

Neumeyer, Laura Aglaia; Gründler, Anna; Stöber, Anna-Luisa

## Article

# Don't worry, be happy: Does the CEO's personality mitigate the negative effect of financial constraints on employee satisfaction?

Schmalenbach Journal of Business Research (SBUR)

## Provided in Cooperation with:

Schmalenbach-Gesellschaft für Betriebswirtschaft e.V.

*Suggested Citation:* Neumeyer, Laura Aglaia; Gründler, Anna; Stöber, Anna-Luisa (2023) : Don't worry, be happy: Does the CEO's personality mitigate the negative effect of financial constraints on employee satisfaction?, Schmalenbach Journal of Business Research (SBUR), ISSN 2366-6153, Springer, Heidelberg, Vol. 75, Iss. 1, pp. 71-98, <https://doi.org/10.1007/s41471-022-00153-9>

This Version is available at:

<https://hdl.handle.net/10419/286479>

## Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

## Terms of use:

*Documents in EconStor may be saved and copied for your personal and scholarly purposes.*

*You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.*

*If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.*



<https://creativecommons.org/licenses/by/4.0/>



# Don't Worry, Be Happy—Does the CEO's Personality Mitigate the Negative Effect of Financial Constraints on Employee Satisfaction?

Laura Neumeyer · Anna Gründler · Anna-Luisa Stöber

Received: 1 June 2021 / Accepted: 13 December 2022 / Published online: 1 February 2023  
© The Author(s) 2023

**Abstract** Our study addresses whether a chief executive officer's (CEO) personality can mitigate financial constraints' negative effect on employee satisfaction. We draw on extant research that establishes this negative effect but add an upper echelon's perspective by examining the potential influence of the CEO's personality traits. Using a multi-source dataset of 1516 observations of S&P 500 firms, novel measures of employee satisfaction based on Glassdoor reviews, and a machine-learning-based linguistic tool on the Five-Factor Model's personality traits, our study reveals that a CEO who has a high level of openness to experience and/or a low level of conscientiousness buffers the negative impact of financial constraints on employee satisfaction. Theoretical and practical implications are discussed.

**Keywords** Financial constraint · Employee satisfaction · CEO personality · Five-Factor Model · Upper echelons theory

---

**Availability of data and material (data transparency)** Upon request

---

**Code availability (software application or custom code)** Upon request

✉ Laura Neumeyer · Anna Gründler  
Department of Management, Heinrich-Heine-University Düsseldorf,  
Universitätsstraße 1, 40225 Düsseldorf, Germany  
E-Mail: [laura.neumeyer@hhu.de](mailto:laura.neumeyer@hhu.de)

Anna Gründler  
E-Mail: [anna.gruendler@hhu.de](mailto:anna.gruendler@hhu.de)

Anna-Luisa Stöber  
Faculty of Business, Technology and Design, Macromedia University of Applied Sciences,  
Sandstraße 9, 80335 Munich, Germany  
E-Mail: [a.stoeber@macromedia.de](mailto:a.stoeber@macromedia.de)

## 1 Introduction

Employees are essential drivers of firm performance, as top executives know (Harrison et al. 2020a) and empirical research confirms (Edmans 2012; Symitsi et al. 2018). Knowing what drives a powerful force like employee satisfaction is central to a firm's success, and understanding the origins of employee satisfaction requires understanding all of its factors, not just one.

Financial constraints negatively affect not only shareholders through a decline in shareholder value (Lamont et al. 2001) but also other stakeholders, including management and employees (Campello et al. 2010). Scholars leave no doubt that employees suffer when their firms are under financial constraints: Campello et al. (2010) find that financially constrained firms invest less in employee-friendly human resource (HR) policies than other firms do and are more likely to reduce their workforces. In addition, the injury rates of companies that are under financial constraints tend to increase (Cohn and Wardlaw 2016). Certainly, fewer employee-friendly HR policies, more injuries, and workforce reductions lower employee satisfaction, thus decreasing firm value (Jing et al. 2019).

However, research is silent on whether the negative relationship between financial constraints and employee wellbeing is unimpeachable or can be mitigated. One factor that proves influential in a variety of research settings is the CEO's personality (Harrison et al. 2020b; Herrmann and Nadkarni 2014; Malhotra et al. 2018; Nadkarni and Herrmann 2010), although extant research does not examine whether it plays a role in the damaging connection between financial constraints and employee satisfaction and, as a result, firm value. Addressing this gap in the research may help financially constrained firms learn how to protect their value.

Some research argues that financial constraints limit the room for managers' strategic actions (Campello et al. 2010; Lamont et al. 2001), so executives cannot counteract the negative effect on employee satisfaction. However, other research finds that, especially under pressure and in uncertain situations, CEOs play a central role in shaping their firms' decisions (Benischke et al. 2019; Herrmann and Nadkarni 2014; Malhotra et al. 2018; Nadkarni and Herrmann 2010), in determining shareholders' perceptions of such decisions (Harrison et al. 2020b), and, thus, in the resulting level of their firms' success (Colbert et al. 2014; Harrison et al. 2019). In firms that have financial constraints, then, CEOs could have the power to protect employee satisfaction.

The best predictor of one's thoughts, feelings, and behavior is personality (McCrae and Costa 1987; Peterson et al. 2003), so the CEO's personality may moderate financial constraints' effect on employee satisfaction through the CEO's behavioral choices. On the one hand, if a firm is under pressure, a CEO who has an extraverted personality may be effective in maintaining employee satisfaction by spreading optimism, positively affecting corporate culture, and reacting flexibly to challenging situations. On the other hand, an introverted CEO with a calm nature could also have a positive effect on employees, especially on employees' perceptions of job security and the firm's corporate culture. Therefore, our research addresses the question: *Can the CEO's personality mitigate financial constraints' negative effects on employee satisfaction?*

To address our research question, we first derive what shapes employee satisfaction and present arguments on how financial constraints can affect them. Then we draw on upper echelons and psychology research to suggest how the CEO's personality can moderate the negative relationship between financial constraints and employee satisfaction. We apply the Five-Factor Model (FFM) as a personality measure to ensure we include the most salient aspects of personality (Judge et al. 2002b).

To test our hypotheses empirically, we construct a multi-source dataset of 1516 observations of S&P 500 firms from 2010 to 2016. We use 206,066 employee reviews of 287 firms from Glassdoor to measure employee satisfaction. We also apply a novel linguistic tool developed by Harrison et al. (2019) to measure the FFM's personality traits based on CEOs' spoken language in 4688 investor earnings calls, with an average of about 32,000 words per CEO, to assign personality scores to 357 CEOs. As Malhotra et al.'s (2018) study on executives' personality and Corritore et al.'s (2020) study related to employee satisfaction observe, most studies on these topics use small samples and only certain industries or "remote proxies" (Malhotra et al. 2018, p. 372), which limits the generalizability of their results (Corritore et al. 2020). We use Glassdoor to evaluate employee satisfaction and earnings calls to define the CEOs' personalities, and test our hypotheses using a comprehensive, longitudinal dataset with 1516 observations. We apply a general estimation equation (GEE) model and pooled ordinary least squares (OLS) regression to determine whether CEOs' personality traits moderate the relationship between financial constraints and employee satisfaction.

Our research makes three primary contributions to academia and practice. First, we contribute to an emerging literature on the effects of financial constraints by finding through empirical analysis that financial constraints lead to a 8–10% reduction in employee satisfaction and arguing that a CEO who has "the right" personality traits can almost entirely buffer this effect.

Second, we advance research on employee satisfaction and argue based on the resource-based theory that research should include a stakeholder perspective, such as that of employees, to reflect fully what drives firm performance (Barney 2018, 2020). We shed light on the complex area of employee satisfaction's drivers by arguing theoretically that (and testing empirically how) financial constraints, moderated by the CEO's personality, affect employee satisfaction.

Third, we also focus on indirect effects, as we extend management research on both upper echelons and trickle-down effects (Smith et al. 2018). In line with both perspectives, our findings indicate that the CEO's personality is a dominant predictor of employee satisfaction in firms that are under financial constraints. The CEO's personality can have trickle-down effects at the employee level of the organizational hierarchy via managers who report directly to the CEO. This chain of effects may ultimately affect a firm's performance and success.

## 2 Conceptual Background and Hypotheses

### 2.1 Financial Constraints' Effect on Employee Satisfaction

Since external financing is an essential part of firms' resources (Whited and Wu 2006), a firm that has difficulty accessing external financing is considered to be financially constrained (Campello et al. 2010; Whited and Wu 2006). Financial constraints are associated with slowed growth, fewer investments in technology and capital expenditures, and reduced stock returns, all of which adversely affect firm value (Campello et al. 2010; Lamont et al. 2001; Whited and Wu 2006).

Employee satisfaction is defined as "a pleasurable or positive emotional state resulting from the appraisal of one's job or job experiences" (Locke 1976, p. 1300). Resource-based theory argues that, if managers are to generate appropriate profit, they must not only focus on maximizing shareholder wealth but expand their view to incorporate a stakeholder perspective (Barney 2018). Employees are among a firm's key stakeholders, along with customers, suppliers, and debtholders (Barney 2018; Freeman et al. 2010). Executives who base their strategic choices on these stakeholders' well-being generate higher profits than those who focus only on shareholder value (Barney 2018; Elrehail et al. 2020).

Employee satisfaction has far-reaching consequences on firm performance (Harter et al. 2002; Symitsi et al. 2018; Zhou et al. 2008), long-term stock returns (Edmans 2011), and firm value (Edmans 2012), so understanding its drivers is of considerable value. An often-used assumption is that pay level predicts employee satisfaction (Benson and Brown 2011; Kinicki et al. 2002), but Judge et al.'s (2010, p. 157) meta-analysis concludes that "pay level is only marginally related to satisfaction." Instead, employee satisfaction is a complex function of individual characteristics like education, age, and resilience and contextual characteristics like aspects of the job and the work environment (Gosse and Hurson 2016; Judge and Watanabe 1993; Seibert et al. 2011; Youssef and Luthans 2007).

Aspects of the job, such as promotion opportunities (Judge and Watanabe 1993; Kinicki et al. 2002) and job security (Benson and Brown 2011), foster employee satisfaction, as do factors like sufficient time and resources to do the job (Benson and Brown 2011; Ilies et al. 2015). Regarding work content, variety, significance, and autonomy and control over one's daily work increase employee satisfaction (Heller et al. 2002; Kinicki et al. 2002; Oldham et al. 1976), as do a positive work environment and organizational climate (Kinicki et al. 2002; Seibert et al. 2011; Steffensen et al. 2019) that foster inclusion (Ilies et al. 2007; Shore et al. 2011). Jing et al. (2019), the first to analyze the effects of financial constraints on overall employee satisfaction, find that companies' financial constraints reduce employee satisfaction, driven by employees' more negative evaluations of their senior management, work/life balance, and career opportunities under these circumstances. This result is not surprising, as companies may not have the strategic freedom and resources they need to provide job security, tend to invest less in employee-friendly HR policies, and are more likely than other firms are to reduce their workforces (Campello et al. 2010). In addition, financial constraints can increase stress levels if the resources and time to do the job decline, as management is likely to distribute resources less generously

if money is tight (Cohn and Wardlaw 2016). The impact of financial constraints also negatively affects workplace safety, as injury rates increase in financially constrained firms, adversely affecting firm value (Cohn and Wardlaw 2016). Kaufmann and Tödting (2002) and Julienti Abu Bakar and Ahamad (2010) also find that financially constrained companies tend to have only few qualified personnel in product innovation and to prioritize strictly which projects to pursue, decreasing employees' work variety and perceived autonomy (Heller et al. 2002; Oldham et al. 1976). All of these effects of financial constraints pave the way to a less cheerful atmosphere at work and a deteriorated corporate climate (Seibert et al. 2011; Steffensen et al. 2019).

