

Managerial Extraversion and Corporate Voluntary Disclosure

Florian Eugster, *University of St. Gallen, Switzerland; Swiss Finance Institute, Switzerland*

Jenni Kallunki, *University of Oulu, Finland*

Juha-Pekka Kallunki, *University of Oulu, Finland; Aalto University, Finland; Stockholm School of Economics, Sweden*

Henrik Nilsson, *Stockholm School of Economics, Sweden*

Correspondence address:

Professor Florian Eugster

University of St. Gallen, Institute of Accounting, Control and Auditing

Tigerbergstrasse 9, CH-9000, St. Gallen, Switzerland

Phone +41712247430

Florian.Eugster@unisg.ch

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Abstract

This paper examines the effect of managers' personality trait of extraversion on the voluntary disclosure of their firms. Our results from analyzing archival data from Sweden show that the extraversion scores of CEOs and CFOs obtained from psychological tests are positively associated with the voluntary disclosure scores of their firms. The effect of manager extraversion on disclosure is moreover stronger when managerial discretion or managerial job demands are higher. We also find that extraversion affects managers' disclosure styles during earnings conference calls.

Keywords: extraversion, disclosure, managerial traits

JEL Classifications: M41, G10, D91

1 | INTRODUCTION

A growing body of literature has emerged exploring the role of managers' personality traits in explaining variation in a firm's financial reporting behavior and accounting practices (e.g., Bamber et al., 2010; Dyreng et al., 2010; Ge et al., 2011). To date, this literature has used a manager's written, verbal, and nonverbal communication to extract information about the manager's personality (Hanlon et al., 2022). For instance, Green et al. (2019) and Liao et al. (2023) measure the CEO and CFO personality trait of extraversion by analyzing their speech patterns during conference calls. In their review of behavioral economics of accounting research, Hanlon et al. (2022) point out that it is often difficult to infer managers' personality traits from firm-level actions and managers' on-the-job actions because these actions are closely linked to firm characteristics. For example, managers' speech patterns during conference calls are closely linked to firm-specific factors, and consequently, it is not clear what effects are truly attributable to managers rather than omitted firm-specific factors. One way to mitigate these endogeneity concerns is to obtain measures of a manager's personality by using psychology tests conducted outside a financial reporting setting. However, archival research in the area is clouded by data limitations, because conducting psychological tests is costly and managers may be reluctant to participate in such tests.

In this paper, we use unique data from Sweden to examine whether the personality trait of extraversion of Chief Executive Officers (CEOs) and Chief Financial Officers (CFOs) is associated with voluntary disclosure of their firms.¹ Extraversion is often described as the single most important aspect of an individual's personality (Cain, 2012), being a component of virtually all comprehensive models of personality, including the Big Five model and the Myers-

¹ Our measure of extraversion is obtained from psychological testing for "social maturity" in the military enlistment process. It also includes openness and conscientiousness as other dimensions of personality traits. As discussed in Section 3.3.2, we define the measure as collectively reflecting managerial extraversion.

Briggs Type Indicator. People who are more extraverted tend to seek out social stimulation and opportunities to engage with others. These individuals are often described as being outgoing, talkative, and energetic. Relying on these insights, we maintain that firms headed by extraverted CEOs and CFOs are likely to disclose more information to their stakeholders.

Our data on CEO/CFO extraversion come from the Swedish Military Forces, which uses psychological tests conducted by certified psychologists to examine the personality characteristics of all conscripts at age 18. These test results are based on one-on-one semi-structured interviews and are used to assess whether the conscripts are mentally fit to serve in the military and are suitable for training for leadership or specialist positions. These data are available for virtually all Swedish male citizens during our sample period because military service was compulsory for all males in Sweden until 2010.

Besides being entirely outside a financial reporting setting, the Swedish military personality tests have the advantage of being conducted at an earlier age before the managers have accumulated substantial leadership experience or professional or educational specialization (see e.g., Adams et al., 2018). Beauchamp et al. (2011) find in the Swedish military data that 66-93% of the variation in personality traits can be attributed to genetic and environmental factors shared by the male siblings of a family, suggesting that the genetic makeup and the family to which people are born largely explains the variation in the traits. The psychology literature moreover shows that extraversion, like other personality traits, is highly stable and persistent over time (Costa & McCrae, 1988). Hence, we believe our measure of a manager's extraversion is less subject to endogeneity concerns compared to the personality measures inferred from managers' on-the-job communication used in prior studies (Green et al., 2019; Liao et al., 2023).

We measure voluntary disclosure using a disclosure score provided by the Swedish Stockholders' Association (SSA), which is an independent organization representing Swedish

minority shareholders and Kanton, a Swedish financial advisory firm. We use this measure for our sample of Swedish firms for several reasons. First, the disclosure score is similar to other disclosure indices used in previous research (e.g., Botosan, 1997; Francis et al., 2008; Eugster, 2020). Specifically, firms receive points based on the amount and quality of voluntary disclosure included in their annual reports, quarterly reports, and websites. The disclosure items in these three disclosure channels are chosen based on their perceived usefulness to analysts and minority shareholders. Second, the disclosure score is comprehensive in terms of different types of disclosures, including financial and non-financial disclosures. Third, the score covers the vast majority of listed Swedish firms, from small-cap firms to international large-cap firms, which offers high cross-sectional variation in voluntary disclosure.

Our empirical analyses are based on a sample of 578 individual CEOs and CFOs of 225 publicly listed Swedish firms and 1,905 firm-years during the period from 1999 to 2015. The average manager (either CEO or CFO) in our sample has, on a scale from one to five, an extraversion score of 3.88. There is also variation in extraversion score among the managers, suggesting that a manager's extraversion could indeed play a role in the voluntary disclosure of their firms. Consistent with our predictions, we find that voluntary disclosure increases with managerial extraversion. Specifically, firms headed by extraverted CEOs and CFOs obtain significantly higher scores in the SSA-Kanton voluntary disclosure ranking. This result is robust to controlling for a broad set of other manager characteristics, including a manager's IQ, height and various measures of early-life, educational and career-related experiences, and a number of firm-specific factors known to affect voluntary disclosure, including firm fixed effects. We further explore the conditions under which managers' extraversion is likely to have a greater influence on their voluntary disclosure decisions. Consistent with the predictions offered by the upper echelons theory (Hambrick & Mason, 1984; Hambrick & Finkelstein, 1987; Hambrick et al., 2005), we find that the effect of managerial extraversion on voluntary

disclosure is stronger when managerial discretion is higher and when manager job demands are higher.

We also examine the association between extraversion and voluntary disclosure for CEOs and CFOs separately. Our results show that both CEO and CFO extraversion are significantly associated with our voluntary disclosure measure, which is consistent with both these managers having influence over voluntary disclosure decisions. Finally, we analyze a sample of quarterly earnings conference calls, and find that extraversion is associated with managers' disclosure styles during conference calls. In particular, we find that extraverted managers speak more during the call and also provide more forward-looking disclosures, especially about future performance. We further find that the overall disclosure tone of extraverted managers during the call is more optimistic.

Our paper contributes to the limited literature on how managers' personality traits affect corporate voluntary disclosure by showing that firms headed by extraverted managers disclose more information to their stakeholders (e.g., Davis et al., 2015; Hribar & Yang, 2016; Liao et al., 2023). The paper closest to ours is Liao et al. (2023), who use CFOs' speech patterns in conference calls to measure their extraversion and relate this measure to the provision of management earnings forecasts and associated stock market reactions. We expand on these papers, especially Liao et al. (2023), in at least the following ways. First, we use a unique measure of a manager's extraversion, which is obtained from a scientifically designed personality trait test conducted at an earlier age in an interview by a certified psychologist outside a financial reporting setting. Hence, our measure of extraversion is less subject to endogeneity concerns than the measures used in prior studies, which are not only affected by the manager's personality, but also by the firm's economic fundamentals (Hanlon et al., 2022). Second, we show that the effect of managers' extraversion on disclosure is long lasting and persists even after managers have accumulated educational and professional experience. Third,

we use a comprehensive disclosure score including both financial and non-financial disclosures.

Our paper also contributes to the growing literature that focuses on the role of top managers' personality traits, as opposed to firm- or industry-level factors, in shaping firm behavior and policies (e.g., Bertrand & Schoar, 2003; Dyreng et al., 2010; Ge et al., 2011; Wells, 2020). We add to this literature by showing that a manager's extraversion personality trait affects corporate disclosure policy, even after controlling for various other firm-level factors of disclosure. The rest of the paper is organized as follows. Section 2 reviews the relevant literature and develops the hypotheses. Section 3 discusses the data and methods. Section 4 presents the main empirical results and Section 5 concludes the paper.

2 | RELEVANT LITERATURE AND HYPOTHESES

In their seminal paper, Bertrand and Schoar (2003) examine the influence of top managers' personal "styles" on a range of corporate policies. They develop a methodology using managerial fixed effects to capture the role of individual managers in shaping corporate practices and performance. They find that manager fixed effects explain a significant amount of the heterogeneity observed in a firm's investing, financing, and organizational practices. Since Bertrand and Schoar (2003), several accounting papers have used their methodology to examine whether managers' unique styles also explain the observed heterogeneity in firms' financial reporting behavior and accounting practices, including tax avoidance (Dyreng et al. 2010), earnings management and accounting quality (Ge et al., 2011; Wells, 2020), and disclosure (Bamber et al., 2010; Yang, 2012; Davis et al., 2015). These studies suggest that managers have unique styles of their own that play a significant role in explaining the financial reporting and accounting decisions of the firms where they are employed at. However, these studies do not specify the explicit manager characteristics that matter for the outcome of

interest. To shed light on this “black box” of observed manager fixed effects, a strand of literature has emerged to explore the association between firm policies and specific manager characteristics such as managers’ early-life (e.g., Malmendier & Tate, 2005) and professional experiences (e.g., Custódio & Metzger, 2014), overconfidence (e.g., Kallunki & Pyykkö, 2013), and ability (Demerjian et al., 2013).

Prior research on the role of managerial characteristics, particularly in the disclosure policies of firms, has relied on managers’ demographic or other observable characteristics, on-the-job-actions, or on analyzing managers’ communication to extract useful information about their personality. For instance, Bamber et al. (2010) show that managers’ unique disclosure styles are associated with observable demographic characteristics such as their age, gender, educational background, and military experience. Davis et al. (2015) find that managers who start their careers during recessions use a less positive tone during conference calls. Brochet et al. (2019) show that managers’ cultural backgrounds are associated with the properties of the language they use during conference calls. Baik et al. (2011) moreover report that CEO ability as measured by the number of press citations for a CEO is related to the likelihood and frequency of issuing management earnings forecasts. Hribar and Yang (2016) measure CEO overconfidence using their option holdings and find that overconfident CEOs are more likely to issue earnings forecasts but are subsequently more likely to miss their own forecasts.

