CEO Narcissism and Management Forecasting

1. Introduction

This paper investigates one import personality trait of CEOs, narcissism, and its impact on corporate voluntary disclosure practice, management earnings forecasts. Researchers have found that individual's psychological characteristics affect capital markets and organizational policies (Daniel et al., 1998; Kyle and Wang, 1997; Libby et al., 2002). Narcissism, as one of the most vivid qualities seen in CEOs, has gained researchers' attention recently. Campbell et al. (2004) show that narcissists are generally risk lovers. Chatterjee and Hambrick (2007) further show that narcissistic CEOs generally favor bold actions that attract attention, resulting in large variance in firm performance. Recent studies also show that CEO narcissism affects earnings management practice (Ham et al., 2015; Rijsenbilt and Commandeur, 2013). Yet little has been down on the impact of CEO narcissism on corporate voluntary disclosure, specifically on management earnings forecasts. Management forecasts, as one of the most important information channel for investors (Beyer et al., 2010), gather great amount of attention from investors, analysts, and regulators, which provides a perfect stage for narcissistic CEOs to draw attention, envy, and admiration, and reaffirm their self-superiority. On the other hand, due to their arrogance, fantasy thinking, and lack of empathy, narcissistic CEOs may not provide useful forecasts to investors. Therefore, management forecasts provide a unique and interesting setting to examine narcissistic CEOs decision making.

Narcissism is a multidimensional personality. Emmons (1987) have identified four key factors of narcissism: (1) Exploitativeness/Entitlement (I insist upon getting the respect that is due to me); (2) Leadership/Authority (I like to be the center of attention); (3) Superiority/Arrogance (I am better than others); and (4) Self-absorption/Self-admiration (I am

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preoccupied with how extraordinary and special I am). Prior studies in psychology have concluded that narcissism is traceable to a combination of genetic factors and early parental relations (Chatterjee and Hambrick, 2007; Hotchkiss, 2003; Livesley et al., 1993). Narcissism is related to but distinct from the construct of overconfidence. While overconfidence results from over estimating one's abilities and skills due to positive past experiences or previous success and illustrates unrealistically optimistic views about uncertain outcomes, on the other hand, narcissism is thinking that one is superior and omnipotent. First of all, overconfidence is primarily triggered by external stimuli, but the self-importance aspect of narcissism, which is correlated with overconfidence, is an internal disposition. Second, overconfidence lacks key elements of the narcissistic personality, a sense of entitlement, preoccupation with self, and continuous need for affirmation and applause (Chatterjee and Hambrick, 2007). Prior studies have examined the association between overconfidence and management forecasts and find that overconfident CEOs have larger likelihood of issuing management forecasts, tend to issue optimistic forecasts and tend to underestimate the uncertainty and issue more precise forecasts (Hribar and Yang, 2015; Libby and Rennekamp, 2012). While overconfident CEOs have the conventional rational utility functions, narcissistic CEOs' utility is primarily towards self-reaffirmation. Therefore, how narcissistic CEOs make decisions regarding management forecasts is still worth exploring.

Our paper investigates the impact of CEO narcissism on management forecasts in three aspects: (1) the decision to make a forecast, (2) the precision of the forecast, and (3) the accuracy of the forecast. Specifically, we examine whether narcissistic CEOs are more likely to issue management forecasts to attract attention, whether narcissistic CEOs are making bold yet precise forecasts, and whether narcissistic CEOs inflate forecast.

We measure CEO narcissism using the empirical measure developed by Chatterjee and Hambrick (2007), the use of first-person singular pronouns relative to the use of first-person plural pronouns in public speeches. This measure well captures the key elements of the four aspects of narcissistic personality, and can be constructed on a large sample. We start with Compustat Execucomp firms and then extract transcripts for all conference calls and presentations in which these firms are involved from Factiva and conduct a textual analysis. The narcissism measure is calculated as the ratio of the number of first person singular pronouns (e.g., I, me, my, mine, myself) to the total number of first person singular plus plural pronouns (e.g., we, us, our, ours, ourselves) in CEO's speeches. Our sample consists of primarily large US public firms, namely, S&P1500 firms for the period 2002 to 2013. To draw distinction from overconfidence, we include overconfidence as a control variable. We calculate the average moneyness of the CEO's option portfolio for each year and classify CEOs as overconfident if they hold options with average moneyness of at least 67 percent more than once before the current year, following Campbell et al. (2011), Hirshleifer et al. (2012), and Hribar and Yang (2015).