## 2.2 Hypotheses on the Moderation Effects of the CEO's Personality

The extant research ignores the influence of the CEO's personality on employee satisfaction when a firm is under financial constraints. However, research in the social sciences, particularly in psychology, establishes a clear relationship between individuals' personality traits and their thinking, feeling, and behavior (Colbert et al. 2014; McCrae and Costa 1987; Costa et al. 1995; Judge et al. 2002a; Peterson et al. 2003). Examples in the business context include the influence of the CEO's personality on entrepreneurial intention and performance (Zhao et al. 2010), strategic flexibility (Nadkarni and Herrmann 2010), initiation and implementation of strategic change (Herrmann and Nadkarni 2014), engagement in mergers and acquisitions (Malhotra et al. 2018), stock risk and returns (Harrison et al. 2020b), and firm performance (Harrison et al. 2019). Most of these studies build on the upper echelons theory (Finkelstein et al. 2009, Hambrick and Mason 1984), which posits that the CEO's personality affects the firm's decisions and outcomes. Given CEOs' position at the apex of organizations, their personalities permeate their organizations and affect their firms' outcomes by influencing others (Smith et al. 2018). As an example, Phua et al. (2018) demonstrate that a CEO who has the personality trait of overconfidence affects employee turnover and employees' stockholdings, the latter of which reflects employees' confidence in the company. These findings lead us to argue that the CEO's personality can affect employee satisfaction.

Leadership research, including studies of transformational leadership, generally focuses on the behavior of leaders to whom employees report directly. The present study focuses on the CEO and does not go into detailed analyses of the top management team (TMT) or the interactions of the CEO's or TMT's personalities because our research relies on the idea that CEOs bring together the views of diverse TMT members (Buyl et al. 2011; Kalogeraki and Georgakakis 2022; Weck et al. 2021).

To measure personality, we use the FFM, which the psychology literature considers a comprehensive framework that covers "the most salient aspects of personality" (Judge et al. 2002b, p. 530), "the best representation of trait structure" (McCrae and Costa 1997, p. 509), and a valid and robust psychological framework in the strategic management context (Benischke et al. 2019; Nadkarni and Herrmann 2010). The FFM covers five broad personality traits: openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism. We focus on the first three, which is in line with prior management research (Benischke et al. 2019; Harrison et al. 2020b).

We do not hypothesize effects of agreeableness or neuroticism on CEOs' behavior or employee satisfaction, as both yield inconclusive results in various empirical studies (Harrison et al. 2019; Nadkarni and Herrmann 2010; Zhao et al. 2010). A more important reason is that the effects of agreeableness and neuroticism on employee satisfaction are likely to be unclear: The kind and conflict-avoiding nature of agreeable individuals (Costa et al. 1995; McCrae and Costa 1997) means that they are reluctant to let employees go, ensuring job security and a positive organizational climate, but are also likely to agree with shareholders' requests for belt-tightening that affects employees (Judge et al. 2002a). Therefore, as Benischke et al. (2019, p. 161) argue, "it is difficult to predict how an agreeable CEO will behave without examining the preferences of those around the CEO." As for neuroticism (i.e., emotional instability), CEOs who have this personality trait do not tend to cope well with stressful situations and tend to be pessimistic (McCrae and Costa 1997), intensifying the negative effect of financial constraints on employee satisfaction. However, such managers are also often emotionally involved (Rose et al. 2002), which might also make employees feel that their situation is taken seriously. These conflicting influences render neuroticism an uncertain predictor of employee satisfaction. Therefore, we examine the CEO's personality as reflected only in openness to experience, conscientiousness, and extraversion and how these traits moderate the relationship between financial constraints and employee satisfaction. We do include agreeableness and neuroticism as control variables in robustness checks.

**The moderating effects of the CEO's personality on the relationship between financial constraints and employee satisfaction** Harrison et al. (2020b, p. 34) claim that "external perceptions of a given CEO, specifically based on his or her observed personality traits, can have both positive and negative implications for the firm." The authors find that shareholders' perceptions of the CEO's personality influences how they evaluate past performance and what future performance they expect. Building on the resource-based view to transfer this knowledge to employees, we hypothesize that employees' perceptions of the CEO's personality affects their level of satisfaction when their firm is under financial constraints. We argue that, while employees of financially constrained firms are usually less satisfied than employees of other firms are, this effect can be mitigated if employees perceive their CEO's personality as well suited to managing the situation. For example, employees may see CEOs with certain personality traits as being able to convey a good feeling regarding job security and stress levels and to maintain an employee-friendly work environment. Here, we specify how we expect the personality traits of openness to experience, conscientiousness, and extraversion to moderate the relationship between financial constraints and employee satisfaction.

**Openness to experience** Open individuals tend to be creative and imaginative (McCrae and Costa 1987). Their intellectual curiosity leads them to think "out of the box," to seek new experiences, and to value challenging tasks (Costa et al. 1995). They are flexible and often risk-taking, which allows them to cope well with uncertain situations and change (Bono and Judge 2004; McCrae and Costa 1997). On the other hand, individuals who have low levels of openness to experience tend

to be conservative and to be uncomfortable with unstable environments and change (Bono and Judge 2004).

Financial constraints put a firm in a stressful and challenging situation in which the likelihood of job dismissals increases (Campello et al. 2010), reducing employees' sense of security about their jobs. Openness is associated with transparent communication (Bono and Judge 2004; Costa et al. 1995), which can comfort employees in uncertain times (Coombs and Holladay 2010; Muchinsky 1977). In addition, open executives' creative nature (Costa et al. 1995) leads them to search past employee layoffs for solutions to financial constraints. Employee satisfaction is also affected by the increased stress levels that result from less time and resources with which to do their jobs because of financial constraints (Gosse and Hurson 2016; Ilies et al. 2015). Open CEOs' flexibility (McCrae and Costa 1997; Nadkarni and Herrmann 2010) can help them to find new approaches to keeping the workload manageable. Open CEOs can also serve as role models because of their ability to cope with stressful and ambiguous situations (Costa et al. 1995) through strategic flexibility (Nadkarni and Herrmann 2010) and initiation of strategic change (Herrmann and Nadkarni 2014).

Creating and maintaining a positive corporate climate is a complex task for executives since the corporate climate is susceptible to a wide variety of influences (Schneider et al. 2017). Especially in difficult times, employees are likely to perceive their firm's climate as worsening, leading to adverse effects on their wellbeing (Fu and Desphande 2014). Open executives are generally well suited to handling such complex and ambiguous situations (Costa et al. 1995; Judge et al. 2002a). Furthermore, CEOs who are open to experience can understand and adapt to others' perspectives (Costa and McCrae 1988), which could help employees feel that their opinions and needs remain valued.

These findings support the notion that open CEOs have competent reactions to financial constraints, so employees see them as capable of managing a financially challenging situation. Therefore, we posit that employee satisfaction is higher in a financially constrained firm that has an open CEO than it would be if it did not:

**Hypothesis 1 (H1):** *The negative effect of financial constraints on overall employee satisfaction is mitigated if the CEO has a high level of openness to experience, whereas the negative effect strengthens when the CEO's openness to experience is low.*

**Conscientiousness** One facet of conscientiousness refers to intense striving for achievement, self-motivation, perseverance, and discipline (Costa et al. 1995), while another relates to a sense of order and dutifulness, as conscientious people are concerned with following legal rules and ethical norms (Bono and Judge 2004; Peterson et al. 2003). Conscientious people are also often cautious and risk-averse (Costa et al. 1995). In contrast, those who have low levels of conscientiousness tend to be tolerant of ambiguity (McCrae and Costa 1987).

Many companies that are under financial constraints respond by reducing their workforces (Campello et al. 2010). The dutiful nature of conscientious individuals (Bono and Judge 2004), paired with their risk-aversion (Costa et al. 1995), makes it likely that a conscientious CEO will consider employee layoffs justifiable or even



required in coping with financial constraints, negatively affecting employees' perceptions of their job security. A conscientious CEO is also unlikely to be strategically flexible (Nadkarni and Herrmann 2010), although a flexible approach is required to find new ways for employees to do their work well in the face of financial restraints without increasing stress. A high degree of conscientiousness might also inhibit the flexible response (McCrae and Costa 1987) that is required if employees' desire for variety in their work is to be maintained under financial constraints.

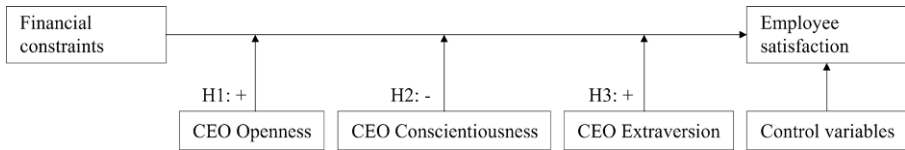
McCrae and Costa (1987) find that conscientious individuals are often more task-focused than interpersonally or relationship-focused. When a positive corporate climate is under threat because financial constraints restrict employee-friendly HR management practices (Campello et al. 2010), we expect that a relationship-focused executive has an easier time connecting with employees than a task-focused executive does. In addition, conscientious people's dislike for uncertainty and inability to shift their attention quickly in the face of dynamic environmental developments (Judge et al. 2002a; LePine et al. 2000) might interfere with an adequate response to employees' needs in challenging times. Since we expect that managers who have low levels of conscientiousness can help employees feel optimistic that their well-being remains a priority, thereby mitigating financial constraints' adverse effects on employee satisfaction, we propose that employees perceive less conscientious CEOs as better able to manage financial constraints than their highly conscientious counterparts are. These arguments suggest that employee satisfaction is higher in financially constrained firms when CEOs are less conscientious, so we hypothesize:

**Hypothesis 2 (H2):** *The negative effect of financial constraints on overall employee satisfaction is mitigated when the CEO has a low level of conscientiousness, whereas the negative effect strengthens when the CEO's level of conscientiousness is high.*

**Extraversion** Extraverts are often described as sociable, outgoing, friendly, and talkative (McCrae and Costa 1987). They tend to be optimistic and to have more positive than negative emotions (Bono and Judge 2004). Extraversion also reflects dominance and assertiveness, along with the ambition to achieve challenging targets (Costa et al. 1995; Peterson et al. 2003), sometimes by taking risks (Judge et al. 2002a). In contrast, introverts usually prefer working alone and are often calm and reserved (Costa and McCrae 1988; Harrison et al. 2019).

When financial constraints make job dismissals more likely (Campello et al. 2010), frequent communication can keep the workforce calm and productive (Coombs and Holladay 2010). Extraverted individuals are known for their proactive communication (McCrae and Costa 1987; Judge et al. 2002a), which can help convey a feeling of job security. In addition, extraversion is associated with strategic flexibility (Nadkarni and Herrmann 2010) and initiation of strategic change (Herrmann and Nadkarni 2014), both of which can help CEOs find the flexible solutions to the constraints on time and resources that can negatively affect employees' wellbeing.