Finally, Liao et al. (2023) use CFOs’ speech patterns during conference calls to measure their personality trait of extraversion and find that firms with extraverted CFOs tend to issue more earnings forecasts, earnings forecasts with a higher level of disaggregation, and earnings forecasts accompanied by supplementary information. They also find that earnings forecasts issued by extraverted CFOs are also less timely, less accurate, and more optimistic. Green et al. (2019) use a similar measure of managerial extraversion as in Liao et al. (2023) and find that extraverted managers experience significant career benefits, such as lower job turnover

and higher salaries. Although analyzing managers' speech patterns during conference calls, as in these previous studies, enables measurement of a specific personality trait, i.e., extraversion, it is not clear to what extent such a measure is truly attributable to managers rather than omitted firm-specific factors (Hanlon et al., 2022). One way to mitigate these endogeneity concerns is to measure managerial extroversion using specific psychology tests developed in psychology research and conducted outside a financial reporting setting.

In the psychology literature, the concept of extraversion was originally introduced by Jung (1921), who described extraverted people as being outgoing and energetic. Extraversion is often described as the single most important aspect of personality (Cain, 2012). Extraverted individuals tend to seek out social stimulation and opportunities to engage with others, and are characterized by energy, dominance, spontaneity, and sociability.² By contrast, introverts tend to be more lethargic, inhibited, reflective, and quiet (Wilt & Revelle, 2009). Extraversion is an important component of virtually all comprehensive models of personality such as the Myers-Briggs Type Indicator or the Big Five model.³ Like other personality traits, extraversion is highly stable and persistent over time (Costa & McCrae, 1988). Relying on these insights, we argue that firms headed by managers who score high on extraversion are also likely to score high on corporate disclosure indices, as the disclosure indices reflect the amount of information firm managers decide to disclose.

However, there are also counterarguments to this assertion. First, other individuals in addition to CEOs and CFOs influence corporate disclosure decisions, including those responsible for investor relations, which leaves less room for the managerial effect. Second, although an individual's personality is a strong stable component across their lifespan also at the trait level, personality is malleable to some extent and people mature as they age (Damian

² For reviews on extraversion see, for instance, John and Srivastava (1999) and Wilt and Revelle (2009).

³ See, for example, de Raad and Perugini (2002) for the Big Five and Quenk (2009) for the four-dimensional Myers-Briggs Type Indicator.

et al., 2019). Hence, managers' extraversion observed early in their lifespan may play a smaller role in their corporate disclosure decisions as senior executives. We nevertheless believe that the arguments for the positive association between managerial extraversion and corporate voluntary disclosure are stronger than the counterarguments, and therefore state our first hypothesis in the alternative form:

Hypothesis 1. Managers' extraversion is positively associated with corporate voluntary disclosure.

Our next two hypotheses explore the conditions under which managers' extraversion is likely to have a greater influence on their voluntary disclosure decisions. Upper echelons theory predicts that the relationship between manager-specific characteristics and organizational outcomes is moderated by two factors: managerial discretion and manager job demands (Hambrick & Finkelstein, 1987; Hambrick et al., 2005; Hambrick, 2007). Managerial discretion refers to the amount of options that top executives have in making strategic decisions (Hambrick & Finkelstein, 1987; Hambrick, 2007). Discretion exists when decision-making is less constrained and when there is some ambiguity about the optimal decision. The effect of managerial characteristics on organizational outcomes depends on the level of managerial discretion: if a high level of discretion exists, managerial characteristics are more reflected in firm outcomes.

To our knowledge, there are two other published papers that explore the factors moderating the relationship between managerial characteristics and accounting outcomes. Ge et al. (2011) examine whether auditors' industry expertise constrains the discretion of the CFO to manage earnings. Presley and Abbott (2013) use the number of financial experts on the audit committee as a moderator variable to capture the latitude of discretion when examining the effect of an overconfident CEO on the likelihood of a restatement. Based on the literature discussed above, we argue that managerial discretion allows extraverted managers to express themselves even

more in their disclosure choices. Accordingly, we state our second hypothesis in the alternative form:

Hypothesis 2. Managers' extraversion is more reflected in voluntary disclosure when the level of managers' discretion is high rather than low.

The upper echelons theory also predicts that manager job demands moderate the relationship between managerial characteristics and firm outcomes (Hambrick et al., 2005; Hambrick, 2007). Hambrick et al. (2005, p. 472) define manager job demands as "*the degree to which a given executive experiences his or her job as difficult or challenging.*" They suggest that when job demands are high, managers are less able to process all the information they need to make rational and optimal decisions. In other words, managers who are under high job demands need to take mental shortcuts and fall back on what they have tried or seen previously in their work. Hence, these managers are more likely to rely on past experiences and dispositions in their decision-making. These arguments provide the basis for the following hypothesis (stated in the alternative form):

Hypothesis 3. Managers' extraversion is more reflected in voluntary disclosure when the level of managers' job demands is high rather than low.

3 | DATA AND METHODOLOGY

3.1 | Data sources and sample construction

We use multiple sources to construct the dataset for our empirical analyses. All data are in electronic form, and we use unique firm and individual (social security codes) identifiers to merge different databases. We begin our sample construction by obtaining a voluntary disclosure measure for publicly listed Swedish firms during the period from 1999 to 2015.⁴

⁴ Our sample period ends in 2015, which is the last year for which the SSA-Kanton disclosure rankings are available for our sample firms.

Specifically, we obtain the disclosure rankings carried out by the Swedish Stockholders' Association (SSA), which is an independent organization representing Swedish minority shareholders, and Kanton, which is a Swedish financial advisory firm. A given firm is included in the disclosure ranking if it is listed on the main Swedish stock exchange (Nasdaq OMX or the Nordic Growth Market, NGM), is headquartered in Sweden, and publishes its financial reports in Swedish. The SSA-Kanton disclosure ranking data cover the vast majority of Swedish listed firms, from small-cap firms to international large firms. Previous studies have linked SSA-Kanton's disclosure ranking to capital market outcomes such as Tobin's Q (Jankensgård, 2014) and firms' decisions to seek external financing (Jankensgård, 2015), thereby validating the ranking as a measure of voluntary disclosure. The disclosure ranking in our data is also similar to other disclosure indices commonly used in accounting research (Botosan, 1997; Francis et al., 2008; Eugster, 2020).

The SSA-Kanton disclosure ranking data includes three different rankings: annual reports, quarterly reports, and web-based reporting. As an example, Appendix S1 shows the disclosure items used in the annual, quarterly, and web-based reporting rankings in 2011, respectively.⁵ According to Kanton, the disclosure items in the three rankings are chosen based on their perceived usefulness to analysts and minority shareholders, capturing the amount and quality of voluntary disclosure provided by firms. The disclosure rankings for the annual and quarterly reports also contain items that are part of the mandatory disclosure requirements. However, and importantly for our purposes, firms receive points for their disclosures on these items if they voluntarily disclose more than what is required. Since web-based disclosure is completely voluntary in Sweden, the disclosure items included in the web-based reporting ranking are all voluntary items. Moreover, the disclosure items in the rankings are generic, meaning that they

⁵ See Appendix S1 in the Supporting Information.

apply to any firm and are not industry specific. Before assigning the final rankings, firms are asked to review their preliminary scores.

The items used are also broadly consistent over time, with the exception of a revision in 2010 when several of the easiest disclosure items were replaced by more meaningful elements. As described in Section 3.3.1, we control for changes in the number of items over time by scaling the disclosure scores in a given year by the maximum obtainable scores in that year. The disclosure ranking of annual reports was carried out every year between 1999 and 2015 except for 2006.⁶ The disclosure rankings of quarterly reports and web-based reporting were carried out every year from 2007 to 2015. After combining these two data sets, our sample period is from 1999 to 2015. We merge the SSA-Kanton disclosure ranking dataset with Compustat Global Vantage, Thomson Reuters, I/B/E/S, and Modular Finance⁷ to obtain information on financials, stock prices, analysts, and institutional ownership, respectively. We exclude finance and utilities firms due to their unique financial reports and regulations.

We obtain information on the identities of the individual CEOs and CFOs of the listed firms from Finansinspektionen (the Swedish Financial Supervisory Authority), which is the corresponding regulatory authority to the U.S. Securities and Exchange Commission (SEC). The extraversion scores for the individual CEOs and CFOs are obtained from the personality traits test data maintained by the Swedish Military Forces. The IQ scores and the height of the CEOs and CFOs are also obtained from the Swedish Military Forces. We lose some CEOs and CFOs because the extraversion and IQ scores are not available for women and non-Swedes as they are not obligated to serve in the Swedish Military Forces. All other individual-related information (e.g., age, education) come from Statistics Sweden. Finally, since we use firm fixed

⁶ In the empirical analyses, we extrapolate the disclosure score for annual reports in 2006 based on the values of the disclosure score in 2005 and 2007. In our untabulated analysis, we re-estimated our regression models by excluding year 2006 from the sample and obtained essentially similar results to those reported in the paper.

⁷ Modular Finance Ltd. is a Swedish company offering various data on the listed Nordic firms.

effects in our estimations to control for unobservable firm heterogeneity and as the extraversion score of a given manager is time-invariant, we exclude firms that have no changes in their CEO or CFO during the sample period. The final sample includes 1,905 firm-year observations, 225 firms and 578 individual managers during the period 1999-2015. Of the 578 individual managers in the sample, 320 have assumed the CEO position, 285 the CFO position, and 27 have worked as a CEO and a CFO. Panel A of Table 1 outlines the sample construction process in detail.

Table 1 also reports the frequency distribution of the sample firms based on the number of manager (either CEO or CFO) changes (panel B), CEO changes only (panel C), and CFO changes only (panel D) in a given firm during the sample period.⁸ Panel B of Table 1 shows that in 63 (28.0%) firms there has been one manager (either CEO or CFO) change during the sample period, in 55 (24.4%) firms there has been two manager changes, and in 107 (47.6%) firms there has been at least three manager changes. Regarding CEO changes only, panel C of Table 1 shows that 69.7% of the firms have one CEO change, 26.6% have two CEO changes, and 3.7% have at least three CEO changes. As for CFO changes only, panel D of Table 1 shows that 81.0% of the firms have one CFO change, 11.0% have two CFO changes, and 8.0% have at least three CFO changes.

