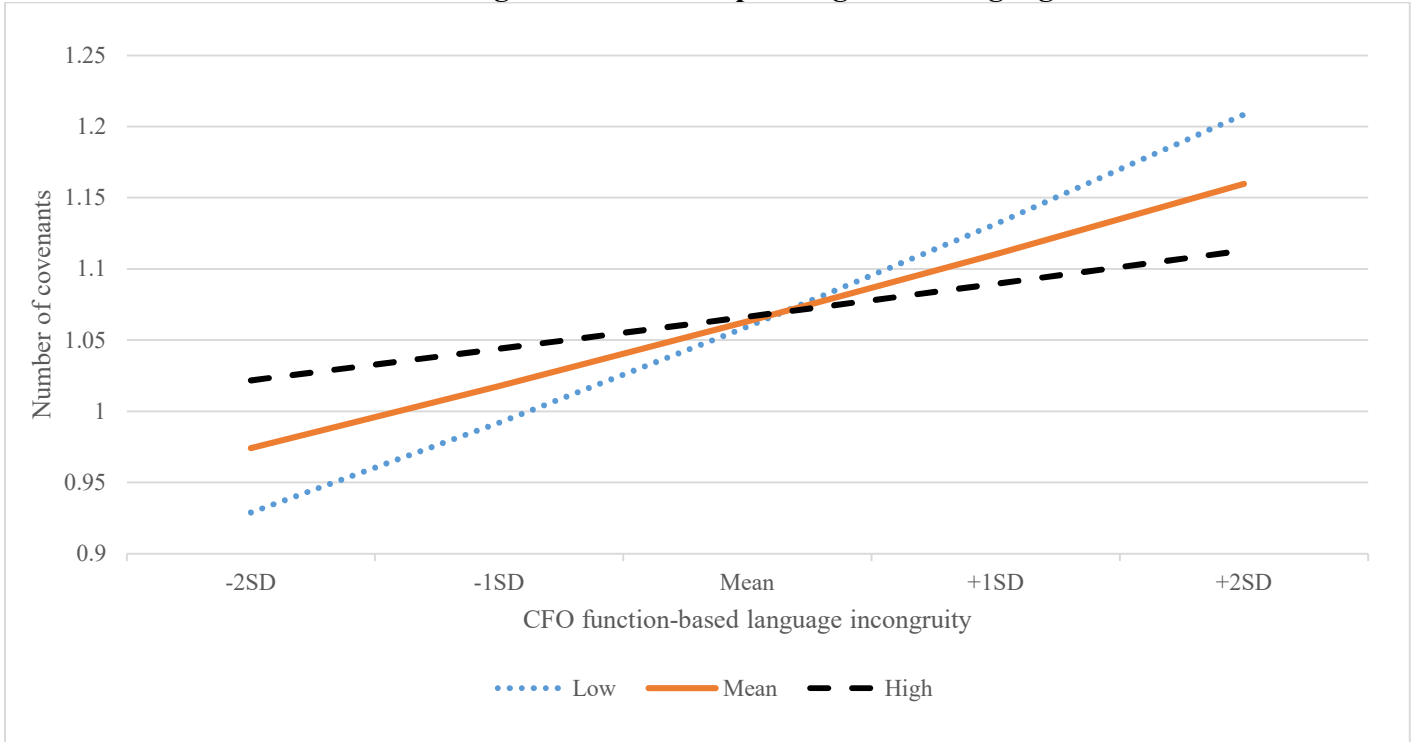
**Table 8**  
**Direct Effects of Individual CFO Linguistic Attributes**