Furthermore, since executives can influence the corporate climate with positive communication (Coombs and Holladay 2010), extraverted managers' ability to spread optimism and to convince others that achieving a target is possible (Bono



**Fig. 1** Overview of research model

and Judge 2004; Peterson et al. 2003) can help alleviate some of the burden of financial constraints on the workforce and mitigate the adverse effects of financial constraints on employee satisfaction. Given these arguments, we hypothesize:

**Hypothesis 3 (H3):** *The negative effect of financial constraints on overall employee satisfaction is mitigated by CEOs who have high levels of extraversion, whereas the negative effect strengthens when the CEO's level of extraversion is low.*

Figure 1 depicts our research model.

### 3 Methodology

#### 3.1 Sample and Data Sources

Our empirical investigation relies on data from all publicly traded U.S. firms that were listed in the Standard & Poor's (S&P) 500 index for at least one full year during the period from 2010 to 2016: This ensures adequate coverage by Glassdoor and investor earnings calls (required to determine employee satisfaction and the CEO's personality, respectively). We collect from Compustat a list of all firms and firm- and industry-level control variables and add executive-level information from ExecuComp.

We use the Open Language Chief Executive Personality Tool (OLCPT) from Harrison et al. (2019) to assess the CEOs' personality traits. Since the tool requires transcribed spoken language, we retrieve transcripts of final versions of quarterly earnings calls (not event briefs or abstracts) from LexisNexis' Full Disclosure Wire by searching for "Earnings Conference Call" or "Earnings Call" and year "2010" to "2016." We use 4688 earnings calls by the 357 CEOs in our final sample to define their personalities and match this information to our dataset using approximate string matching based on the individual's first and last name and the company's name. We explain this process in more detail in the section on moderator variables.

We follow Whited and Wu (2006) in measuring financial constraints using data from Compustat and exclude regulated and financial firms (SIC classifications between 4900 and 4999 and between 6000 and 6999) since Whited and Wu's proxy for financial constraints is inappropriate for firms in these industries.

We match employee satisfaction data from the Glassdoor website with the data from Compustat and ExecuComp by manually searching for every company's name on Glassdoor. The Glassdoor website allows employees to review anonymously the companies they currently work for or once worked for and to rate their overall satisfaction with these companies from one (low) to five (high) stars. Employees can also

evaluate in the same way their satisfaction with regard to five subcategories: culture and values, work/life balance, senior management, compensation and benefits, and career opportunities. Glassdoor implements a “give-to-get” policy that requires users to submit a review of an employer after viewing three reviews left by others to combat the polarizing ratings biases that are associated with self-selection and that can lead to bimodal ratings distributions (Hu et al. 2017; Li and Hitt 2008). Glassdoor’s policy reduces bias in its ratings (Marinescu et al. 2018), so its design characteristics support its rating quality (Landers et al. 2019). We follow prior research by including only evaluations from current employees (i.e., employees who worked for the respective company at the time of the review) to avoid the time distortion that often results from gaps between an event and its review (Hales et al. 2018; Jing et al. 2019). In line with Jing et al. (2019) and Hales et al. (2018), we restrict our sample to firms that had at least fifty reviews over the sample period to ensure a sufficient number of ratings per company, and we exclude observations that are missing one or more variables. This approach leads to a total of 206,066 reviews of the 287 firms in our final sample and an average of 136 reviews per firm per year.

After all firm-related variables are lagged by one year and observations with missing data are omitted, our final sample consists of 357 unique CEOs from 287 unique S&P 500 firms, resulting in a total of 1516 firm-year-observations from 2010 to 2016. Figure 2 depicts the sample selection process.

### 3.2 Measures

**Dependent variable** Our main analysis deals with overall employee satisfaction, measured using Glassdoor reviews. In line with Jing et al. (2019), our overall satisfaction measure takes the average of all overall satisfaction ratings per firm in a given year, while the five subcategory ratings of satisfaction serve as our dependent variables for supplementary analyses.

① <b>Sample basis</b>	<b>S&amp;P 500 firms and CEOs from 2010-2016</b> ( <i>Compustat for firm-level data, ExecuComp for executive-level data</i> )
② <b>CEO personality</b>	<b>Personality of 689 unique CEOs</b> from 479 firms (3,157 firm-year observations; <i>LexisNexis Full Disclosure Wire for earnings conference calls</i> )
③ <b>Financial constraints</b>	<b>Financial constraints</b> for 672 CEOs from 465 firms (3,067 firm-year observations; <i>Compustat</i> )
④ <b>Employee satisfaction</b>	<b>Employee satisfaction</b> for 637 CEOs from 440 firms (2,768 firm-year observations; <i>Glassdoor</i> )
⑤ <b>Control variables and sample filter</b>	<ul style="list-style-type: none"> <li>• Firm-level (<i>Compustat</i>)</li> <li>• Executive-level (<i>ExecuComp</i>)</li> <li>• Panel structure<sup>a</sup> (<i>Compustat</i>)</li> <li>• Exclusion of regulated and financial firms (<i>Compustat</i>)</li> </ul>
<b>Final sample characteristics</b>	<ul style="list-style-type: none"> <li>• <b>Study period</b> 2010-2016</li> <li>• <b>Panel dataset with 357 unique CEOs</b> of 287 different firms (1,516 firm-year observations)</li> </ul>

**Fig. 2** Overview of the sample development. <sup>a</sup>Year dummies (and industry dummies for the OLS model) included to control for the dataset’s panel structure). (Source: own illustration)

**Explanatory variable** We follow Whited and Wu (2006) in measuring financial constraints based on a generalized method of moments estimation of an investment Euler equation that considers six components: cash flow, a dividend dummy, leverage, firm size, industry sales growth, and firm sales growth. The equation is calculated as:

$$-0.091 A_{it} - 0.062 B_{it} + 0.021 C_{it} - 0.044 D_{it} + 0.102 E_{it} - 0.035 F_{it} \quad (1)$$

where A is cash flow, B is a dividend dummy, C is leverage, D is firm size, E is industry sales growth, F is firm sales growth, i is the firm, and t is time (on a year level).<sup>1</sup> A higher index indicates stronger financial constraints (Whited and Wu 2006). (See Jing et al. (2019) for information about applying the index.) We lag this variable by one year since we assume that financial constraints in  $t-1$  provide the situational cue for employee satisfaction in t.

Using the index from Whited and Wu (2006) to measure financial constraints has several advantages (Jing et al. 2019). Since their index is constructed as a structural model, it avoids sample selection and measurement errors. Compared to the index from Kaplan and Zingales (1997), Whited and Wu's (2006) index more correctly reflects which firm characteristics are usually associated with difficulty accessing external financing (i.e., financial constraints), such as small firm size and low firm growth in high-growth industries (Jing et al. 2019).

**Moderator variables** We include as moderator variables three personality traits from the FFM: the CEO's conscientiousness, extraversion, and openness to experience. We assess personality using the OLCPT, which employs CEOs' verbal statements and a machine-learning algorithm on S&P 1500 firms (of which we use a subset, the S&P 500) to determine personality traits.

Speech must be unscripted to be used to derive personality (Harrison et al. 2019, 2020b). Research argues that the question-and-answer (Q&A) parts of earnings calls are suitable for this purpose since CEOs must react to questions from equity analysts that require a spontaneous reply in the CEOs' own words (Malhotra et al. 2018; Matsumoto et al. 2011; Yi et al. 2020). Five steps are used to derive personality scores from these Q&A sessions: First, the CEOs' spoken words are extracted from the Q&A session. Then speakers from earnings calls are matched to CEOs from ExecuComp using approximate string matching in R<sup>2</sup> and verified manually to generate a table with matches based on the individual's first/last name and the company name (extracted from the earnings call title). Next, each CEO's spoken words across all Q&A sessions are merged, as combining CEOs' language in multiple settings increases the reliability of personality scores (Li et al. 2010; Malhotra

<sup>1</sup> Cash flow (A) is calculated as the sum of income before extraordinary items, depreciation, and amortization, divided by total assets. The dividend dummy (B) is an indicator that equals 1 if the sum of ordinary and preferred dividends is positive, and 0 otherwise. Leverage (C) is long-term debt divided by total assets. Firm size (D) is the natural logarithm of total assets. Industry sales growth (E) is the average industry sales growth, while firm sales growth (F) is the firms' sales growth (Whited and Wu 2006).

<sup>2</sup> See van der Loo (2014) for details on approximate string matching.

et al. 2018)<sup>3</sup>. Then CEOs who have fewer than 1000 spoken words are eliminated to allow for valid approximation of personality traits (Harrison et al. 2019, 2020b). (We have an average of 32,459 words per remaining CEO.) Finally, all text are run through the OLCPT, which provides scores for the three personality traits on a 7-point scale, with 1 (7) indicating low (high) openness to experience, conscientiousness, and extraversion. Scores for agreeableness and neuroticism are used in robustness checks. Mean values and standard deviations (SD) are in line with those of Harrison et al. (2019).

**Control variables** We control for CEO-, firm-, and industry-specific factors (other than financial constraints and the CEO's personality) that might influence employee satisfaction. First, we include the CEO's gender since female executives are associated with strong ethical leadership, which positively affects employee satisfaction (Ho et al. 2015; Neubert et al. 2009). CEO gender is a dummy variable that equals 1 if the CEO is female, and 0 otherwise. The CEO's tenure might affect employees' perception of the TMT, influencing employee satisfaction (Agnihotri and Bhattacharya 2020), so we measure CEO tenure as the natural logarithm of the number of years in the CEO's tenure to adjust for potential skewness. We also control for CEO duality as a dummy that equals 1 if the CEO also chairs the board, and 0 otherwise, as this factor might affect whether the firm is under financial constraints (Baker and Hall 2004).

In line with Jing et al. (2019), we also include several firm-related control variables. Research indicates that smaller firms are more likely than larger firms are to suffer from difficulty in accessing external financing, so firm size is negatively related to financial constraints (Campello et al. 2010; Hadlock and Pierce 2010; Whited and Wu 2006). Firm size can also relate to employee satisfaction (Gosse and Hurson 2016; Lang and Johnson 1994). We measure firm size as the natural logarithm of the firm's number of employees. Firm performance and financial slack may also influence both employee satisfaction (Bowen and Ostroff 2004; Wolter et al. 2019) and financial constraints (Campello et al. 2010; Cohn and Wardlaw 2016; Whited and Wu 2006), so we include several measures to account for these factors: Tobin's Q as the sum of the market value of equity and book value of debt, divided by a firm's total assets (Cohn and Wardlaw 2016); return on assets (ROA) as net income divided by total assets; the market-to-book ratio as the market value of equity scaled by the book value of equity (Cohn and Wardlaw 2016; Jing et al. 2019); leverage, calculated as total liabilities scaled by total assets (Jing et al. 2019);

<sup>3</sup> Combining the CEOs' language used in various settings requires treating personality as stable. In their meta-analysis, Roberts, Walton, and Viechtbauer (2006) find that personality traits develop through childhood, adolescence, and early adulthood, but changes are minor after age forty. The mean age in our sample is 56.30 years (with a standard deviation of 6.18 years), and our sample period is relatively short (7 years), so we do not see treating personality as stable as being problematic in our dataset. To investigate further whether the CEO's personality is stable over our period of interest, we follow Harrison, Thurgood, and Boivie (2020b) and Malhotra, Reus, Zhu, and Roelofsen (2018) in splitting our dataset into two time periods (2010–2012 and 2014–2016), filtering for CEOs who spoke at least 1000 words in three earnings calls in each of the two periods, calculating separate personality scores per period for fifty CEOs who fulfill the criteria, and comparing the personality scores in both periods. Doing so yields a test-retest reliability coefficient that ranges between 0.82 and 0.95 ( $p=0.000$ ), which is close to those of Harrison et al. (2020b).

and capital intensity, measured as the firm's capital expenses divided by total sales (Nadkarni and Herrmann 2010). All firm-related control variables are lagged by one year to facilitate causal interpretation and are winsorized at the 1st and 99th percentiles to reduce the influence of outliers.