[Insert Table 1 about here]

3.2 | Model specification

To examine the association between managerial extraversion and corporate voluntary disclosure, we estimate the following OLS regression Model (1) from our data:

⁸ We follow a strand of literature that examines the relation between firm policies and specific manager characteristics using firm-year panel datasets with firm fixed effects. Hence, we require that firms have at least one change in their managers (either CEOs or CFOs) during our sample period, but we do not require a given manager to have worked in more than one firm, as in Bertrand and Schoar (2003) and other studies using the manager fixed effects methodology. In our sample, there are 67 managers who have worked in more than one firm during the sample period.

$$DISCLOSURE_{jt} = \alpha_0 + \beta_1 EXTRAVERSION_i + \gamma' \mathbf{X} + \text{Year and firm fixed effects} + \varepsilon_{jt}, \quad (1)$$

where i denotes the individual manager, j denotes the firm, and t denotes the year. The unit of analysis is a firm-year. The dependent variable is either the total disclosure score of a firm ($DISC_T$) or one of its sub-scores for disclosure in annual reports ($DISC_A$), quarterly reports ($DISC_Q$), or corporate websites ($DISC_W$). The variable $EXTRAVERSION$ is the managerial extraversion measure. The vector $\mathbf{X}$ includes a set of manager- and firm-specific control variables. Model (1) also includes year and firm fixed effects to control for time-specific effects and time-invariant firm-specific characteristics, respectively, that could affect disclosure. All coefficient t -statistics are reported using robust standard errors clustered at the firm level. We winsorize all continuous firm-specific control variables to the 1st and 99th percentiles of their distributions. All variables in Model (1) are discussed below and defined in more detail in the Appendix.

3.3 | Variable measurement

3.3.1 | Voluntary disclosure proxy

We use SSA-Kanton's ranking of the disclosure of firms provided in annual reports, quarterly reports, and corporate websites as our voluntary disclosure proxy. Specifically, we use this ranking to construct the following four variables measuring the voluntary disclosure of a firm: the total disclosure score, $DISC_T$, which is the sum of the sub-scores for disclosure in annual reports, quarterly reports, and corporate websites obtained by a firm in a given year scaled by the sum of the maximum obtainable scores in that year; the sub-score $DISC_A$, which is the score for disclosure in the annual report in a given year; the sub-score $DISC_Q$, which is the score for disclosure in quarterly reports in a given year; and the sub-score $DISC_W$, which is the score for disclosure in corporate websites in a given year. All the disclosure sub-scores are scaled by the maximum obtainable scores in that year.

3.3.2 | Extraversion

Our measure of managerial extraversion for CEOs and CFOs is obtained from personality trait tests, which are scientifically designed assessment instruments administered by the Swedish Military Forces. Military service in Sweden was compulsory until 2010. According to the Swedish Act on Liability for Total Defense Service, all males with Swedish citizenship had to complete an enlistment test at around 18-19 years of age. The enlistment procedure spanned two days involving tests of medical status, physical fitness, cognitive ability, and personality traits. The purpose of these tests was to assess an individual's physical and mental ability to serve in the military and his suitability for different services. Moreover, there were no incentives for cheating on the tests because it was not possible to avoid military service by obtaining a low score in the cognitive ability or personality trait tests. Therefore, virtually all men who were not given a low health rating were enlisted in military service (Lindqvist & Vestman, 2011). Lindqvist and Vestman (2011), Bihagen et al. (2013) and Adams et al. (2018) offer more comprehensive descriptions of the testing procedure.

The personality traits test was conducted by a certified psychologist who used a one-on-one semi-structured interview to assess the conscript's personality traits (Bihagen et al., 2013). The interview resulted in measures that have counterparts in the Big Five traits well-known in the psychological literature (Nilsson, 2017; Dal Bó et al., 2017). We use the measure "social maturity," which corresponds with the Big 5 trait extraversion as a main dimension and openness and conscientiousness as other dimensions. We define the measure as collectively reflecting extraversion, although it contains dimensions of openness and conscientiousness. Particularly, people who score high in openness are open-minded and are more willing to embrace new things and fresh ideas compared to those who score high in closedness. Hence, openness is likely to characterize managers who are willing to disclose more and new

information in financial reports. Also, conscientiousness implies a desire to do a task well, and to take obligations to others seriously. Since financial reporting involves a legal obligation to stakeholders to disclose information, conscientiousness can be assumed to be positively associated with voluntary disclosure.

To measure managerial extraversion, we construct the variable *EXTRAVERSION*, which is equal to the average extraversion score of the CEO and the CFO of a given firm in a given year ranging from one (*lowest extraversion*) to five (*highest extraversion*). If extraversion data for the CEO (CFO) is missing for a given firm-year, *EXTRAVERSION* is equal to the extraversion score of the CFO (CEO) for that firm-year. We have also replicated the main analyses in Table 5 for CEOs and CFOs separately to examine whether the association between managerial extraversion and voluntary disclosure is primarily driven by CEOs or CFOs. These results are reported in Panel A of Table 8 and discussed in Section 4.4.1.

3.3.3 | Control variables

3.3.3.1 | *Manager-specific variables*

We include in our regression model a set of variables to control for other managerial characteristics that are likely to affect how managers assess the potential costs and benefits of disclosure, and consequently, the extent of voluntary disclosure of their firms. We include managers' cognitive skills (*IQ*) and their height (*HEIGHT*) to measure their innate characteristics other than extraversion. We expect voluntary disclosure to increase with managers' IQ since high-IQ individuals have been shown to successfully weigh the risks and expected returns in their decision-making (Grinblatt et al., 2012), but we do not have a specific prediction for managers' height. Since past experiences have been shown to have long-lasting effects on individuals' preferences and beliefs (Malmendier & Nagel, 2011), we include in our model several variables to control for managers' early-life, educational, and career-related

experiences. Regarding managers' early-life experiences, we control for whether the manager has early-life exposure to a recession (*EARLYLIFE*). Bamber et al. (2010) find that managers who have early-life exposure to the Great Depression adopt more of a conservative communication style by issuing fewer forecasts. We thus expect managers with early-life exposure to a recession to emphasize more the potential costs of disclosure, thereby reducing disclosure.

In terms of educational experiences, we include three particular backgrounds: whether the manager holds a business degree (*BUSIDEGREE*), a law degree (*LAWDEGREE*), or has studied at least three years at the university level (*UNIVERSITY*). Managers with MBA degrees have been shown to follow more aggressive corporate strategies (Bertrand & Schoar, 2003) and use more sophisticated valuation techniques in financial reporting than those without an MBA degree (Graham & Harvey, 2001). Given these findings, we expect that managers with business degrees are more likely to perceive voluntary disclosure as a strategic opportunity, and therefore, to voluntarily disclose more than other managers. Regarding legal domain expertise, Bamber et al. (2010) find that managers with legal backgrounds are more likely to issue forecasts that guide expectations down, reflecting their greater sensitivity to the litigation risk of disclosure. We expect managers with legal degrees to disclose less, but we do not have a prediction for disclosure of managers with university-level studies in general.

As for career-related experiences, we control for whether the manager started his career during a recession (*RECESSION*) or has prior work experience as a certified auditor (*AUDITEXP*). Managers who started their careers during recessions have been reported to use a less positive tone during conference calls (Davis et al., 2015). Thus, we expect these managers to emphasize more the potential costs of disclosure, thereby reducing the extent of disclosure. We expect managers who have previously worked as certified auditors to have special expertise in accounting and financial reporting to recognize the potential benefits of disclosure, thereby

increasing the disclosure of their firms. Finally, we control for managers' age ($\log(AGE)$) and the number of years they have worked in the company ($\log(TENURE)$). It is well documented in the psychology literature that risk aversion increases with age (e.g., Cohn et al., 1975). Hence, we expect older managers to disclose less than younger managers, but we do not have a prediction for their tenure.

3.3.3.2 | *Firm-specific variables*

We include in our regressions a comprehensive set of firm-specific variables to control for well-known economic determinants of voluntary disclosure. To control for the fact that larger, more heavily followed firms issue more voluntary disclosures (e.g., Lang & Lundholm, 1996), we include firm size ($\log(SIZE)$) and the number of analysts following the firm ($\log(NANALYST)$). Since well-performing firms are more likely to voluntarily disclose information (e.g., Lang & Lundholm, 1993), we include in our regressions return on assets (ROA) and previous year's stock return ($RETURN$). Firms missing either their prior period earnings or zero profit benchmarks are less likely to issue more voluntary disclosures (e.g., Miller, 2002), so we include dummy variables for firms beating prior periods' earnings ($BEAT$), reporting small positive earnings ($SMALLROA$), or reporting a loss ($LOSS$).

We further control for financial leverage ($LEVERAGE$), since financially healthy firms generally have more resources to devote to disclosure-related activities (Jankensgård, 2015). Firms that have significant amounts of foreign operations, make acquisitions, or are cross-listed in a foreign exchange are also likely to disclose more. We therefore control for the ratio of foreign sales ($FOREIGNSALES$), the number of geographic segments ($\log(NSEGMENTS)$), having positive net acquisition expenses ($ACQUISITION$), and being cross-listed in a country other than Sweden ($CROSSLISTED$). We also control for the level of institutional ownership (INS_OWN) because higher institutional ownership is associated with greater management

disclosure (Boone & White, 2015). Since firms in more concentrated industries tend to disclose less (Ali et al., 2014), we include a dummy variable for firms operating in concentrated industries (*HERFINDAHL*). Finally, we include the variable *IFRS* to control for the adoption of International Financial Reporting Standards (IFRS) as it has been reported that voluntary disclosure increases after firms begin IFRS reporting (Li & Yang, 2016).

4 | RESULTS

4.1 | Descriptive statistics and cross-correlations

We report the managers' extraversion score distribution in Figure 1 and manager characteristics in Table 2. Figure 1 shows that while roughly 51% of CEOs and CFOs in the sample have an extraversion score of four, there is also variation in the scores: about 28% of the CEOs and CFOs have an extraversion score equal to three or less and about 19% have the highest extraversion score of five. Figure 1 also shows that only a few managers (about 2%) in the sample have the lowest extraversion scores of one and two. To ensure that our results are not driven by these few managers, we also report results for a reduced sample that excludes managers with extraversion scores equal to one or two.