<b>Variables</b>	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>	<b>Model 4</b>	<b>Model 5</b>
CFO-exhibited optimism	0.03* (0.01)	0.03* (0.01)			
CFO-exhibited risk taking	-0.01 (0.02)		-0.01 (0.02)		
CFO-exhibited promotion focus	-0.03* (0.01)			-0.03* (0.01)	
CFO-exhibited future focus	0.02† (0.01)				0.03* (0.01)
Other controls and fixed effects	Yes	Yes	Yes	Yes	Yes
Constant	-0.96 (0.71)	-0.92 (0.72)	-0.91 (0.73)	-0.93 (0.73)	-0.92 (0.72)
Observations	7,649	7,649	7,649	7,649	7,649

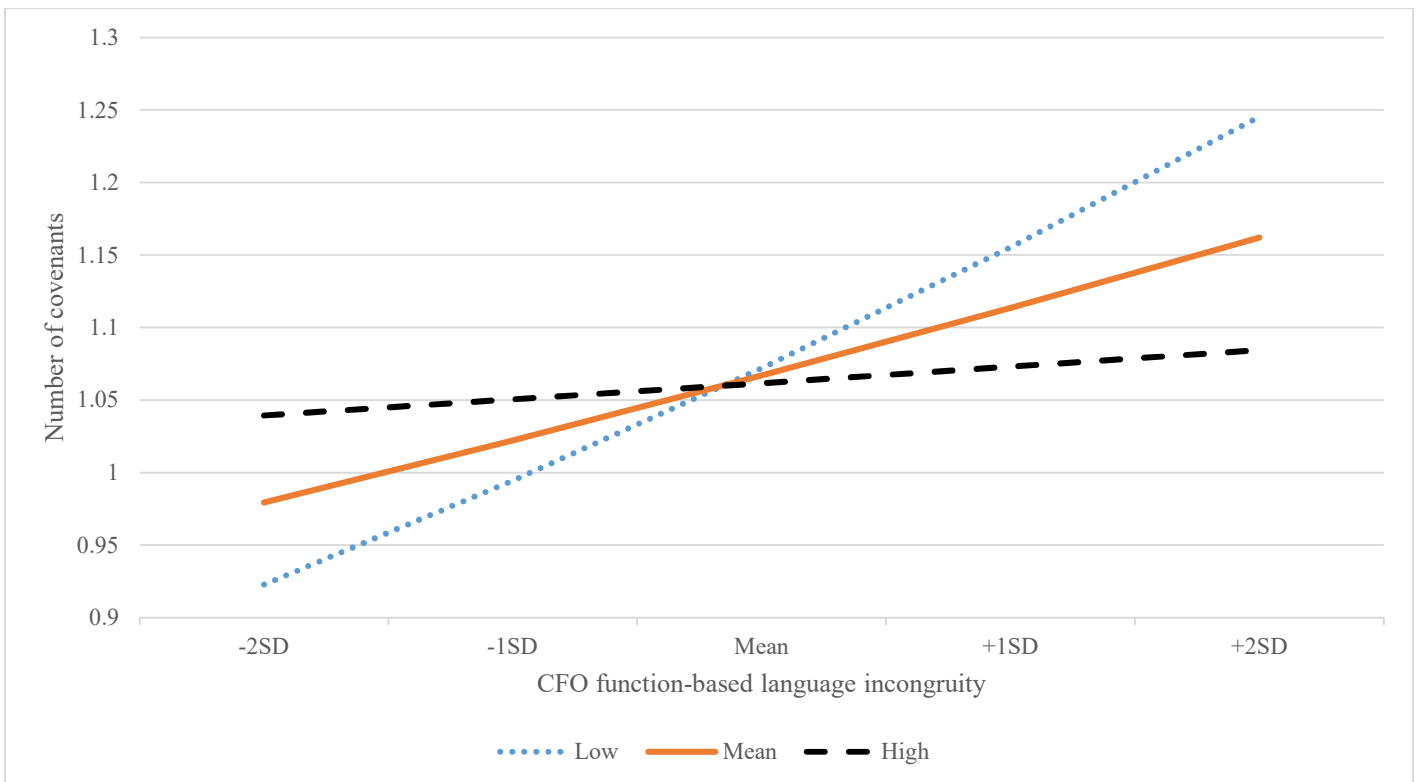
Note: Robust standard errors are in parentheses. Two-tailed tests were performed.