Since our sample is structured as an unbalanced panel dataset, we add year dummies to account for external shocks that may have affected all firms in a particular year (Jing et al. 2019). For the pooled OLS model, we add industry dummies based on 2-digit SIC codes to capture industry effects that are not covered by other control variables.

### 3.3 Method of Analysis

Since we have a panel dataset, we use a GEE model to evaluate whether the CEO's personality moderates the relationship between financial constraints and employee satisfaction. (See Table 1, model 1.) GEE models account for the likelihood that observations of the same firm in multiple years will correlate with each other; that

**Table 1** GEE and Pooled OLS model testing H1–3

	Model 1 (GEE)			Model 2 (pooled OLS)		
	<i>b</i>	<i>SE</i>	<i>p-value</i>	<i>b</i>	<i>SE</i>	<i>p-value</i>
Intercept	3.13	0.12	0.000	3.05	0.18	0.000
Financial constraints	-1.48	0.34	0.000	-1.80	0.43	0.000
CEO Conscientiousness	-0.16	0.05	0.002	-0.08	0.08	0.286
CEO Extraversion	-0.08	0.04	0.027	-0.05	0.05	0.393
CEO Openness	0.17	0.07	0.008	0.10	0.09	0.262
CEO Gender	-0.06	0.08	0.403	-0.14	0.07	0.064
CEO Duality	-0.01	0.07	0.887	0.02	0.10	0.844
CEO Tenure	-0.01	0.01	0.576	-0.02	0.02	0.312
Firm size	-0.03	0.02	0.087	-0.03	0.02	0.223
Tobin's Q	0.06	0.02	0.000	0.08	0.02	0.000
Market-to-book	0.00	0.00	0.413	0.00	0.00	0.860
Return on assets	0.43	0.25	0.080	-0.06	0.29	0.826
Capital intensity	0.19	0.24	0.440	0.37	0.25	0.148
Leverage	-0.03	0.08	0.750	-0.13	0.10	0.185
Financial constraints * CEO Conscientiousness	-1.24	0.60	0.039	-1.66	0.63	0.009
Financial constraints * CEO Extraversion	-0.42	0.38	0.273	-0.36	0.55	0.514
Financial constraints * CEO Openness	1.61	0.64	0.011	2.04	0.85	0.017
Industry dummies	Not included <sup>a</sup>			Included		
Year dummies	Included			Included		
Number of CEOs	357			357		
Number of firm-year observations	1516			1516		

<sup>a</sup>Not included due to clustering at firm level

**Table 2** Descriptive statistics and bivariate correlations

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1 Overall satisfaction	3.39	0.47	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2 Financial constraints	-0.46	0.06	-0.15	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3 CEO openness	4.73	0.56	-0.01	0.25	-	-	-	-	-	-	-	-	-	-	-	-	-
4 CEO conscientiousness	5.12	0.52	-0.12	0.15	0.71	-	-	-	-	-	-	-	-	-	-	-	-
5 CEO extraversion	4.87	0.71	-0.08	0.14	0.71	0.45	-	-	-	-	-	-	-	-	-	-	-
6 CEO agreeableness	4.22	0.74	0.04	0.30	0.85	0.55	0.66	-	-	-	-	-	-	-	-	-	-
7 CEO neuroticism	3.20	0.59	0.03	-0.26	-0.81	-0.64	-0.68	-0.77	-	-	-	-	-	-	-	-	-
8 CEO gender	0.05	0.21	-0.08	-0.06	-0.02	0.04	0.04	0.02	-0.02	-	-	-	-	-	-	-	-
9 CEO duality	0.96	0.19	0.04	-0.07	-0.01	-0.05	0.00	-0.01	0.01	-0.02	-	-	-	-	-	-	-
10 CEO tenure	1.78	0.79	0.03	0.01	0.01	-0.01	-0.06	-0.05	0.02	-0.11	0.01	-	-	-	-	-	-
11 Firm size	3.21	1.27	-0.06	-0.57	0.02	0.19	0.15	-0.09	-0.07	0.07	0.09	-0.03	-	-	-	-	-
12 Tobin's Q	1.80	1.15	0.22	0.33	0.32	0.21	0.16	0.31	-0.33	-0.02	-0.01	0.11	-0.22	-	-	-	-
13 Market-to-book	3.97	6.08	0.09	0.03	0.14	0.17	0.12	0.10	-0.13	0.01	0.13	0.01	0.01	0.37	-	-	-
14 Return on assets	0.07	0.06	0.13	0.08	0.19	0.14	0.11	0.19	-0.23	0.00	0.02	0.03	-0.03	0.60	0.21	-	-
15 Capital intensity	0.07	0.10	0.11	-0.22	-0.39	-0.32	-0.50	-0.39	0.50	-0.05	0.01	0.03	-0.15	-0.16	-0.10	-0.21	-
16 Leverage	0.58	0.20	-0.08	-0.16	-0.04	0.09	0.06	-0.11	0.04	0.16	-0.04	-0.08	0.28	-0.18	0.07	-0.21	-0.11

*n* = 357 CEOs with with 1516 firm-year observations, lagged and winsorized, correlations larger or equal to 0.061 are significant at the 0.05 level

is, such observations are likely to be more similar to each other than they are to observations of other firms. We apply a pooled OLS model in the robustness section and find highly consistent results. For the pooled OLS model, we use robust standard errors clustered on the firm level and perform a Breusch Godfrey test ( $\text{chisq} = 157$ ,  $\text{df} = 1$ ,  $p < 0.001$ ), providing further support for using the GEE model. (A fixed-effects model is inappropriate since personality traits, our moderator variables, are time-invariant (Certo et al. 2017; Harrison et al. 2019).) Therefore, a GEE model appears most suitable for the study's research purpose (Hardin and Hilbe 2012). We assume an exchangeable correlation structure.<sup>4</sup>

To facilitate the interpretation of interaction terms (Dawson 2014), we mean-center the variables related to financial constraints and personality traits in the regression analyses.

## 4 Results

### 4.1 Descriptive Statistics

Table 2 shows the descriptive statistics and bivariate correlations. Mean and standard deviations of employees' overall satisfaction ratings are similar to those of Jing et al. (2019), and mean and standard deviations of personality traits are much like those of Harrison et al. (2019). The overall satisfaction rating negatively correlates with financial constraints ( $r = -0.15$ ), and personality traits significantly correlate with each other, which is consistent with prior research (Colbert et al. 2014; McCrae and Costa 1987; Harrison et al. 2019; Malhotra et al. 2018). Correlations among the control variables are weak to moderate (Ratner 2009) and similar to the results in Jing et al. (2019).<sup>5</sup> Most CEO- and firm-specific control variables correlate with employee satisfaction and financial constraints, providing support for including these variables in the regression analyses (Germann et al. 2015).

### 4.2 Main Findings

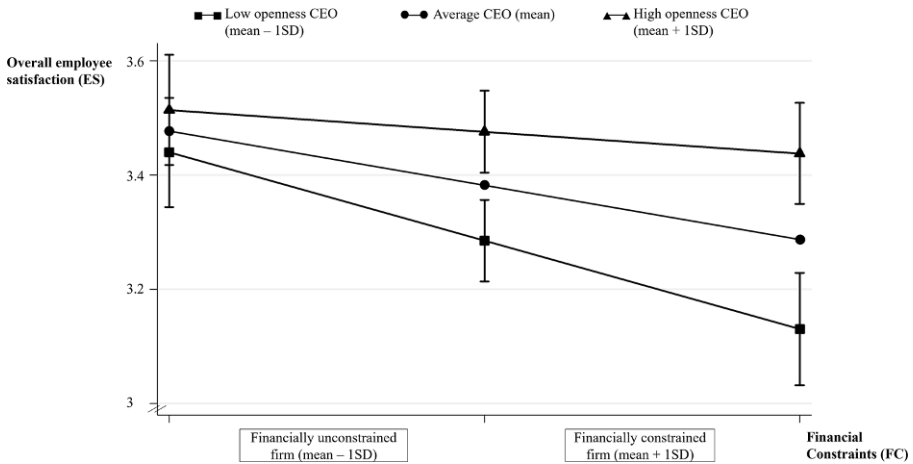
In Table 1, model 1 shows the results of a GEE model used to test H1–3, and Model 2 shows the results of a pooled OLS model.

Model 1 presents the results for the moderating role of the CEO's personality traits (reflected in openness to experience, conscientiousness, and extraversion) on the relationship between financial constraints and employee satisfaction (H1–3). The model shows that financial constraints have a negative effect on employee satisfaction ( $-1.48$ ,  $p < 0.001$ ). This result, including the effects of control variables on employee satisfaction, is consistent with Jing et al.'s (2019) findings.

<sup>4</sup> We also apply the GEE with an independent correlation and with an AR1 correlation structure and calculate the quasi-likelihood under the independence model criterion (QIC) to determine which structure is more realistic. Since the model with the exchangeable correlation structure yields the lowest QIC score, that model is more suitable (Ballinger 2004; Pan 2001).

<sup>5</sup> We thank the authors for providing us with their bivariate correlation scores.



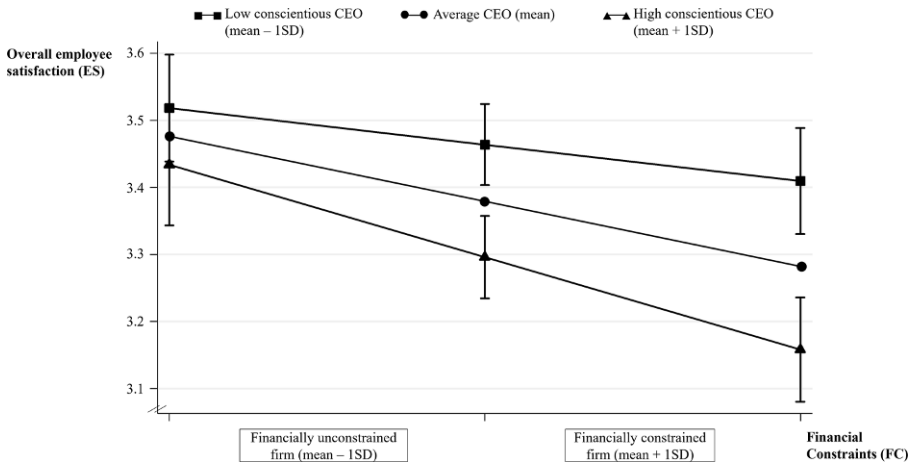


**Fig. 3** Moderation effect of CEO openness to experience on the relation between financial constraints and employee satisfaction (H1), displaying 95% confidence intervals for high and low levels of CEO openness

CEOs' openness to experience positively moderates (strengthens) the relationship between financial constraints and employee satisfaction (1.61,  $p=0.011$ ), as plotted in Fig. 3. We derive two main insights from Fig. 3: First, if a firm suffers from financial constraints (one SD above the mean), the CEO's level of openness becomes a decisive predictor of employee satisfaction. In numerical terms, the average employee satisfaction in firms that have financial constraints lies at 3.28, but if these firms have open CEOs (one SD above the mean), employees are more satisfied (3.44) than if they had CEOs who were low in openness (one SD below the mean; satisfaction of 3.13), a difference of 9.90%. On the other hand, CEOs' openness in firms that are not financially constrained makes much less difference, as employee satisfaction ranges from only 3.44 to 3.51, depending on the CEO's level of openness. This result indicates that CEOs' level of openness is especially powerful when their firms are under pressure, which is in line with research that describes the prominent role of the CEO's personality in challenging situations (McCrae and Costa 1987; Harrison et al. 2019).