Panel A of Table 2, which reports descriptive statistics for the variables that capture managers' personal characteristics, shows that the average manager has an extraversion score equal to 3.88 (*EXTRAVERSION*), which is higher than the mean value of 3.0 in the rest of the population, and an IQ score of 7.08 (*IQ*), which is clearly higher than the mean value of 5.0 in the rest of the population. The statistics also show that the average manager is 47.5 years old and has worked 4.02 years in his firm, indicating that managers are given a reasonable time to influence their firm's voluntary disclosure outcomes. Panel B of Table 2 reports the mean values of manager characteristics for different levels of manager extraversion. In this analysis, we combine extraversion scores from one to three to have a reasonable number of observations

in each extraversion group. These results show that CEOs and CFOs with the highest extraversion score (extraversion score of five) have significantly higher IQ (*IQ*) and are taller (*HEIGHT*) than those with the lowest extraversion scores (extraversion scores from one to three). The other variables that capture manager characteristics do not exhibit any significant differences between the managers with the lowest and the highest extraversion scores.

[Insert Table 2 about here]

Table 3 provides descriptive statistics for the variables used in the analyses at the firm-year level. These statistics show that the mean total disclosure score (*DISC_T*) is 0.528, which means that the average firm in our sample has obtained 52.8% of the maximum obtainable scores in the rankings of disclosure in annual reports, quarterly reports, and corporate websites. The standard deviation of the total disclosure score is 0.152, indicating that there is substantial disclosure variation in our sample. The statistics for the sub-scores of the total disclosure score, i.e. the scores for disclosure in annual reports (*DISC_A*), quarterly reports (*DISC_Q*), and corporate websites (*DISC_W*), show that the sub-score for disclosure in corporate websites has a lower mean value and more variation than the other two sub-scores. This indicates that there is more discretion and variation in corporate practice in the web-based disclosures than in the disclosures in annual and quarterly reports. Finally, Table 3 shows that there is substantial variation in firm size ($\log(\text{SIZE})$), which reflects the broad sample of firms covered by the SSA-Kanton disclosure rating.

[Insert Table 3 about here]

We also examine whether there is a sufficient amount of over-time variation within each firm's total disclosure score (*DISC_T*) and its sub-scores (*DISC_A*, *DISC_Q*, and *DISC_W*), which is a precondition for firm fixed effects estimation. Specifically, we follow Nikolaev and van Lent (2005) and Eugster (2020) and calculate a year-to-year transition probabilities matrix, which indicates the probability of a firm j moving from disclosure score decile a in year t to

decile b in year $t + 1$. These results are presented in Table S1 of Appendix S2 and show that the probability of staying in the same disclosure score decile from year to year generally does not exceed 30% (30%, 23%, and 28%) for the total disclosure score (for the annual report, quarterly report, and web-based disclosure sub-scores, respectively).⁹ Therefore, about 70% (70%, 77%, and 72%) of firms either improve or worsen their total disclosure (annual report, quarterly report, and web-based disclosure, respectively) over time. Thus, these results indicate that the *within* variation in each firm's voluntary disclosure is sufficient and allows the use of firm fixed effects to control for unobservable firm heterogeneity.

Table S2 of Appendix S2 presents Pearson correlations between the variables used in the regressions. These results show that managerial extraversion (*EXTRAVERSION*) is significantly positively correlated with the total disclosure score (*DISC_T*) and its sub-scores (*DISC_A*, *DISC_Q*, and *DISC_W*). The correlations between firm size ($\log(\text{SIZE})$) and the disclosure scores are positive and highly significant (with the exception of the quarterly reports sub-score), which is in line with previous research such as Lang and Lundholm (1993). Many of the correlations between the other variables in Model (1) are also significant, but few of them are large in magnitude. We also re-estimate Model (1) after excluding all independent variables with correlation coefficients greater than 0.5 with another independent variable. These results are reported in Table S3 of Appendix S2 and are similar to those reported in Table 5.

4.2 | Managerial extraversion and corporate voluntary disclosure (Hypothesis 1)

Table 4 reports the results of the univariate analysis to examine the association between managerial extraversion and corporate voluntary disclosure (Hypothesis 1). Specifically, we

⁹ See Appendix S2 in the Supporting Information.

first divide our sample into two groups (i.e., low-disclosure and high-disclosure) based on the median values of the total disclosure score (*DISC_T*) or one of its sub-scores for disclosure in annual reports (*DISC_A*), quarterly reports (*DISC_Q*), or corporate websites (*DISC_W*). We then calculate the average extraversion score of the managers (*EXTRAVERSION*) in both groups. The results reported in Table 4 show that the average extraversion score of managers is significantly lower in the low-disclosure group than in the high-disclosure group, supporting the hypothesis that managerial extraversion is associated with higher voluntary disclosure.

[Insert Table 4 about here]

Table 5 reports the results of estimating Model (1) to explore whether managerial extraversion is associated with the extent of voluntary corporate disclosure after controlling for other likely determinants of firms' disclosure decisions and year and firm fixed effects.¹⁰ Panel A of Table 5 shows the results for the full sample and panel B of Table 5 for the reduced sample excluding managers with very low extraversion scores (extraversion scores equal to one or two). These results show that the coefficient of managers' extraversion (*EXTRAVERSION*) is significantly positive both in the full sample and in the reduced sample for the total disclosure score (*DISC_T*) and for its sub-scores for disclosure in annual reports (*DISC_A*) and corporate websites (*DISC_W*), thereby providing evidence that voluntary disclosure increases with managerial extraversion.

Regarding the economic significance of the results for the full sample, a one standard deviation increase in managers' extraversion (0.677) is associated with an increase in the total disclosure score by $0.677 \times 0.020 = 0.014$, which is roughly 9.4% of the standard deviation of the total disclosure score. Finally, the results for the other managerial characteristics variables in Table 5 show that, for the total disclosure score, managers with business degrees

¹⁰ We have also collapsed our data at a firm-manager level and replicated the analysis of Table 5 by using the firm-manager level averages of all variables in Model (1). These results are reported in Table S4 of Appendix S2 and are similar to those reported in Table 5.

(*BUSIDEGREE*) and longer tenures ($\log(TENURE)$) disclose more and older managers ($\log(AGE)$) disclose less. As for the firm-specific control variables, the total disclosure score is higher for firms that are more profitable (*ROA*), are cross-listed (*CROSSLISTED*), have higher stock returns (*RETURN*) and operate in competitive industries (*HERFINDAHL*). Contrary to expectations, loss-firms disclose more than other firms (*LOSS*). The rest of the firm-specific variables do not exhibit any significant relation to the total disclosure score.

[Insert Table 5 about here]

4.3 | The effects of managerial discretion and job demands (Hypotheses 2 and 3)

In this section, we investigate whether the above-documented link between managerial extraversion and voluntary disclosure varies with managerial discretion (Hypothesis 2) and manager job demands (Hypothesis 3). As previous research (e.g., Hambrick 2007) recognizes the difficulties in measuring these theoretical constructs empirically, we note that, in general, our results for these tests should be interpreted with caution.

We use two proxies for managerial discretion. Our first proxy is the length of a manager's tenure. Chava et al. (2010) argue that longer tenure allows managers to increase their decision-making power within the firm, which will increase managers' impact on organizational outcomes. Consistent with this argument, Korkeamäki et al. (2017) document a stronger effect of CEO personal leverage on firm leverage when the CEO has more discretion and a more powerful role within the firm as measured by longer CEO tenure and CEO duality.¹¹ We divide our sample into two groups based on the median manager tenure of the sample (three years), specifically "shorter tenure" and "longer tenure" groups. We assume managerial discretion to be higher for managers with longer tenure and expect the effect of managerial extraversion on voluntary disclosure to be more pronounced in this group.

¹¹ We focus on CEO and CFO tenure only because in Sweden the CEO cannot have a dual role within the company.

Our second proxy for managerial discretion is industry concentration, measured by the HHI. Giroud and Mueller (2011) show that firms in concentrated industries, where lack of competitive pressure fails to enforce discipline on managers, benefit more from good governance than firms in competitive industries, suggesting that product market competition can serve as a substitute for other governance mechanisms. We divide our sample into two groups based on the HHI value of 2,500: the group “competitive industries” (“concentrated industries”) includes firm-years with HHI values of less (more) than 2,500. We assume managerial discretion to be higher for managers working in firms in concentrated industries and expect the link between managerial extraversion and voluntary disclosure to be stronger for these managers.

We use two proxies for high manager job demands. First, the greater the complexity of the firms that managers work for, the greater managers’ job demands are likely to be. We measure firm complexity by firm size and divide our sample into the groups “noncomplex firms” and “complex firms” based on median total assets. Second, we hypothesize that managers have higher job demands after their firms begin to report under IFRS.¹² We divide our sample into two groups based on whether the firm has adopted IFRS. The group “before IFRS adoption” includes firm-years before the adoption of IFRS, while the group “after IFRS adoption” includes firm-years after its adoption. In sum, we assume the job demands of managers to be higher when the firms they work for are complex and report under IFRS, and we expect the effect of managerial extraversion on disclosure to be stronger in those situations.

The results for the testing of Hypotheses 2 and 3 are reported in Tables 6 and 7, respectively. We first estimate Model (1) separately for each of the two groups based on manager tenure (panel A of Table 6), industry concentration (panel B of Table 6), firm

¹² Fiechter et al. (2018) find in a sample with Swiss firms that 81% of firms that switched from IFRS to the local GAAP (Swiss GAAP FER) mention the increased complexity of IFRS as a reason for their switch.

complexity (panel A of Table 7) and IFRS reporting (panel B of Table 7) by using the total disclosure score (*DISC_T*) as the dependent variable. We then test the difference in the coefficient of managerial extraversion (*EXTRAVERSION*) between the two groups.¹³ As shown in panel A of Table 6, the coefficient of *EXTRAVERSION* is significantly positive in the “shorter tenure” and “longer tenure” groups in both the full and reduced samples, but it is significantly larger for managers with a longer tenure than for those with a shorter tenure. The results reported in panel B of Table 6 show that the coefficient of *EXTRAVERSION* is significantly positive in both industry concentration groups in the full sample and in the reduced sample, but it is significantly larger for managers working in firms in concentrated industries than for those working in firms in competitive industries. Taken together, these results are consistent with Hypothesis 2 that managerial extraversion is more reflected in voluntary disclosure when managerial discretion is higher.

[Insert Table 6 about here]

Panel A of Table 7 shows that the coefficient of *EXTRAVERSION* is significantly positive for managers working in both noncomplex and complex firms in both full and reduced samples. However, the difference in the coefficient of *EXTRAVERSION* between the “noncomplex firms” and “complex firms” groups is not statistically significant. Regarding IFRS reporting, the results reported in panel B of Table 7 show that, for both the full and the reduced samples, the coefficient of *EXTRAVERSION* is significantly positive after firms start reporting under IFRS, whereas it is insignificant before the adoption of IFRS. The results also show that the difference in the coefficients of *EXTRAVERSION* between the “before IFRS adoption” and “after IFRS adoption” groups is significant. We conclude that the results reported in Table 7

¹³ Tables S5 and S6 of Appendix S2 present the results of replicating the analyses of Tables 6 and 7 by using the annual report disclosure score (*DISC_A*) as the dependent variable. Replicating these analyses for the quarterly and web-based reporting disclosure sub-scores was not feasible because there were not enough observations in each group due to the shorter time-series for these sub-scores.

provide some support for Hypothesis 3 that the effect of managerial extraversion on voluntary disclosure is greater when manager job demands are higher.