\*\*\*  $p < 0.001$  \*\*  $p < 0.01$  \*  $p < 0.05$  †  $p < 0.10$ . All predictors are standardized to facilitate interpretation.

**Figure 1**  
**Moderating Effect of Corresponding CEO Language**



**Figure 2**  
**Moderating Effect of Media Sentiment Positivity**





## Appendix A. List of Debt Covenants

### Type of Covenants

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- 1) Maximum capital expenditure
  - 2) Maximum debt to EBITDA
  - 3) Maximum debt to equity
  - 4) Maximum debt to tangible net worth
  - 5) Maximum leverage ratio
  - 6) Maximum loan to value
  - 7) Maximum net debt to asset
  - 8) Minimum current ratio
  - 9) Minimum EBITDA
  - 10) Minimum fixed charge coverage
  - 11) Minimum interest coverage
  - 12) Minimum quick ratio
  - 13) Minimum net worth

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*Example A*                      *Maximum capital expenditures: \$6,000,000*

*Maximum debt to EBITDA ratio: 2.5*

*Minimum EBITDA: \$17,500,000*

*Minimum fixed charge coverage: 1.5*

*Minimum tangible net worth: \$76,000,000*

—Motorcar Parts of America loaning in 2009 for Capital Expenditures

*Example B*                      *Max leverage ratio: 0.65*

—National Fuel Gas Corporation loaning in 2018 for Corporate Purposes

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## Appendix B. Representative Transcript Excerpts for CFO Function-based Language Incongruity

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### High CFO function-based language incongruity

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*“We are **happy** to report that we were **able** to pay out the entire incentive fee during the quarter and are **hopeful** that we can continue paying out the full fee, so our FFO can continue to **grow**. However, if we are unable to find replacement tenants for the two buildings that are **going** dark this summer, we **may** have to credit a portion of the incentive fee in order to maintain current distributions to our shareholders.”*

—Danielle Jones, CFO of Gladstone Commercial Corporation.

In an earnings conference call on May 4, 2010.

The firm receives a debt contract with five covenants in December of the same year.

*“To conclude my remarks, the company's financial condition is **strong**. I say this based on our new credit facility that has nothing drawn against it, significant reduction in the outstanding debt, no near-term debt maturities, and substantial cash on hand, and a track record of sustainable operating **profitability** and **positive** cash flow.”*

—Thomas M. Kitchen, CFO & Senior Vice President of Stewart Enterprises, Inc.

In an earnings conference call on June 10, 2009.

The firm receives a debt contract with four covenants in October of the same year.

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### Low CFO function-based language incongruity

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*“Revenue for the three months ended June 30, 2015, decreased 6% to \$33.5 million from \$35.8 million during the same period of the prior year. Revenue from Orthobiologics products was \$17 million, reflecting growth of 1%. And revenue from Spinal Fusion Hardware products was \$16.5 million, reflecting a decline of 13%. This decline in Spinal Fusion Hardware products was primarily attributable to continued pricing pressure, decreased demand for our existing products and delays in new product launches.”*

—John J. Bostjancic, CFO of SeaSpine Holdings Corp.

In an earnings conference call on August 13, 2015.

The firm receives a debt contract with no covenants in December of the same year.

*“As of today, our 348 available rigs in the U.S. land segment include approximately 91 rigs generating revenue and 257 idle rigs. Included in the 91 rigs generating revenue, are 72 rigs under term contracts, 67 of which are generating revenue days. In addition, 19 rigs are currently active in the spot market, for a total of 86 rigs generating revenue days in the segment, as compared to 78 rigs during our last update in early June.”*

—Juan Pablo Tardio, CFO & Senior Vice President of Helmerich & Payne Inc.

In an earnings conference call on July 28, 2016.

The firm receives a debt contract with no covenant in September of the same year.

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