The second insight from Fig. 3 is that the CEO's openness buffers the negative effect that financial constraints usually have on employee satisfaction. Firms have an average employee satisfaction level of 3.38, but the satisfaction level of a financially constrained firm is 3.28. However, satisfaction in firms that have open CEOs remains high, at 3.44, even when they have financial constraints. A simple slope test confirms that the effect of financial constraints on employee satisfaction becomes insignificant ( $-0.58$ ,  $p=0.169$ ) in firms with highly open CEOs. For CEOs who have low levels of openness, the negative effect of financial constraints on employee satisfaction is strong ( $-2.38$ ,  $p<0.001$ ).

Following Steinberg et al. (2022), we also display the 95% confidence intervals for high and low levels of openness and find that, beyond a value of  $>-0.20$  for financial constraints, the confidence intervals no longer overlap, so the direct effect of openness becomes significant in the interaction. These findings provide strong



**Fig. 4** Moderation effect of CEO conscientiousness on the relation between financial constraints and employee satisfaction (H2), displaying 95% confidence intervals for high and low levels of CEO conscientiousness

support for our hypothesis H1, which states that CEOs' openness can mitigate the negative impact of financial constraints on employee satisfaction.

CEOs' conscientiousness negatively moderates the relationship between financial constraints and employee satisfaction ( $-1.24, p = 0.039$ ), as plotted in Fig. 4.

We derive two central insights from Fig. 4: First, the CEO's level of conscientiousness is a salient determinant of employee satisfaction in financially constrained firms. Employees in financially constrained firms have an average satisfaction level of 3.28, but that level rises to 3.41 when the CEO is low in conscientiousness (one SD below the mean) and falls to 3.16 when the CEO is highly conscientious (one SD above the mean), a difference of 7.91%. In financially unconstrained firms, CEOs' conscientiousness does not affect satisfaction, as satisfaction varies only between 3.43 and 3.52, depending on the CEO's level of conscientiousness. This result confirms research that argues that the effect of the CEO's personality is particularly pronounced in high-pressure situations like that of financial constraint (McCrae and Costa 1987; Harrison et al. 2019).

Second, Fig. 4 shows that a conscientious CEO almost entirely buffers the adverse effect of financial constraints on employee satisfaction: The 3.38 average satisfaction level of all firms in our sample drops to 3.28 for financially constrained firms, but satisfaction rises slightly to 3.41 when the CEO is less conscientious, despite the financial constraint. The simple slope test supports the view that the impact of financial constraints on employee satisfaction is insignificant ( $-0.84, p = 0.063$ ) when a firm's CEO has a low level of conscientiousness, while the impact of financial constraints on employee satisfaction is strong ( $-2.12, p < 0.001$ ) in firms whose CEOs are highly conscientious.

Following Steinberg et al. (2022), we also display the 95% confidence intervals for high and low levels of conscientiousness and find that, beyond a value of  $> -0.27$  for financial constraints, they no longer overlap, so the direct effect of conscientiousness

becomes significant in the interaction. These findings support our hypothesis H2, which states that a low level of CEO conscientiousness mitigates the negative effect of financial constraints on employee satisfaction.

CEOs' extraversion does not significantly moderate the relationship between financial constraints and employee satisfaction ( $-0.42, p=0.273$ ), so our results do not support H3. We address this result further in the discussion section.

### 4.3 Supplementary Analyses

Here we determine which subcomponents of the overall employee satisfaction score are the main drivers of our results by repeating the regression that tests H1 and H2 with the five subcategories of the Glassdoor reviews as dependent variables: culture and values, work/life balance, senior management, compensation and benefits, and career opportunities. Our findings suggest that the interaction effect between financial constraints and the CEO's personality impacts employees' ratings of their firms' culture and values, their career opportunities, and compensation and benefits but not the other two indicators.<sup>6</sup>

Jing et al. (2019) state that workplace culture in financially constrained firms deteriorates when employees lose on-the-job perks, face increasing pressure from their superiors (resulting in lower morale and confidence), and are uncertain about their career progression. That the CEO's personality moderates financial constraints' relationship with workplace culture could indicate that employees are hopeful that open CEOs and CEOs with low levels of conscientiousness will maintain a positive workplace culture. In contrast, employees' satisfaction with neither senior management nor work/life balance seems to depend on the interaction between financial constraints and the CEO's personality.

### 4.4 Robustness Tests

We perform several additional analyses to examine the robustness of our findings.

**Alternative regression models** We repeat our analyses using a pooled OLS model as a robustness check. (See Table 1, model 2.) To address our data's panel structure, we use heteroskedasticity and serial correlation robust standard errors clustered at the firm and year levels (Arellano 1987). We find that our results for H1–3 are highly consistent with those from our main model in terms of direction, size, and significance levels. In addition, we perform all robustness checks from the GEE model for the pooled OLS model as well and find stable results.

**Multicollinearity** As expected, we find strong bivariate correlations between personality scores, so further examination of potential multicollinearity issues is required. We start by analyzing variance inflation factors. Since our models include factor variables (i.e., year and industry dummies), we use generalized variance inflation factors (GVIF) to assess multicollinearity. As the size of the GVIF tends

---

<sup>6</sup> Regression tables are available from the authors up request.

to grow with the number of dummy variables in a set, Fox and Monette (1992) recommend taking the  $\text{GVIF}^{(1/2 \text{ df})}$ , for which we find values ranging from 1.09 to 2.08. Squaring the  $\text{GVIF}^{(1/2 \text{ df})}$  results in values between 1.17 and 4.33, which is well below the commonly accepted threshold of 10 (Cohen et al. 2003; Fox and Monette 1992).

Even though this result does not indicate multicollinearity issues, we follow Echambadi et al.'s (2006) recommendation in investigating multicollinearity by testing the coefficients' stability and plausibility. Echambadi et al. (2006) propose repeating regression analyses with subsets of the full sample and, if the results vary, accepting that multicollinearity might be a problem. We draw ten random subsets of our entire sample, each consisting of 90% of observations, and repeat the regression analyses, testing H1–3 for each of the ten subsets. We find that all effects are highly consistent in direction, size, and significance levels with what we find using the full sample to examine H1 and H2. Overall, these analyses indicate that multicollinearity does not distort the results of our study (Cohen et al. 2003; Echambadi et al. 2006).

In accounting for the chances of multicollinearity, we also perform our main analysis without control variables using the same sample. Although our  $p$ -values are less convincing, we still find significant interaction effects with the same direction. The CEO's openness (1.33,  $p=0.056$ ) and conscientiousness ( $-1.25$ ,  $p=0.049$ ) mitigate the negative effect of financial constraints on employee satisfaction.

After excluding the personality dimensions one by one from the models, we test whether the results remain stable. We find that, when extraversion is excluded, the results remain stable for the interaction terms of openness (1.32,  $p=0.022$ ) and conscientiousness ( $-1.18$ ,  $p=0.049$ ) with financial constraints. When we exclude openness and conscientiousness, respectively, the interaction terms are no longer significant.

**Endogeneity** Endogeneity problems can result when a variable that is not included in an analysis affects both the explanatory variables and the dependent variable (Wooldridge 2010). Therefore, omitted variable bias will occur if the omitted variable confounds our proposed relationships and also influences CEO personality, financial constraints, and overall satisfaction. An individual's personality is widely accepted as being stable after age 40 (Roberts et al. 2006). Since the mean age of CEOs in our sample is 56.3 years, with a standard deviation of 6.2 years, we expect their personalities to be stable and unaffected by any omitted variable that might affect employee satisfaction. Because of this stability, personality—along with such variables as intelligence quotient (IQ)—is considered a good instrument (Antonakis 2011). In addition, personality is considered to be exogenous (Antonakis et al. 2010), which makes omitted variable bias and reverse causality related to the moderation effect unlikely.

Nevertheless, to quantify the potential for omitted variable bias, we follow the recommendations of Busenbark et al. (2021) and Frank (2000) to analyze the robustness of inference to replacement (RIR). We compute the bias necessary to invalidate our inference at a  $p < 0.1$  significance level (Frank et al. 2013) and find that 24.23% of our estimate for conscientiousness and 31.34% of our estimate for openness to experience would have to be due to bias to invalidate our results. In other words, 367

cases for conscientiousness and 475 cases for openness would have to be replaced with cases for which there is an effect of 0, which seems unreasonable. Thus, we do not believe that our results are affected by omitted variable bias. Busenbark et al. (2021) further suggest analyzing how much adding or removing control variables changes the focal coefficient in the model and comparing this with the percentage value retrieved from the RIR. We remove the control variables Tobin's Q and capital intensity that are most strongly correlated with the independent, and dependent variables. The focal coefficients change by a maximum of |2| percent compared to the original model, which is much lower than the reported RIR results. When removing all control variables, the coefficient of the interaction term changes by  $-17\%$  for openness to experience, while the coefficient of the interaction term changes by  $1\%$  for conscientiousness. Following Busenbark et al. (2021, p. 28) those results indicate that we are not likely to have a problem with biases, "for any source of endogeneity, not limited exclusively to omitted variable (Frank et al. 2013)." We also address the possibility of reverse causality by lagging the variables in the model.

Endogenous sample selection bias may result from selecting nonrandom samples, that is, when the cases included in the sample result from an unobserved process (Certo et al. 2016), so we use a Heckman selection model to determine the likelihood of sample selection bias. Following the approach described in Engelen et al. (2022), we construct an instrument from the Glassdoor data based on the average number of reviews from firms in the same industry (Germann et al. 2015). Then we calculate a probit model using the dependent variable with the instrument and all variables from the main model as independent variables as the selection criterion. As a result, we receive the inverse Mills ratio, which we add as a control variable in our second-stage model, for which we use pooled OLS (Wolfolds and Siegel 2019). Our results remain highly consistent with those from our main model. For instance, CEOs' openness to experience (conscientiousness) positively (negatively) moderates the relationship between financial constraints and employee satisfaction ( $1.98, p=0.023$ ;  $-1.66, p=0.009$ ). The inverse Mills ratio is not significant ( $p>0.1$ ) in any of these models.