[Insert Table 7 about here]

4.4 | Additional analyses

4.4.1 | Separate effects of CEOs and CFOs

Our analyses thus far assume that CEOs and CFOs have equal influence on their firms' disclosure decisions. Prior literature, however, has documented that CEOs and CFOs, separately, have influence over financial reporting (Bamber et al., 2010; Ge et al., 2011). We next examine whether the main results in Table 5 are primarily driven by CEOs or CFOs. Specifically, we re-estimate Model (1) separately for CEOs and CFOs from both the full and the reduced samples using the total disclosure score (*DISC_T*) as the dependent variable.¹⁴ In the CEO (CFO) regressions, we further require that the CEO (CFO) of a given firm has changed at least once during the sample period. Panel A of Table 8 reports the results of these regressions. The results show that the coefficient for a CEO's extraversion is significantly positive both in the full and reduced samples. Regarding CFOs, the results show that the coefficient for a CFO's extraversion is significantly positive in the reduced sample but not in the full sample. Taken together, it appears that our main results reported in Table 5 hold for both CEOs and CFOs, which is consistent with both these managers having influence over voluntary disclosure decisions.

4.4.2 | Extraversion and the disclosure style in earnings conference calls

In this subsection, we examine how managers' extraversion affects their disclosure styles by conducting a textual analysis of managers' speech during earnings conference calls. We use

¹⁴ Table S7 of Appendix S2 reports the results of replicating this analysis for the sub-scores for disclosure in annual reports (*DISC_A*), quarterly reports (*DISC_Q*), and corporate websites (*DISC_W*).

five measures of disclosure styles, which we expect to vary with managers' extraversion. To construct the measures, we use CEOs' and CFOs' speech during the presentation and the question and answer (Q&A) portions of the quarterly earnings conference calls of our sample firms. We obtain the conference call transcripts from Thomson Reuters and quarterly accounting data from Compustat. During our sample period, earnings conference calls were mainly organized by the largest firms in Sweden, thereby reducing the sample size. We require that managers speak at least 150 words during the call to ensure that our measures are based on dialogues with sufficient text (Gow et al., 2016). We further require that the CEO or the CFO of a given firm has changed at least once during the sample period. The resulting sample comprises 1,102 quarterly earnings conference calls held by 40 unique firms during 2004-2015.

The first measure is the number of words spoken by managers during the call ($\log(NWORDS)$). The second measure is managers' forward-looking disclosures (FLD), which we further divide into performance-related disclosures (FLD_P) and other disclosures (FLD_O). Consistent with Hypothesis 1, we expect that managerial extraversion is associated with more words spoken and more forward-looking disclosures, especially about future performance. Our final measure is managers' use of optimistic language ($TONE$). The psychology literature suggests that the trait of extraversion is associated with optimism, with the typical extravert being described as more optimistic and less pessimistic (e.g., Eysenck & Eysenck, 1975). Extraverts have moreover been reported to use more positive and less negative emotion language than introverts (e.g., Eysenck & Eysenck, 1991). Consistent with these insights, we predict that extraverted managers use a more optimistic tone during the call. Detailed definitions of the disclosure style variables are provided in the Appendix. The process of identifying forward-looking and performance-related disclosures from the call is described in Appendix S1.

We then estimate OLS regressions from our sample of 1,102 quarterly earnings conference calls, dependent variable being one of the five disclosure style measures discussed above. Panel B of Table 8 reports the results of these estimations. The results show that the coefficient of managerial extraversion is significantly positive for the number of words spoken ($\log(NWORDS)$), indicating that extraverted managers participate more during conference calls. The results also show that extraverted managers provide more forward-looking disclosures (FLD), especially about future performance (FLD_P). Finally, the results show that the coefficient of extraversion is significantly positive for $TONE$, suggesting that the overall disclosure tone of extraverted managers is more optimistic. In sum, these results show that extraversion has a significant effect on managers' disclosure styles during earnings conference calls in a manner predicted by previous research.

We also analyze managers' speech during the presentation and the Q&A portions of the earnings conference calls separately. The presentation portion of the call generally consists of prepared remarks and is frequently created by a team, which includes the managers, lawyers, and the investor relations department (Lee, 2016), therefore providing less discretion to managers. The Q&A section in turn is less prepared and more spontaneous, even though managers are coached about what to say, and is thus more likely to reflect the personality of the speaking managers. Consistent with this view, Table S8 of Appendix S2 reports the results of replicating the analysis of panel B of Table 8 separately for the presentation and the Q&A sections of the calls. These results show that the coefficient of *EXTRAVERSION* is significantly positive for the number of words spoken ($\log(NWORDS)$) and tone ($TONE$) for the Q&A section but insignificant for the presentation section. However, the coefficient of *EXTRAVERSION* is significantly positive for forward-looking performance-related sentences (FLD_P) for the presentation but not for the Q&A section. Due to the threat of disclosure-related litigation, managers may be reluctant to spontaneously disclose information about

future performance in the Q&A section of the call (e.g., Johnson et al., 2001) and instead may prefer to disclose this information in the prepared presentation section.

[Insert Table 8 about here]

4.4.3 | CEO extraversion and CFO appointments

Firms may optimize over a wide range of CEO and CFO traits in their hiring decisions. For instance, firms having a more introverted CEO may benefit from appointing a more extraverted CFO to complement the CEO's skill set. We conclude our additional analyses by examining whether CEO extraversion is associated with the extraversion of newly appointed CFOs. We conduct this analysis by first identifying all the 118 firm-years in our sample when a new CFO was appointed. We then estimate an OLS regression from these 118 CFO appointments, the dependent variable being the extraversion score of the newly appointed CFO. The independent variables are the CEO's extraversion score, other personal characteristics variables of the CEO and the newly appointed CFO, firm-specific control variables from Model (1), and year fixed effects. The results of this analysis are reported in Table S9 of Appendix S2 and show that CEO extraversion is not significantly associated with the extraversion of the newly appointed CFO, suggesting that firms do not consider CEO and CFO extraversion as complementary.

5 | CONCLUSIONS

In this paper, we explore the association between CEO and CFO extraversion as measured in psychological tests and the voluntary disclosure of their firms. Relying on the psychological literature, we maintain that firms led by extraverted CEOs and CFOs are likely to choose to disclose more information to their stakeholders. We also hypothesize that the observed positive association between managerial extraversion and voluntary disclosure is strengthened by greater managerial discretion and job demands.

Our results of analyzing archival data from Sweden show that voluntary disclosure increases with managerial extraversion, even after controlling for a broad set of other manager characteristics and a number of firm-specific factors known to affect voluntary disclosure, including firm fixed effects. We also find that the effect of extraversion on disclosure is stronger among firms where managerial discretion and job demands are higher. Finally, our results show that extraversion has a significant effect on managers' disclosure styles during earnings conference calls, with extraverted managers speaking more during the call and providing more forward-looking disclosures, especially about future performance. The results further show that the overall disclosure tone of extraverted managers during conference calls is more optimistic.

Our analyses are subject to the caveat that our sample contains only male CEOs/CFOs of Swedish firms, and thereby, caution is required in generalizing the results to female managers and/or managers from countries other than Sweden/Scandinavia. Subject to this caveat, our paper contributes to the literature by examining the role of managerial extraversion on the disclosure provided by firms by using a unique measure of a manager's extraversion, which is less subject to endogeneity concerns than the measures used in prior studies, which are not only affected by the manager's personality, but also by the firm's economic fundamentals.

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APPENDIX: VARIABLE DEFINITIONS

Variable	Description	Data Source
Panel A: Disclosure measures		
<i>DISC_T</i>	Total disclosure score, defined as the sum of the sub-scores for disclosure in the annual report, quarterly reports, and corporate websites obtained by a firm in SSA-Kanton's voluntary disclosure ranking in a given year, scaled by the sum of the maximum obtainable scores in that year.	SSA; Kanton
<i>DISC_A</i>	The sub-score for disclosure in the annual report obtained by a firm in SSA-Kanton's voluntary disclosure ranking in a given year, scaled by the maximum obtainable score in that year.	SSA; Kanton
<i>DISC_Q</i>	The sub-score for disclosure in quarterly reports obtained by a firm in SSA-Kanton's voluntary disclosure ranking in a given year, scaled by the maximum obtainable score in that year.	SSA; Kanton
<i>DISC_W</i>	The sub-score for disclosure in corporate websites obtained by a firm in SSA-Kanton's voluntary disclosure ranking in a given year, scaled by the maximum obtainable score in that year.	SSA; Kanton
$\log(NWORDS)$	The logarithm of the number of words spoken by managers during quarterly earnings conference calls.	Thomson Reuters
<i>FLD</i>	The number of forward-looking sentences spoken by managers during quarterly earnings conference calls, scaled by the total number of sentences spoken by managers during the call, multiplied by 100.	Thomson Reuters, Wordlist in Li (2010)
<i>FLD_P</i>	The number of forward-looking performance-related sentences spoken by managers during quarterly earnings conference calls, scaled by the total number of sentences spoken by managers during the call, multiplied by 100.	Thomson Reuters, Wordlists in Li (2010), Athanasakou & Hussainey (2014), and Muslu et al. (2015)
<i>FLD_O</i>	The number of forward-looking non-performance-related sentences spoken by managers during quarterly earnings conference calls, scaled by the total number of sentences spoken by managers during the call, multiplied by 100.	Thomson Reuters, Wordlists in Li (2010), Athanasakou & Hussainey (2014), and Muslu et al. (2015)
<i>TONE</i>	The difference between the number of positive words and the number of negative words spoken by managers during quarterly earnings conference calls, scaled by the total number of words spoken by managers during the call, multiplied by 100.	Thomson Reuters; Wordlist in Loughran and McDonald (2011)

Panel B: Extraversion measure

<i>EXTRAVERSION</i>	The average extraversion score of the CEO and the CFO ranging from one (<i>lowest extraversion</i>) to five (<i>highest extraversion</i>). If extraversion data for the CEO (CFO) is missing for a given firm-year, <i>EXTRAVERSION</i> is equal to the extraversion score of the CFO (CEO) for that firm-year.	Swedish Military Forces
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Panel C: Control variables