**Other personality traits as control variables** We do not hypothesize or model the CEO's levels of neuroticism or agreeableness as part of our main analyses but repeat our calculations with neuroticism and agreeableness as control variables as a robustness check. While our findings remain highly consistent, we caution against relying too heavily on these results because of strong bivariate correlations between agreeableness and neuroticism ( $r=-0.77$ ), agreeableness and openness ( $r=0.85$ ), and neuroticism and openness ( $r=-0.81$ ).

## 5 Discussion and Conclusion

Our research shows that the negative effect of financial constraints on employee satisfaction can be buffered by two personality traits: high openness to experience or low conscientiousness (H1, H2). However, CEOs with opposite personality traits—low openness or high conscientiousness—pose a significant danger to employee satisfac-

tion when their firms are under financial constraints, as satisfaction levels are 8–10% lower when CEOs are less open or highly conscientious. Our research finds no effect of extraversion on the relationship between financial constraints and employee satisfaction.

## 5.1 Theory-related Implications

Our findings have four primary implications for management research that uses upper echelons theory to examine financial constraints, the antecedents of employee satisfaction, and the impact of the CEO's personality. First, we add to emerging research on the effects of financial constraints by arguing theoretically and confirming empirically that detrimental effects on employee satisfaction can be buffered by CEOs whose personality traits include openness but not conscientiousness. This finding equips shareholders and other strategic decision-makers with knowledge about what may happen to employee satisfaction (and its likely outcomes) when their firms are financially constrained, based on their CEOs' personality traits.

Second, we advance strategic management research on the antecedents of employee satisfaction. As scholars in the field of resource-based theory argue, stakeholders like employees are essential drivers of firm performance (Barney 2018, 2020). Our study shows that understanding the origins of employee satisfaction requires investigating interacting factors, rather than single factors in isolation, and that the interaction between financial constraints and the CEO's personality is one such revealing interaction.

Third, we extend management research on both upper echelons and trickle-down effects. Our findings are in line with both perspectives in that they indicate that the CEO's personality is a dominant predictor of firm outcomes in terms of employee satisfaction when the firm is under financial constraints. Through trickle-down effects, the CEO's personality traits not only affect those who directly report to him or her, but also cascade down to all employees (Smith et al. 2018), so they affect employee satisfaction at all levels when the firm is financially constrained. More specifically, we derive the personality traits of a manager who can be effective in protecting employee satisfaction when the firm is financially constrained as one who has a high level of openness and/or a low level of conscientiousness. Since we do not find any effect of extraversion in moderating the relationship between financial constraints and employee satisfaction, both extraversion and introversion could be beneficial in managing the impact of financial constraints on employee satisfaction. Extraverted CEOs may be able to mitigate the negative consequences of financial constraints on employee satisfaction by spreading optimism, positively affecting corporate culture, and reacting flexibly to challenging situations, while an introverted CEO's calm nature and ability to think complex tasks through before reacting to crises (Bono and Judge 2004; Costa and McCrae 1988) can positively affect employees' perceptions of job security and their firms' corporate culture. Such counteracting forces may have led to inconclusive results regarding H3.

Finally, our study is among the first to apply Glassdoor reviews as indicators of employee satisfaction and to use the linguistic tool developed by Harrison et al. (2019) to determine personality. This approach allows us to analyze the associations

among financial constraints, the CEO's personality, and employee satisfaction based on a comparatively large sample, rather than using the survey-based methods that are often limited to smaller samples.

## 5.2 Practical Implications

From a practical perspective, our findings underscore the importance of the board of directors' and other TMT executives' paying close attention to the CEO's personality when a firm is under financial constraints. CEOs who have low levels of openness or high levels of conscientiousness typically react to financial constraints in a manner that can be detrimental to employee satisfaction, resulting in negative consequences for a company's ability to deal effectively with the crisis. Therefore, knowing whether the CEO's reaction to financial constraints (contingent on his or her personality) is likely to be detrimental to employee satisfaction can help the team support and encourage the employee-friendly response that can protect firm value. This information can also be valuable for succession decisions, as the board of a financially constrained firm should pay close attention to candidates' personalities to ensure they choose a person who can protect employee satisfaction.

## 5.3 Limitations and Avenues for Future Research

Our study has several limitations that provide opportunities for future research. First, we assess financial constraints using the index developed by Whited and Wu (2006), which is found to be a valid proxy for constraints (Jing et al. 2019). Future research could use other indices to ratify our findings. (See Hadlock and Pierce (2010) for an evaluation of these indices.) In addition, Jing et al. (2019) recommend differentiating between equity and debt constraints using the method from Hoberg and Maksimovic (2014). Future research could repeat our analyses with other measures for financial constraints to paint a more granular picture of how financial constraints affect employee satisfaction. Additional research is also required regarding the underlying mechanisms that may explain why financial constraints lead to reduced job satisfaction.

Another limitation lies in our use of quantitative ratings from Glassdoor to determine employee satisfaction, a choice we made because employees' qualitative assessments of their satisfaction can provide employees' perspectives (Dabirian et al. 2017; Schmiedel et al. 2019). However, we do not determine the specific aspects of satisfaction that are affected by financial constraints and the CEO's personality. Future research could build on this methodology to deepen our understanding of employee satisfaction. Furthermore, future research in this field would benefit tremendously from including the rater characteristics such as gender, age and nationality which are now available by Glassdoor (Glassdoor 2021), to differentiate employees' reactions further.

Recent advancements in upper echelons research, especially that on strategic leadership interfaces, stress that it is not the CEO in isolation who influences organizations but the CEO's interfaces with other corporate actors, such as the TMT and the board (Georgakakis et al. 2019; Simsek et al. 2018). Including the personality

characteristics of other TMT or board members could be a promising addition to research, as could team dynamics and personality constellations in the leadership team.

Future research could also include mid-cap and small-cap organizations in an analysis because, especially in smaller organizations, these employees are likely to interface directly with the CEO, resulting in even strong effects of the CEO's personality on their attitude toward financial constraints.

**Acknowledgements** We thank Chenxing Jing for details on statistics related to the paper, "Financial constraints and employee satisfaction" (Jing, Keasey, Lim, & Xu, 2019).

**Funding** Open access funding provided by Schmalenbach-Gesellschaft.

**Author Contribution** Dr. Laura Neumeyer: 40%, e.g., design and conceptualization of the research, data collection and preparation, empirical analysis, evaluation and interpretation of the results, drafting of the manuscript

Dr. Anna Gründler: 35%, e.g., review of research models, empirical analysis, discussion and review of results, drafting of the manuscript, editing and quality assurance of the manuscript

Dr. Anna-Luisa Stöber: 25%, e.g., discussion and review of results, drafting of the manuscript, editing and quality assurance of the manuscript

## Declarations

**Conflict of interest** L. Neumeyer, A. Gründler and A.-L. Stöber declare that they have no competing interests.

**Ethical standards** For this article no studies with human participants or animals were performed by any of the authors. All studies mentioned were in accordance with the ethical standards indicated in each case. **Consent to participate (include appropriate statements):** not applicable. **Consent for publication (include appropriate statements):** not applicable.

**Open Access** This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>.

## References

- Agnihotri, Ariptra, and Bhattacharya Saurabh. 2020. TMT socio-demographic traits and employee satisfaction. *The International Journal of Human Resource Management* <https://doi.org/10.1080/09585192.2020.1783341>.
- Antonakis, John. 2011. *The sage handbook of leadership. Predictors of leadership: the usual suspects and the suspect traits*. Thousand Oaks: SAGE.
- Antonakis, John, Samuel Bendahan, Philippe Jacquart, and Rafael Lalive. 2010. On making causal claims: a review and recommendations. *Leadership Quarterly* 21:1086–1120. <https://doi.org/10.1016/j.leaqua.2010.10.010>.
- Arellano, Manuel. 1987. Computing robust standard errors for within-groups estimators. *Oxford Bulletin of Economics and Statistics* 49:431–434.



- Baker, Georg P., and Brain J. Hall. 2004. CEO incentives and firm size. *Journal of Labor Economics* 22:767–798. <https://doi.org/10.1016/j.jfineco.2004.10.011>.
- Ballinger, Gary A. 2004. Using generalized estimating equations for longitudinal data analysis. *Organizational Research Methods* 7:127–150. <https://doi.org/10.1177/1094428104263672>.
- Barney, Jay B. 2018. Why resource-based theory's model of profit appropriation must incorporate a stakeholder perspective. *Strategic Management Journal* 39(13):3305–3325. <https://doi.org/10.1002/smj.2949>.
- Barney, Jay B. 2020. Measuring firm performance in a way that is consistent with strategic management theory. *Academy of Management Discoveries* 6(1):5–7. <https://doi.org/10.5465/amd.2018.0219>.
- Benischke, Mirko H., Geoffrey P. Martin, and Lotte Glaser. 2019. CEO equity risk bearing and strategic risk taking: the moderating effect of CEO personality. *Strategic Management Journal* 40(1):153–177. <https://doi.org/10.1002/smj.2974>.
- Benson, John, and Michelle Brown. 2011. Generations at work: are there differences and do they matter? *The International Journal of Human Resource Management* 22(9):1843–1865. <https://doi.org/10.1080/09585192.2011.573966>.
- Bono, Joyce E., and Timothy A. Judge. 2004. Personality and transformational and transactional leadership: a meta-analysis. *Journal of Applied Psychology* 89(5):901–910. <https://doi.org/10.1037/0021-9010.89.5.901>.
- Bowen, David E., and Cheri Ostroff. 2004. Understanding HRM-firm performance linkages: the role of the “strength” of the HRM system. *Academy of Management Review* <https://doi.org/10.2307/20159029>.
- Busenbark, John R., Hyunjung Yoon, Daniel L. Gamache, and Michael C. Withers. 2021. Omitted variable bias: examining management research with the impact threshold of a confounding variable (ITCV). *Journal of Management* 48(1):17–48. <https://doi.org/10.1177/01492063211006458>.
- Buyl, Tine, Christophe Boone, Walter Hendriks, and Paul Matthyssens. 2011. Top management team functional diversity and firm performance: The moderating role of CEO characteristics. *Journal of Management Studies* 48(1):151–177. <https://doi.org/10.1111/j.1467-6486.2010.00932.x>.
- Campello, Murillo, John R. Graham, and Campbell R. Harvey. 2010. The real effects of financial constraints: evidence from a financial crisis. *Journal of Financial Economics* 97(3):470–487. <https://doi.org/10.1016/j.jfineco.2010.02.009>.
- Certo, Travis, John R. Busenbark, Hyun Woo, and Matthew Semadeni. 2016. Sample selection bias and Heckman models in strategic management research. *Strategic Management Journal* 37(13):2639–2657. <https://doi.org/10.1002/smj.2475>.
- Certo, Travis, Michael C. Withers, and Matthew Semadeni. 2017. A tale of two effects: using longitudinal data to compare within- and between-firm effects. *Strategic Management Journal* 38(7):1536–1556. <https://doi.org/10.1002/smj.2586>.
- Cohen, Jacob, Patricia Cohen, Stephen G. West, and Leona S. Aiken. 2003. *Applied multiple regression/correlation analysis for the behavioral sciences*, 3rd edn., Mahwah: Erlbaum.
- Cohn, Jonathan B., and Malcom I. Wardlaw. 2016. Financing constraints and workplace safety. *The Journal of Finance* 71(5):2017–2058. <https://doi.org/10.1111/jofi.12430>.
- Colbert, Amy E., Murray R. Barrick, and Bret H. Bradley. 2014. Personality and leadership composition in top management teams: Implications for organizational effectiveness. *Personnel Psychology* 67(2):351–387. <https://doi.org/10.1111/peps.12036>.
- Coombs, Timothy W., and Sherry J. Holladay. 2010. *The handbook of crisis communication*. New Jersey: United States.
- Corritore, Matthew, Amir Goldberg, and Sameer B. Srivastava. 2020. Duality in diversity: how intrapersonal and interpersonal cultural heterogeneity relate to firm performance. *Administrative Science Quarterly* 65(2):359–394. <https://doi.org/10.1177/0001839219844175>.
- Costa, Paul T., and Robert R. McCrae. 1988. From catalog to classification: Murray's needs and the five-factor model. *Journal of Personality and Social Psychology* 55(2):258–265. <https://doi.org/10.1037/0022-3514.55.2.258>.
- Costa, Paul T., Robert R. McCrae, and Gary G. Kay. 1995. Persons, places, and personality: career assessment using the revised NEO personality inventory. *Journal of Career Assessment* 3(2):123–139. <https://doi.org/10.1177/106907279500300202>.
- Dabirian, Amir, Jan Kietzmann, and Hoda Diba. 2017. A great place to work!? Understanding crowd-sourced employer branding. *Business Horizons* 60(2):197–205. <https://doi.org/10.1016/j.bushor.2016.11.005>.
- Dawson, Jeremy F. 2014. Moderation in management research: what, why, when, and how. *Journal of Business and Psychology* 29:1–19. <http://www.jstor.org/stable/24709903>.