$\log(AGE)$	The logarithm of the age of a manager.	Statistics Sweden
<i>IQ</i>	A manager's IQ score ranging from one (<i>lowest IQ</i>) to nine (<i>highest IQ</i>).	Swedish Military Forces
<i>HEIGHT</i>	A manager's height on a scale ranging from one (<i>shortest</i>) to nine (<i>tallest</i>).	Swedish Military Forces
<i>EARLYLIFE</i>	A dummy variable equal to one if there is a recession in the calendar year when a manager turns ten years old, and zero otherwise. A recession year is defined as one with more than six recession months, where recession months are defined as the month following a business cycle peak to the month of a business cycle trough (as defined by the National Bureau of Economic Research).	Statistics Sweden; Datastream
<i>RECESSION</i>	A dummy variable equal to one if there is a recession in the calendar year when a manager starts their career (i.e., when they turn 24 years old), and zero otherwise. A recession year is defined as one with more than six recession months, where recession months are defined as the month following a business cycle peak to the month of a business cycle trough (as defined by the National Bureau of Economic Research).	Statistics Sweden; Datastream
<i>UNIVERSITY</i>	A dummy variable equal to one if a manager has studied three years or more at university level, and zero otherwise.	Statistics Sweden
<i>BUSIDEGREE</i>	A dummy variable equal to one if a manager has a degree in business, and zero otherwise.	Statistics Sweden
<i>LAWDEGREE</i>	A dummy variable equal to one if a manager has a law degree, and zero otherwise.	Statistics Sweden
<i>AUDITEXP</i>	A dummy variable equal to one if a manager has previously worked as a certified auditor, and zero otherwise.	Swedish Inspectorate of Auditors
$\log(TENURE)$	The logarithm of the number of years since a manager was appointed to his current position in his firm.	Finansinspektionen
$\log(SIZE)$	The logarithm of total assets.	Compustat
<i>LEVERAGE</i>	Ratio of debt to total assets.	Compustat
$\log(NANALYST)$	The logarithm of one plus the number of analysts covering a firm.	I/B/E/S
<i>ROA</i>	Ratio of net profit to total assets.	Compustat

<i>FOREIGNSALES</i>	Ratio of foreign sales to total sales.	Compustat
<i>log(NSEGMENTS)</i>	The logarithm of the number of geographical segments.	Compustat
<i>LOSS</i>	A dummy variable equal to one for negative net income, and zero otherwise.	Compustat
<i>ACQUISITIONS</i>	A dummy variable equal to one if a firm reported positive net acquisition expenses, and zero otherwise.	Compustat
<i>RETURN</i>	Previous year's stock return.	Datastream
<i>CROSSLISTED</i>	A dummy variable equal to one if the firm is cross-listed in a stock exchange other than the Stockholm Stock Exchange, and zero otherwise.	Datastream
<i>SMALLROA</i>	A dummy variable equal to one if <i>ROA</i> is between 0% and 1%, and zero otherwise.	Compustat
<i>BEAT</i>	A dummy variable equal to one if net income is greater than or equal to the previous year's net income, and zero otherwise.	Compustat
<i>INS_OWN</i>	The proportion of the shares of a firm owned by institutional owners.	Modular Finance Ltd
<i>HERFINDAHL</i>	A dummy variable equal to one for firms operating in concentrated industries, and zero otherwise. Following previous literature (e.g., Giroud & Mueller, 2011), the industry concentration of a firm's industry is measured based on the Herfindahl-Hirschman Index (HHI), which is the summed squared market shares of all firms in that industry. The market share is the share of a firm's sales relative to aggregate sales of all firms in the same industry. Industries are defined using two-digit standard industrial classification codes. Following the definition of the market concentration by the US Department of Justice, concentrated industries are defined as those with HHI values of more than 2,500.	Compustat
<i>IFSR</i>	A dummy variable equal to one for firm-years when the firm reports under IFRS, and zero otherwise.	Compustat
<i>log(NPARTI)</i>	The logarithm of the number of analysts participating in the quarterly earnings conference call.	Thomson Reuters

TABLE 1 Sample selection and sample description.

Panel A: Sample selection		
	Firms	Firm-years
Disclosure scores of publicly listed Swedish firms for years 1999-2015	557	4,031
Less: Firms missing in Compustat and firms in finance and utilities industries	160	954
Less: Firm-years with missing data on firm-level variables	32	139
Less: CEOs and CFOs with missing extraversion scores	29	678
Less: CEOs and CFOs with missing other person-level variables	9	56
Less: Firms with no changes in their CEO or CFO	102	299
Final sample	225	1,905
Panel B: Frequency of firms based on number of manager (either CEO or CFO) changes		
N of manager changes	Frequency of firms	Percentage (%)
1	63	28.0
2	55	24.4
≥ 3	107	47.6
Total	225	100.0
Panel C: Frequency of firms based on number of CEO changes only		
N of CEO changes	Frequency of firms	Percentage (%)
1	76	69.7
2	29	26.6
≥ 3	4	3.7
Total	109	100.0
Panel D: Frequency of firms based on number of CFO changes only		
N of CFO changes	Frequency of firms	Percentage (%)
1	81	81.0
2	11	11.0
≥ 3	8	8.0
Total	100	100.0

Note: This table provides detailed information about the sample selection process (panel A). The table also reports the frequency distribution of the sample firms based on the number of manager changes (either CEO or CFO) (panel B), CEO changes only (panel C), and CFO changes only (panel D) in a given firm during the sample period. The sample includes 578 individual CEOs and CFOs for 225 publicly listed Swedish firms during the period from 1999 to 2015.

TABLE 2 Managers' characteristics.

Panel A: Descriptive statistics for personal characteristics variables						
Variable	Mean	Median	S.D.	Min	Max	N
EXTRAVERSION	3.88	4	0.73	1	5	578
IQ	7.08	7	1.32	3	9	578
HEIGHT	6.68	7	1.29	3	9	578
EARLYLIFE	0.04	0	0.19	0	1	578
UNIVERSITY	0.91	0	0.28	0	1	578
BUSIDEGREE	0.49	0	0.50	0	1	578
LAWDEGREE	0.02	0	0.13	0	1	578
RECESSION	0.20	0	0.40	0	1	578
AUDITEXP	0.02	0	0.14	0	1	578
AGE	47.50	47	6.41	28	64	578
TENURE	4.02	3	3.13	1	16	578
Panel B: Means by managers' extraversion						
Variable	1-3 (lowest)	4	5 (highest)	Difference: lowest – highest		
IQ	6.79	7.15	7.34	−0.55*** (−3.53)		
HEIGHT	6.59	6.67	6.86	−0.27* (−1.69)		
EARLYLIFE	0.05	0.03	0.04	0.01 (0.41)		
UNIVERSITY	0.89	0.92	0.92	−0.03 (−0.93)		
BUSIDEGREE	0.48	0.54	0.39	0.09 (1.53)		
LAWDEGREE	0.01	0.01	0.04	−0.03 (−1.39)		
RECESSION	0.23	0.18	0.23	−0.00 (−0.00)		
AUDITEXP	0.02	0.02	0.01	0.01 (0.88)		
AGE	47.35	47.19	48.61	−1.26 (−1.60)		
TENURE	3.89	4.05	4.13	−0.23 (−0.62)		
N	170	299	109			

Note: This table presents descriptive statistics for variables that capture manager characteristics (panel A) and the mean values of the characteristics variables by a manager's extraversion score (panel B). In panel B, we test whether the mean values of personal characteristics variables are significantly different between managers with the lowest extraversion scores (extraversion scores from one to three) and the highest extraversion score (extraversion score of five) by using a two-tailed *t*-test. The sample includes 578 individual CEOs and CFOs of 225 publicly listed Swedish firms during the period from 1999 to 2015. See the Appendix for variable definitions. The *t*-statistics are presented in parentheses.

*** and * represent two-tailed significance levels of 10% and 1%, respectively.

TABLE 3 Descriptive statistics for the variables used in the analyses.

Variable	Mean	S.D.	Min	25th	Med.	75th	Max	N
Dependent variables								
<i>DISC_T</i>	0.528	0.152	0.091	0.425	0.521	0.625	1.000	1,905
<i>DISC_A</i>	0.578	0.142	0.000	0.488	0.580	0.673	1.000	1,905
<i>DISC_Q</i>	0.443	0.176	0.053	0.316	0.435	0.571	1.000	826
<i>DISC_W</i>	0.307	0.180	0.000	0.176	0.289	0.412	0.900	826
Independent variables								
<i>EXTRAVERSION</i>	3.884	0.677	1.500	3.500	4.000	4.000	5.000	1,905
<i>IQ</i>	7.091	1.161	3.000	6.000	7.000	8.000	9.000	1,905
<i>HEIGHT</i>	6.636	1.131	3.000	6.000	7.000	7.000	1.000	1,905
<i>EARLYLIFE</i>	0.031	0.126	0.000	0.000	0.000	0.000	1.000	1,905
<i>UNIVERSITY</i>	0.926	0.262	0.000	1.000	1.000	1.000	1.000	1,905
<i>BUSIDEGREE</i>	0.494	0.384	0.000	0.000	0.500	1.000	1.000	1,905
<i>LAWDEGREE</i>	0.012	0.097	0.000	0.000	0.000	0.000	1.000	1,905
<i>RECESSION</i>	0.154	0.252	0.000	0.000	0.000	0.500	1.000	1,905
<i>AUDITEXPER</i>	0.018	0.093	0.000	0.000	0.000	0.000	0.500	1,905
<i>log(AGE)</i>	3.858	0.120	3.465	3.776	3.860	3.941	4.307	1,905
<i>log(TENURE)</i>	0.987	0.674	0.000	0.405	1.099	1.504	2.773	1,905
<i>log(SIZE)</i>	7.569	2.208	2.253	5.926	7.250	9.150	14.851	1,905
<i>LEVERAGE</i>	0.135	0.141	0.000	0.005	0.090	0.231	0.647	1,905
<i>log(NANALYST)</i>	1.275	1.100	0.000	0.000	1.099	2.197	3.584	1,905
<i>ROA</i>	0.024	0.187	-1.203	-0.007	0.066	0.118	0.748	1,905
<i>FOREIGNSALES</i>	0.388	0.358	0.000	0.000	0.390	0.699	1.000	1,905
<i>log(NSEGMENTS)</i>	0.797	0.864	0.000	0.000	0.000	1.609	2.303	1,905
<i>LOSS</i>	0.254	0.435	0.000	0.000	0.000	1.000	1.000	1,905
<i>ACQUISITIONS</i>	0.478	0.500	0.000	0.000	0.000	1.000	1.000	1,905
<i>RETURN</i>	0.113	0.597	-1.000	-0.207	0.000	0.328	4.744	1,905
<i>CROSSLISTED</i>	0.108	0.311	0.000	0.000	0.000	0.000	1.000	1,905
<i>INS_OWN</i>	0.138	0.209	0.000	0.000	0.013	0.240	0.882	1,905
<i>SMALLROA</i>	0.017	0.131	0.000	0.000	0.000	0.000	1.000	1,905
<i>BEAT</i>	0.494	0.500	0.000	0.000	0.000	1.000	1.000	1,905
<i>HERFINDAHL</i>	0.191	0.393	0.000	0.000	0.000	0.000	1.000	1,905
<i>IFRS</i>	0.593	0.491	0.000	0.000	1.000	1.000	1.000	1,905

Note: This table reports descriptive statistics for the variables used in the analyses. The sample includes 1,905 firm-years and 578 individual CEOs and CFOs of 225 publicly listed Swedish firms during the period from 1999 to 2015. The disclosure sub-scores *DISC_Q*, and *DISC_W* are available for 826 firm-years during the period from 2007 to 2015. See the Appendix for variable definitions. All continuous variables are winsorized to the 1st and 99th percentiles of their distributions.