- Echambadi, Raj, Inigo Arroniz, Werner Reinartz, and Lee Junsoo. 2006. Empirical generalizations from brand extension research: how sure are we? *International Journal of Research in Marketing* 23(3):253–261. <https://doi.org/10.1016/j.ijresmar.2006.02.002>.
- Edmans, Alex. 2011. Does the stock market fully value intangibles? Employee satisfaction and equity prices. *Journal of Financial Economics* 101(3):621–640. <https://doi.org/10.1016/j.jfineco.2011.03.021>.
- Edmans, Alex. 2012. The link between job satisfaction and firm value, with implications for corporate social responsibility. *Academy of Management Perspectives* 26(4):1–19. <https://doi.org/10.5465/amp.2012.0046>.
- Elrehail, Hamzah, Ibrahim Harazneh, Mohammad Abuhjeeleh, Amro Alzghoul, Sakher Alnajdawi, and Hussein M. Ibrahim. 2020. Employee satisfaction, human resource management practices and competitive advantage. *European Journal of Management and Business Economics* 29(2):125–149. <https://doi.org/10.1108/EJMBE-01-2019-0001>.
- Engelen, Andreas, Verena Rieger, Marius Wehner, and Fabian Heidemann. 2022. Is organizational commitment to IT good for employees? The role of industry dynamism and concentration. *MIS Quarterly* <https://doi.org/10.25300/MISQ/2022/16588>.
- Finkelstein, Sydney, Donald C. Hambrick, and Albert A. Cannella. 2009. Strategic leadership: theory and research on executives, top management teams, and boards. In *Strategic Management*, 83–120. <https://doi.org/10.1093/acprof:oso/9780195162073.003.0004>.
- Fox, John, and Georges Monette. 1992. Generalized collinearity diagnostics. *Journal of the American Statistical Association* 87(417):178–183. <https://doi.org/10.1080/01621459.1992.10475190>.
- Frank, Kenneth A. 2000. Impact of a confounding variable on a regression coefficient. *Sociological Methods & Research* 29(2):147–194. <https://doi.org/10.1177/004912410002900200>.
- Frank, Kenneth A., Spiro Maroulis, Minh Duong, and Benjamin Kelcey. 2013. What would it take to change an inference? Using Rubin's causal model to interpret the robustness of causal inferences. *Education, Evaluation and Policy Analysis* 35:437–460. <https://doi.org/10.3102/0162373713493129>.
- Freeman, Edward, Jeffrey Harrison, Andrew Wicks, Bidhan Parmar, and Simone de Colle. 2010. *Stakeholder theory*. Cambridge: Cambridge University Press. <https://doi.org/10.1002/9781405164771.ch1>.
- Fu, Weihui, and Satish P. Desphande. 2014. The impact of caring climate, job satisfaction, and organizational commitment on job performance of employees in a China's insurance company. *Journal of Business Ethics* 124:339–349. <https://doi.org/10.1007/s10551-013-1876-y>.
- Georgakakis, Dimitrios, Mariano Heyden, Jana Oehmichen, and Ekanayake Udari. 2019. Four decades of CEO-TMT interface research: a review inspired by role theory. *The Leadership Quarterly* <https://doi.org/10.1016/j.leaqua.2019.101354>.
- Germann, Frank, Peter Ebbes, and Grewal Rajdeep. 2015. The chief marketing officer matters! *Journal of Marketing* 79(3):1–22. <https://doi.org/10.1509/jm.14.0244>.
- Glassdoor. 2021. Glassdoor unlocks employee sentiment and pay data by race/ethnicity, gender identity and more. <https://www.glassdoor.com/about-us/ratings-salaries-demographics/>. Accessed 24 Jan 2022.
- Gosse, Bérange, and Christian Hurson. 2016. Assessment and improvement of employee job-satisfaction: a full-scale implementation of MUSA methodology on newly recruited personnel in a major French organization. *Annals of Operations Research* 247(2):657–675. <https://doi.org/10.1007/s10479-015-1811-y>.
- Hadlock, Charles J., and Joshua R. Pierce. 2010. New evidence on measuring financial constraints: moving Beyond the KZ Index. *Review of Financial Studies* 23(5):1909–1940. <https://doi.org/10.1093/rfs/hhq009>.
- Hales, Jeffrey Moon James R., Jr, and Laura A. Swenson. 2018. A new era of voluntary disclosure? Empirical evidence on how employee postings on social media relate to future corporate disclosures. *Accounting, Organizations and Society* 68–69:88–108. <https://doi.org/10.1016/j.aos.2018.04.004>.
- Hambrick, Donald C., and Phyllis A. Mason. 1984. Upper echelons: the organization as a reflection of its top managers. *Academy of Management Review* <https://doi.org/10.5465/amr.1984.4277628>.
- Hardin, James W., and J.M. Hilbe. 2012. *Generalized estimating equations*. Chapman and Hall/CRC. <https://doi.org/10.1201/9781420035285>.
- Harrison, Jeffrey S., Gary R. Thurgood, Steven Boivie, and Michael D. Pfarrer. 2019. Measuring CEO personality: developing, validating, and testing a linguistic tool. *Strategic Management Journal* 9(1):1316–1329. <https://doi.org/10.1002/smj.3023>.
- Harrison, Jeffrey S., Robert A. Phillips, and R. Edward Freeman. 2020a. On the 2019 business roundtable “Statement on the Purpose of a Corporation”. *Journal of Management* 46(7):1223–1237. <https://doi.org/10.1177/0149206319892669>.

- Harrison, Jeffrey S., Gary R. Thurgood, Steven Boivie, and Michael D. Pfarrer. 2020b. Perception is reality: How CEOs' observed personality influences market perceptions of firm risk and shareholder returns. *Academy of Management Journal* <https://doi.org/10.5465/amj.2018.0626>.
- Harter, James K., Frank L. Schmidt, and Theodore L. Hayes. 2002. Business-unit-level relationship between employee satisfaction, employee engagement, and business outcomes: a meta-analysis. *Journal of Applied Psychology* 87(2):268–279. <https://doi.org/10.1037/0021-9010.87.2.268>.
- Heller, Daniel, Timothy A. Judge, and David Watson. 2002. The confounding role of personality and trait affectivity in the relationship between job and life satisfaction. *Journal of Organizational Behavior* 23(7):815–835. <https://doi.org/10.1002/job.168>.
- Herrmann, Pol, and Sucheta Nadkarni. 2014. Managing strategic change: the duality of CEO personality. *Strategic Management Journal* 35(9):1318–1342. <https://doi.org/10.1002/smj.2156>.
- Ho, Simon S.M., Annie Y. Li, Kinsun Tam, and Feida Zhang. 2015. CEO gender, ethical leadership, and accounting conservatism. *Journal of Business Ethics* 127:351–370. <https://doi.org/10.1007/s10551-013-2044-0>.
- Hoberg, Gerard, and Vojislav Maksimovic. 2014. Redefining financial constraints: a text-based analysis. *Review of Financial Studies* 28(5):1312–1352. <https://doi.org/10.1093/rfs/hhu089>.
- Hu, Nan, Paul A. Pavlou, and Jie Zhang. 2017. On self-selection biases in online product reviews. *MIS Quarterly* 41(2):449–471. <https://doi.org/10.25300/MISQ/2017/41.2.06>.
- Ilies, Remus, Kelly M. Schwind, and Daniel Heller. 2007. Employee well-being: a multilevel model linking work and nonwork domains. *European Journal of Work and Organizational Psychology* 16(3):326–341. <https://doi.org/10.1080/13594320701363712>.
- Ilies, Remus, Sherry S.Y. Aw, and Helen Pluut. 2015. Intraindividual models of employee well-being: what have we learned and where do we go from here? *European Journal of Work and Organizational Psychology* 24(6):827–838. <https://doi.org/10.1080/1359432X.2015.1071422>.
- Jing, Chenxing, Kevin Keasey, Ivan Lim, and Bin Xu. 2019. Financial constraints and employee satisfaction. *Economics Letters* <https://doi.org/10.1016/j.econlet.2019.108599>.
- Judge, Timothy A., and Shinichiro Watanabe. 1993. Another look at the job satisfaction-life satisfaction relationship. *Journal of Applied Psychology* 78(6):939–948. <https://doi.org/10.1037/0021-9010.78.6.939>.
- Judge, Timothy A., Joyce E. Bono, Remus Ilies, and Megan W. Gerhardt. 2002a. Personality and leadership: a qualitative and quantitative review. *Journal of Applied Psychology* 87(4):765–780. <https://doi.org/10.1037/0021-9010.87.4.765>.
- Judge, Timothy A., Daniel Heller, and Michael K. Mount. 2002b. Five-factor model of personality and job satisfaction: a meta-analysis. *Journal of Applied Psychology* 87(3):530–541. <https://doi.org/10.1037/0021-9010.87.3.530>.
- Judge, Timothy A., Ronald F. Piccolo, Nathan P. Podsakoff, John C. Shaw, and Bruce L. Rich. 2010. The relationship between pay and job satisfaction: a meta-analysis of the literature. *Journal of Vocational Behavior* 77(2):157–167. <https://doi.org/10.1016/j.jvb.2010.04.002>.
- Julienti Abu Bakar, Lily, and Ahmad Hartini. 2010. Assessing the relationship between firm resources and product innovation performance. *Business Process Management Journal* 16(3):420–435. <https://doi.org/10.1108/14637151011049430>.
- Kalogeraki, Olga, and Dimitrios Georgakakis. 2022. Friend or Foe? CEO gender, political ideology, and gender-pay disparities in executive compensation. *Long Range Planning* 55(3):102126. <https://doi.org/10.1016/j.lrp.2021.102126>.
- Kaplan, Steven N., and Luigi Zingales. 1997. Do investment-cash flow sensitivities provide useful measures of financing constraints? *The Quarterly Journal of Economics* 112(1):169–215.
- Kaufmann, Alexander, and Franz Tödting. 2002. How effective is innovation support for SMEs? An analysis of the region of Upper Austria. *Technovation* 22(3):147–159. [https://doi.org/10.1016/S0166-4972\(00\)00081-X](https://doi.org/10.1016/S0166-4972(00)00081-X).
- Kinicki, Angelo J., Frances M. McKee-Ryan, Chester A. Schriesheim, and Kenneth P. Carson. 2002. Assessing the construct validity of the job descriptive index: a review and meta-analysis. *Journal of Applied Psychology* 87(1):14–31. <https://doi.org/10.1037/0021-9010.87.1.14>.
- Lamont, Owen, Christopher Polk, and Jesus Saá-Requejo. 2001. Financial constraints and stock returns. *The Review of Financial Studies* 14(2):529–554. <https://doi.org/10.1093/rfs/14.2.529>.
- Landers, Richard, Robbie Brusso, and Elena Auer. 2019. Crowdsourcing job satisfaction data: examining the construct validity of Glassdoor.com ratings. *Personnel Assessment and Decisions* <https://doi.org/10.25035/pad.2019.03.006>.
- Lang, James R., and Nancy B. Johnson. 1994. Job satisfaction and firm size: an interactionist perspective. *The Journal of Socio-Economics* 23(4):405–423. [https://doi.org/10.1016/1053-5357\(94\)90011-6](https://doi.org/10.1016/1053-5357(94)90011-6).

- LePine, Jeffrey A., Jason A. Colquitt, and Amir Erez. 2000. Adaptability to changing task contexts: effects of general cognitive ability, conscientiousness, and openness to experience. *Personnel Psychology* 53(3):563–593. <https://doi.org/10.1111/j.1744-6570.2000.tb00214.x>.
- Li, Xinxin, and Lorin M. Hitt. 2008. Self-selection and information role of online product reviews. *Information Systems Research* 19(4):456–474. <https://doi.org/10.1287/isre.1070.0154>.
- Li, Ning, Jian Liang, and J. Michael Crant. 2010. The role of proactive personality in job satisfaction and organizational citizenship behavior: a relational perspective. *Journal of Applied Psychology* 95(2):395–404. <https://doi.org/10.1037/a0018079>.
- Locke, Edwin A. (ed.). 1976. *Handbook of industrial and organizational psychology. The nature and causes of job satisfaction*. Chicago: Rand McNally.
- van der Loo, Mark. 2014. The stringdist package for approximate string matching. *The R Journal* 6(1):111–122.
- Malhotra, Shavin, Taco H. Reus, Cheng Zhu, and Erik M. Roelofsen. 2018. The acquisitive nature of extraverted CEOs. *Administrative Science Quarterly* 63(2):370–408. <https://doi.org/10.1177/000183921771224>.
- Marinescu, Ioana, Nadav Klein, Andrew Chamberlain, and Morgan Smart. 2018. Incentives can reduce bias in online employer reviews. *Academy of Management Proceedings* <https://doi.org/10.1037/xap0000342>.
- Matsumoto, Dawn, Maarten Pronk, and Erik M. Roelofsen. 2011. What makes conference calls useful? The information content of managers' presentations and analysts' discussion sessions. *The Accounting Review* 86(4):1383–1414. <https://doi.org/10.2308/accr-10034>.
- McCrae, Robert R., and Paul T. Costa. 1987. Validation of the Five-Factor Model of personality across instruments and observers. *Journal of Personality and Social Psychology* 52(1):81–90. <https://doi.org/10.1037/0022-3514.52.1.81>.
- McCrae, Robert R., and Paul T. Costa. 1997. Personality trait structure as a human universal. *American Psychologist* 52(5):509–516. <https://doi.org/10.1037/0003-066X.52.5.509>.
- Muchinsky, Paul M. 1977. Organizational communication: relationships to organizational climate and job satisfaction. *Academy of Management Journal* <https://doi.org/10.5465/255359>.
- Nadkarni, Sucheta, and Pol Herrmann. 2010. CEO personality, strategic flexibility, and firm performance—the case of the Indian business process outsourcing industry. *Academy of Management Journal* 53(5):1050–1073. <https://doi.org/10.5465/amj.2010.54533196>.
- Neubert, Mitchell J., Carlson Dawn, K.M. Kacmar, James A. Roberts, and Lawrence Chonko. 2009. The virtuous influence of ethical leadership behavior: Evidence from the field. *Journal of Business Ethics* 90:157–170. <https://doi.org/10.1007/s10551-009-0037-9>.
- Oldham, Greg R., Richard J. Hackman, and Jone L. Pearce. 1976. Conditions under which employees respond positively to enriched work. *Journal of Applied Psychology* 61(4):395–403. <https://doi.org/10.1037/0021-9010.61.4.395>.
- Pan, Wei. 2001. Akaike's information criterion in generalized estimating equations. *Biometrics* 57:120–125. <https://doi.org/10.1111/j.0006-341x.2001.00120.x>.
- Peterson, Randall S., D. Brent Smith, Paul V. Martorana, and Pamela D. Owens. 2003. The impact of chief executive officer personality on top management team dynamics: one mechanism by which leadership affects organizational performance. *The Journal of applied psychology* 88(5):795–808. <https://doi.org/10.1037/0021-9010.88.5.795>.
- Phua, Kenny, T. Mandy Tham, and Wei Chishen. 2018. Are overconfident CEOs better leaders? Evidence from stakeholder commitments. *Journal of Financial Economics* 127(3):519–545. <https://doi.org/10.1016/j.jfineco.2017.12.008>.
- Ratner, Bruce. 2009. The correlation coefficient: Its values range between  $+1$  /  $-1$ , or do they? *Journal of Targeting, Measurement and Analysis for Marketing* 17(2):139–142. <https://doi.org/10.1057/jt.2009.5>.
- Roberts, Brent W., Kate E. Walton, and Wolfgang Viechtbauer. 2006. Patterns of mean-level change in personality traits across the life course: a meta-analysis of longitudinal studies. *Psychological bulletin* 132(1):1–25. <https://doi.org/10.1037/0033-2909.132.1.1>.
- Rose, Cynthia L., Laura B. Murphy, Lynn Byard, and Katherina Nikzad. 2002. The role of the big five personality factors in vigilance performance and workload. *European Journal of Personality* 16(3):185–200. <https://doi.org/10.1002/per.451>.
- Schmiedel, Theresa, Oliver Müller, and Vom Jan Brocke. 2019. Topic modeling as a strategy of inquiry in organizational research: a tutorial with an application example on organizational culture. *Organizational Research Methods* 22(4):941–968. <https://doi.org/10.1177/1094428118773858>.

- Schneider, Benjamin, Vicente González-Romá, Cheri Ostroff, and Michael A. West. 2017. Organizational climate and culture: Reflections on the history of the constructs in the Journal of Applied Psychology. *Journal of Applied Psychology* 102(3):468–482. <https://doi.org/10.1037/apl0000090>.
- Seibert, Scott E., Gang Wang, and Stephen H. Courtright. 2011. Antecedents and consequences of psychological and team empowerment in organizations: a meta-analytic review. *The Journal of applied psychology* 96(5):981–1003. <https://doi.org/10.1037/a0022676>.
- Shore, Lynn M., Amy E. Randel, Beth G. Chung, Michelle A. Dean, Karen Holcombe Ehrhart, and Singh Gangaram. 2011. Inclusion and diversity in work groups: A review and model for future research. *Journal of Management* 37(4):1262–1289. <https://doi.org/10.1177/0149206310385943>.
- Simsek, Zeki, Ciaran Heavey, and Brian C. Fox. 2018. Interfaces of strategic leaders: a conceptual framework, review, and research agenda. *Journal of Management* 44(1):280–324. <https://doi.org/10.1177/01492063177391>.
- Smith, Mickey B., Aaron D. Hill, and Timothy A. Judge. 2018. Upsides to dark and downsides to bright personality: a multidomain review and future research agenda. *Journal of Management* 44(1):191–217. <https://doi.org/10.1177/0149206317733511>.
- Steffensen, David S., B. Parker Ellen, Gang Wang, and Gerald R. Ferris. 2019. Putting the “management” back in human resource management: a review and agenda for future research. *Journal of Management* 45(6):2387–2418. <https://doi.org/10.1177/0149206318816179>.
- Steinberg, Philip J., Sarosh Asad, and George Lijzenga. 2022. Narcissistic CEOs’ dilemma: the trade-off between exploration and exploitation and the moderating role of performance feedback. *Journal of Product Innovation Management* <https://doi.org/10.1111/jpim.12644>.
- Symitsi, Efthymia, Panagiotis Stamolampros, and George Daskalakis. 2018. Employees’ online reviews and equity prices. *Economics Letters* 162:53–55. <https://doi.org/10.1016/j.econlet.2017.10.027>.
- Weck, Michelle K., Denis B. Veltrop, Jana Oehmichen, and Floor Rink. 2021. Why and when female directors are less engaged in their board duties: An interface perspective. *Long Range Planning* <https://doi.org/10.1016/j.lrp.2021.102123>.
- Whited, Toni M., and Wu Goujun. 2006. Financial constraints risk. *Review of Financial Studies* 19(2):531–559. <https://doi.org/10.1093/rfs/hhj012>.
- Wolffolds, Sarah E., and Jordan Siegel. 2019. Misaccounting for endogeneity: the peril of relying on the Heckman two-step method without a valid instrument. *Strategic Management Journal* 40(3):432–462. <https://doi.org/10.1002/smj.2995>.
- Wolter, Jeremy S., Dora Bock, Jeremy Mackey, Pei Xu, and Jeffery S. Smith. 2019. Employee satisfaction trajectories and their effect on customer satisfaction and repatronage intentions. *Journal of the Academy of Marketing Science* 47(5):815–836. <https://doi.org/10.1007/s11747-019-00655-9>.
- Wooldridge, Jeffrey M. 2010. *Econometric analysis of cross section and panel data*, 2nd edn., Cambridge: MIT Press.
- Yi, Xiwei, Yan A. Zhang, and Duane Windsor. 2020. You are great and I am great (too): examining new CEOs’ social influence behaviors during leadership transition. *Academy of Management Journal* <https://doi.org/10.5465/amj.2018.0365>.
- Youssef, Carolyn M., and Fred Luthans. 2007. Positive organizational behavior in the workplace. *Journal of Management* 33(5):774–800. <https://doi.org/10.1177/0149206307305562>.
- Zhao, Hao, Scott E. Seibert, and G.T. Lumpkin. 2010. The relationship of personality to entrepreneurial intentions and performance: a meta-analytic review. *Journal of Management* <https://doi.org/10.1177/0149206309335187>.
- Zhou, Kevin Z., Julie J. Li, Nan Zhou, and Su Chenting. 2008. Market orientation, job satisfaction, product quality, and firm performance: evidence from China. *Strategic Management Journal* 29(9):985–1000. <https://doi.org/10.1002/smj.700>.