TABLE 4 Univariate analysis of managerial extraversion and corporate voluntary disclosure.

	Disclosure		Difference: Low – High
	Low	High	
	Mean extraversion	Mean extraversion	
Panel A: Full sample			
Total disclosure score (<i>DISC_T</i>)	3.83 <i>N</i> =957	3.95 <i>N</i> =948	−0.12*** (−3.82)
Disclosure sub-scores:			
Annual reports (<i>DISC_A</i>)	3.82 <i>N</i> =938	3.95 <i>N</i> =967	−0.13*** (−4.24)
Quarterly reports (<i>DISC_Q</i>)	3.84 <i>N</i> =413	3.94 <i>N</i> =413	−0.10** (−2.15)
Corporate websites (<i>DISC_W</i>)	3.80 <i>N</i> =412	3.98 <i>N</i> =414	−0.18*** (−3.84)
Panel B: Reduced sample			
Total disclosure score (<i>DISC_T</i>)	3.85 <i>N</i> =946	3.99 <i>N</i> =928	−0.14*** (−4.80)
Disclosure sub-scores:			
Annual reports (<i>DISC_A</i>)	3.84 <i>N</i> =925	3.99 <i>N</i> =949	−0.15*** (−5.00)
Quarterly reports (<i>DISC_Q</i>)	3.88 <i>N</i> =405	3.95 <i>N</i> =409	−0.07 (−1.64)
Corporate websites (<i>DISC_W</i>)	3.83 <i>N</i> =405	4.00 <i>N</i> =409	−0.17*** (−3.88)

Note: This table reports the univariate results for the association between managerial extraversion and voluntary disclosure for both the full sample (panel A) and the reduced sample (panel B) excluding managers with very low extraversion scores (extraversion scores equal to one or two). We first divide our sample into “low disclosure” and “high disclosure” groups based on the median value of the total disclosure score (*DISC_T*) or one of its sub-scores for disclosure in annual reports (*DISC_A*), quarterly reports (*DISC_Q*), or corporate websites (*DISC_W*). We then test whether the mean extraversion scores of managers are significantly different between the two groups using a two-tailed *t*-test. The extraversion score obtains values from one (*lowest extraversion*) to five (*highest extraversion*). The sample includes 1,905 firm-years and 578 individual CEOs and CFOs of 225 publicly listed Swedish firms during the period from 1999 to 2015. The sub-scores *DISC_Q*, and *DISC_W* are available for 826 firm-years during the period from 2007 to 2015. The *t*-statistics are presented in parentheses.

** and *** represent two-tailed significance levels of 5% and 1%, respectively.

TABLE 5 Regression analysis of managerial extraversion and corporate voluntary disclosure.

Variable	Exp. sign	Panel A: Full sample				Panel B: Reduced sample			
		Total disclosure score	Disclosure sub-scores:			Total disclosure score	Disclosure sub-scores:		
		(<i>DISC_T</i>)	Annual reports (<i>DISC_A</i>)	Quarterly reports (<i>DISC_Q</i>)	Corporate websites (<i>DISC_W</i>)	(<i>DISC_T</i>)	Annual reports (<i>DISC_A</i>)	Quarterly reports (<i>DISC_Q</i>)	Corporate websites (<i>DISC_W</i>)
<i>EXTRAVERSION</i>	+	0.020*** (2.63)	0.016** (1.95)	0.016 (0.89)	0.023** (1.81)	0.028*** (3.49)	0.026*** (3.22)	0.017 (0.84)	0.024** (1.71)
<i>IQ</i>	+	−0.000 (−0.09)	0.002 (0.43)	0.004 (0.45)	−0.007 (−0.79)	−0.000 (−0.06)	0.002 (0.38)	0.004 (0.43)	−0.007 (−0.79)
<i>HEIGHT</i>	+	0.001 (0.32)	0.002 (0.45)	0.000 (0.01)	0.004 (0.40)	0.002 (0.50)	0.002 (0.55)	0.000 (0.01)	0.003 (0.40)
<i>EARLYLIFE</i>	−	−0.010 (−0.34)	−0.002 (−0.06)	0.004 (0.06)	0.074* (1.43)	−0.007 (−0.28)	0.001 (0.04)	0.003 (0.06)	0.073* (1.44)
<i>UNIVERSITY</i>	+/−	−0.017 (−1.24)	−0.007 (−0.41)	−0.015 (−0.61)	0.019 (0.70)	−0.019 (−1.42)	−0.009 (−0.56)	−0.016 (−0.62)	0.019 (0.71)
<i>BUSIDEGREE</i>	+	0.027** (1.96)	0.023* (1.56)	−0.010 (−0.37)	0.007 (0.40)	0.031** (2.23)	0.029** (1.90)	−0.011 (−0.39)	0.007 (0.41)
<i>LAWDEGREE</i>	−	−0.082 (−1.25)	−0.068 (−1.08)	−0.095* (−1.43)	−0.002 (−0.03)	−0.082* (−1.29)	−0.068 (−1.11)	−0.094* (−1.42)	−0.002 (0.31)
<i>RECESSION</i>	−	0.022 (1.12)	0.013 (0.66)	−0.028 (−0.56)	−0.045 (−1.17)	0.025 (1.24)	0.016 (0.81)	−0.028 (−0.55)	−0.045 (−1.18)
<i>AUDITEXP</i>	+	0.028 (0.50)	0.043 (0.81)	0.183* (1.51)	0.033 (0.30)	0.031 (0.53)	0.045 (0.84)	0.183* (1.50)	0.034 (0.31)
log(<i>AGE</i>)	−	−0.080** (−1.92)	−0.066* (−1.38)	−0.045 (−0.53)	−0.022 (−0.31)	−0.072** (−1.73)	−0.056 (−1.17)	−0.045 (−0.53)	−0.023 (−0.31)
log(<i>TENURE</i>)	+/ −	0.024*** (3.43)	0.022** (2.97)	0.024 (1.44)	0.023** (2.19)	0.024*** (3.38)	0.028*** (2.88)	0.024* (1.46)	0.024** (2.19)
log(<i>SIZE</i>)	+	0.012	0.011	−0.014	−0.014	0.012	0.011	−0.014	−0.014

		(0.97)	(0.86)	(−0.58)	(−0.88)	(0.97)	(0.85)	(−0.58)	(−0.86)
<i>LEVERAGE</i>	+	−0.022	−0.041	0.049	0.145*	−0.022	−0.038	0.047	0.146*
		(−0.64)	(−1.20)	(0.52)	(1.32)	(−0.63)	(−1.13)	(0.50)	(1.33)
<i>log(NANALYST)</i>	+	−0.005	−0.005	0.005	−0.022**	−0.005	−0.005	0.005	−0.023**
		(−0.76)	(−0.74)	(0.30)	(−2.19)	(−0.76)	(−0.72)	(0.31)	(−2.21)
<i>ROA</i>	+	0.038*	0.043	−0.011	0.085*	0.040*	0.047*	−0.016	0.088*
		(1.30)	(1.22)	(−0.12)	(1.35)	(1.31)	(1.29)	(−0.16)	(1.55)
<i>FOREIGNSALES</i>	+	−0.019	−0.013	−0.120	0.015	−0.012	−0.007	−0.115	0.009
		(−0.79)	(−0.49)	(−1.22)	(0.36)	(−0.48)	(−0.23)	(−1.11)	(0.20)
<i>log(NSEGMENTS)</i>	+	0.004	−0.002	0.007	0.017	0.005	−0.001	0.007	0.018
		(0.48)	(−0.27)	(0.48)	(1.04)	(0.61)	(−0.10)	(0.46)	(1.08)
<i>LOSS</i>	−	0.014*	0.019**	−0.007	−0.000	0.031*	0.019**	−0.009	−0.000
		(1.49)	(1.99)	(−0.37)	(−0.02)	(1.42)	(1.95)	(−0.50)	(−0.02)
<i>ACQUISITIONS</i>	+	0.002	0.007	−0.013	0.000	0.003	0.008	−0.013	−0.001
		(0.41)	(1.01)	(−0.89)	(0.03)	(0.54)	(1.20)	(−0.86)	(−0.07)
<i>RETURN</i>	+	0.005*	0.009**	−0.008	−0.015*	0.004	0.007**	−0.008	−0.015*
		(1.30)	(2.11)	(−0.69)	(−1.36)	(0.91)	(1.67)	(−0.68)	(−1.40)
<i>CROSSLISTED</i>	+	0.087**	0.159***	0.280**	0.102*	0.089**	0.166***	0.275**	0.109*
		(2.45)	(3.90)	(2.18)	(1.57)	(2.40)	(3.94)	(2.06)	(1.64)
<i>INS_OWN</i>	+	0.028	0.009	0.068	−0.031	0.024	0.001	0.068	−0.033
		(0.64)	(0.17)	(0.84)	(−0.53)	(0.53)	(0.01)	(0.81)	(−0.55)
<i>SMALLROA</i>	−	−0.010	−0.012	−0.035	0.023	−0.011	−0.016	−0.032	0.024
		(−0.77)	(−0.82)	(−0.75)	(0.73)	(−0.81)	(−1.12)	(−0.65)	(0.69)
<i>BEAT</i>	+	0.005	0.007*	−0.011	−0.005	0.004	0.006	−0.011	−0.006
		(0.90)	(1.45)	(−1.02)	(−0.54)	(0.76)	(1.25)	(−0.99)	(−0.60)
<i>HERFINDAHL</i>	−	−0.023**	−0.027**	0.005	−0.020	−0.023**	−0.026***	0.005	−0.021
		(−2.10)	(−2.63)	(0.18)	(−1.05)	(−2.15)	(−2.66)	(0.20)	(−1.09)
<i>IFRS</i>	+	−0.008	−0.023	--	--	−0.018	−0.035*	--	--
		(−0.39)	(−1.21)	--	--	(−0.73)	(−1.63)	--	--
Intercept	?	0.335*	0.351*	0.456	0.101	0.282	0.277	0.458	0.101
		(1.84)	(1.69)	(1.29)	(0.33)	(1.54)	(1.34)	(1.29)	(0.32)

Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R-squared	0.70	0.60	0.64	0.74	0.67	0.61	0.64	0.74
<i>N</i>	1,905	1,905	826	826	1,874	1,874	814	814

Note: This table reports the results from estimating Model (1) for the full sample (panel A) and for the reduced sample (panel B) excluding managers with very low extraversion scores (extraversion scores equal to one or two). The dependent variable is the total disclosure score (*DISC_T*) or one of its sub-scores for disclosure in annual reports (*DISC_A*), quarterly reports (*DISC_Q*), or corporate websites (*DISC_W*). The variable *EXTRAVERSION* is the extraversion score of managers and includes values from one (*lowest extraversion*) to five (*highest extraversion*). See the Appendix for other variable definitions. The sample includes 1,905 firm-years and 578 individual CEOs and CFOs of 225 publicly listed Swedish firms during the period from 1999 to 2015. The sub-scores *DISC_Q*, and *DISC_W* are available for 826 firm-years during the period from 2007 to 2015, and thus the variable *IFRS* is not included in the regressions for these sub-scores. All continuous variables are winsorized to the 1st and 99th percentiles of their distributions. The *t*-statistics from robust standard errors clustered at the firm level are presented in parentheses.

*, **, and *** represent one-tailed (two-tailed) significance levels of 10%, 5%, and 1%, respectively, for variables with (without) a predicted sign.

TABLE 6 Moderating role of managerial discretion.

	Prediction: Managerial extraversion has a <i>weaker</i> effect on disclosure			Prediction: Managerial extraversion has a <i>stronger</i> effect on disclosure		
Panel A: Manager tenure						
Variable	Shorter tenure			Longer tenure		
	Exp. sign	Full sample	Reduced sample	Exp. sign	Full sample	Reduced sample
<i>EXTRAVERSION</i>	+	0.014* (1.64)	0.021*** (2.53)	+	0.048*** (3.11)	0.054*** (3.33)
Other variables in Model (1)		Yes	Yes		Yes	Yes
Intercept		Yes	Yes		Yes	Yes
Year and firm FE		Yes	Yes		Yes	Yes
Adj. R-squared		0.69	0.70		0.78	0.78
<i>N</i>		1,136	1,114		769	760
z-statistic on the difference of <i>EXTRAVERSION</i> between shorter and longer tenure:					1.93**	1.81**
Panel B: Industry concentration						
Variable	Competitive industries			Concentrated industries		
	Exp. sign	Full sample	Reduced sample	Exp. sign	Full sample	Reduced sample
<i>EXTRAVERSION</i>	+	0.014** (1.76)	0.019*** (2.49)	+	0.067** (2.32)	0.082*** (2.67)
Other variables in Model (1)		Yes	Yes		Yes	Yes
Intercept		Yes	Yes		Yes	Yes
Year and firm FE		Yes	Yes		Yes	Yes
Adj. R-squared		0.71	0.72		0.75	0.75
<i>N</i>		1,542	1,515		363	359
z-statistic on the difference of <i>EXTRAVERSION</i> between competitive and concentrated industries:					1.79**	2.00**

Note: This table reports the results from estimating Model (1) separately for each group based on manager tenure (panel A) and industry concentration (panel B). The dependent variable in both panels is the total disclosure score (*DISC_T*). The reduced sample excludes managers with very low extraversion scores (extraversion scores equal to one or two). The group “shorter tenure” (“longer tenure”) includes firm-years with below or equal to (above) median manager tenure of three years of the sample. Industry concentration is measured by using the Herfindahl-Hirschman Index (HHI), the calculation of which is described in the Appendix. The group “competitive industries” (“concentrated industries”) includes firm-years with HHI values of less (more) than 2,500. See the Appendix for variable definitions. The sample includes 1,905 firm-years and 578 individual CEOs and CFOs of 225 publicly listed Swedish firms during the period from 1999 to 2015. All continuous variables are winsorized to the 1st and 99th percentiles of their distributions. The *t*-statistics from robust standard errors clustered at the firm level are presented in parentheses.

*, **, and *** represent one-tailed significance levels of 10%, 5%, and 1%, respectively.

TABLE 7 Moderating role of manager job demands.

	Prediction: Managerial extraversion has a <i>weaker</i> effect on disclosure			Prediction: Managerial extraversion has a <i>stronger</i> effect on disclosure		
Panel A: Firm complexity						
	Noncomplex firms			Complex firms		
Variable	Exp. sign	Full sample	Reduced sample	Exp. sign	Full sample	Reduced sample
<i>EXTRAVERSION</i>	+	0.016* (1.36)	0.022** (2.19)	+	0.023** (2.09)	0.031*** (2.58)
Other variables in Model (1)		Yes	Yes		Yes	Yes
Intercept		Yes	Yes		Yes	Yes
Year and firm FE		Yes	Yes		Yes	Yes
Adj. R-squared		0.69	0.70		0.72	0.72
<i>N</i>		952	933		953	941
z-statistic on the difference of <i>EXTRAVERSION</i> between noncomplex and complex firms:					0.45	0.57
Panel B: IFRS reporting						
	Before IFRS adoption			After IFRS adoption		
Variable	Exp. sign	Full sample	Reduced sample	Exp. sign	Full sample	Reduced sample
<i>EXTRAVERSION</i>	+	−0.010 (−0.75)	0.001 (0.06)	+	0.019** (2.04)	0.023** (2.35)
Other variables in Model (1)		Yes	Yes		Yes	Yes
Intercept		Yes	Yes		Yes	Yes
Year and firm FE		Yes	Yes		Yes	Yes
R-squared		0.71	0.72		0.75	0.75
<i>N</i>		776	764		1,129	1,110
z-statistic on the difference of <i>EXTRAVERSION</i> before and after IFRS:					1.82**	1.36*

Note: This table reports the results from estimating Model (1) separately for each group based on firm complexity (panel A) and IFRS reporting (panel B). The dependent variable in both panels is the total disclosure score (*DISC_T*). The reduced sample excludes managers with very low extraversion scores (extraversion scores equal to one or two). Firm complexity is proxied by firm size. The group “noncomplex firms” (“complex firms”) includes firm-years with below or equal to (above) median total assets of the sample. The group “before IFRS adoption” (“after IFRS adoption”) includes firm-years before (after) a firm started reporting under IFRS. See the Appendix for variable definitions. The sample includes 1,905 firm-years and 578 individual CEOs and CFOs of 225 publicly listed Swedish firms during the period from 1999 to 2015. All continuous variables are winsorized to the 1st and 99th percentiles of their distributions. The *t*-statistics from robust standard errors clustered at the firm level are presented in parentheses.

*, **, and *** represent one-tailed significance levels of 10%, 5%, and 1%, respectively.

TABLE 8 Additional analyses.

Panel A: Separate effects of CEOs and CFOs						
		Dependent variable: Total disclosure score (<i>DISC_T</i>)				
		CEOs		CFOs		
Variable	Exp. sign	Full sample	Reduced sample	Full sample	Reduced sample	
<i>EXTRAVERSION</i>	+	0.027*** (2.49)	0.029*** (2.62)	0.010 (0.70)	0.012* (1.49)	
Other variables in Model (1)		Yes	Yes	Yes	Yes	
Intercept		Yes	Yes	Yes	Yes	
Year and firm FE		Yes	Yes	Yes	Yes	
Adj. R-squared		0.66	0.66	0.72	0.73	
<i>N</i>		895	891	715	706	
Panel B: Extraversion and disclosure styles in earnings conference calls						
		Dependent variable:				
		Forward-looking disclosures:				
Variable	Exp. sign	Words spoken log(<i>NWORDS</i>)	All (<i>FLD</i>)	Performance (<i>FLD_P</i>)	Other (<i>FLD_O</i>)	Tone (<i>TONE</i>)
<i>EXTRAVERSION</i>	+	0.059** (2.19)	0.924* (1.63)	0.679** (2.30)	0.263 (0.40)	0.152* (1.66)
Other variables in Model (1)		Yes	Yes	Yes	Yes	Yes
Intercept		Yes	Yes	Yes	Yes	Yes
Quarter, year, and firm FE		Yes	Yes	Yes	Yes	Yes
Adj. R-squared		0.53	0.39	0.50	0.48	0.14
<i>N</i>		1,102	1,102	1,102	1,102	1,102

Note: Panel A reports the results of estimating Model (1) separately for CEOs and CFOs (panel A) and panel B reports the results of examining how managers' extraversion affects their disclosure styles in quarterly earnings conference calls. The dependent variable in panel A is the total disclosure score (*DISC_T*). The sample in panel A (panel B) includes 895 (715) firm-years of 109 (100) publicly listed Swedish firms with at least one CEO (CFO) change during the period from 1999 to 2015. The dependent variable in panel B is one of the five disclosure style measures: log(*NWORDS*), *FLD*, *FLD_P*, *FLD_O*, or *TONE*. All control variables in the regressions in panel B are as in Model (1), with the exception of the variables log(*SIZE*), *LEVERAGE*, *LOSS*, *ROA*, *SMALLROA*, and *BEAT*, which are measured using quarterly instead of annual accounting data. The other variables in panel B also include the variable log(*NPARTI*), which is the logarithm of the number of analysts participating in the call. The sample in panel B includes 1,102 quarterly earnings conference calls held by 40 publicly listed Swedish firms during the period from 2004 to 2015. See the Appendix for variable definitions. All continuous control variables are winsorized to the 1st and 99th percentiles of their distributions. The *t*-statistics from robust standard errors clustered at the firm level are presented in parentheses.

*, **, and *** represent one-tailed significance levels of 10%, 5%, and 1%, respectively.

FIGURE 1 Extroversion distribution for managers. The extraversion scores range from one (*lowest extraversion*) to five (*highest extraversion*) with a population average of three. The sample includes 578 male CEOs and CFOs of 225 publicly listed Swedish firms during the period from 1999 to 2015.