We find that CEO narcissism is negatively associated with the likelihood of issuing management forecasts and the frequency of management forecasts, negatively associated with forecast precision, positively associated with optimistic bias, positively associated with forecast accuracy, and positively associated with the likelihood of extreme news contained in the forecasts. We also find that the negative relation between CEO narcissism and likelihood and frequency of management forecasts is mitigated by extreme earnings news. Specifically, we find that narcissistic CEOs are more likely to issue forecasts when the underlying earnings news is extreme, particularly extreme good. Our evidence paints a coherent view of the behavior of

narcissistic CEOs. On one hand, that narcissistic CEOs are lack of empathy for investors' information demand and lack of commitment for establishing routine forecasting policies, and their self-admiration and sense of superiority drives them to avoid possible unfavorable outcome, specifically missing the forecast, at all costs, and therefore they are reluctant to issue forecasts, and only issue forecasts when uncertainty is lower and accuracy is higher, and issue less precise forecasts. Yet narcissistic CEOs' hunger for grandiosity and public attention leads to issuing management earnings forecasts when the underlying earnings news is more extreme and to issuing forecasts containing more extreme surprise to the markets. We further investigate whether CFO narcissism has similar impact on management forecasts, but we do not find significant results. In contrast, CEO overconfidence does not load in the majority of the analyses. Our results are robust to different model specifications and samples.

Prior studies have shown that CFO also plays a key role in financial reporting and voluntary disclosure (Ge et al., 2011; Jiang et al., 2010). We therefore further investigate whether CFO narcissism has impact on management forecasts, but we do not find significant relations.

Our results have important implications for understanding managers' decision making process. In deciding on voluntary disclosure, managers are concerned with setting disclosure precedents that cannot be maintained, which in turn impedes voluntary disclosure (Graham et al., 2005; Libby and Rennekamp, 2012). Failing to maintain the disclosure precedents may cause damage to a CEO's reputation and image, which is an even bigger concern for narcissistic CEOs because attention and admiration is one of the biggest drivers for them. Narcissistic CEOs tend to make management forecasts only when the forecast can in turn enhance the CEOs' superiority image, i.e., when the forecast can be made relatively more accurate and more optimistic.

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Our paper contributes to several streams of literature. First, our paper adds to the growing literature on narcissism and corporate decision making. Prior studies have documented that narcissism is an important personality trait that affects risk-taking behavior, mergers and acquisitions, and earnings management (Amernic and Craig, 2010; Campbell et al., 2004; Chatterjee and Hambrick, 2007; Ham et al., 2015; Ham et al., 2014; Rijsenbilt and Commandeur, 2013). Our paper adds to the existing evidence by showing that narcissistic CEOs make management forecast decisions differently than non-narcissistic CEOs. We also show that it's CEO narcissism, not CFO narcissism, that plays a role in management forecasting decisions. We further show the distinction between narcissism and overconfidence. In management forecasting decision, CEO narcissism dominates CEO overconfidence. This is also consistent with the view that narcissism is a more fundamental, ingrained property, while overconfidence is a presentative and variable characteristic.

Second, we contribute to the literature on management forecasts. We document that CEO narcissism plays a significant role in management forecasting decision, and in choice of forecast characteristics. Our paper answers the call for studies on understanding managers' choice of forecast characteristics by Hirst et al. (2008). Our evidence shows that narcissistic CEOs tend to make less precise, more optimistic, yet more accurate forecasts.

The rest of the paper is organized as follows. In the next section, we review the literature and lay out our hypotheses. Section three presents our research design and sample selection. Section four shows the empirical results, and section five concludes our paper.

2. Literature and Hypotheses

2.1 Narcissism

According to the Diagnostic and Statistical Manual of Mental Disorders (DSM), narcissism is defined as ''a pervasive pattern of grandiosity (in fantasy or behavior), need for admiration and a lack of empathy, beginning by early adulthood and present in a variety of contexts'' (American Psychiatric Association, Task Force on DSMIV., (2000), p. 717). Narcissism is generally viewed as genetic but evolves with life experience and surrounding stimuli (Campbell et al., 2002; Freud, 1914). Emmons (1987) have identified four key factors of narcissism: (1) Exploitativeness/Entitlement (I insist upon getting the respect that is due to me); (2) Leadership/Authority (I like to be the center of attention); (3) Superiority/Arrogance (I am better than others); and (4) Self-absorption/Self-admiration (I am preoccupied with how extraordinary and special I am). On the cognitive, narcissism entails a belief in one's superior qualities. On the motivational side, narcissism carries an intense need for other people's affirmation, applause, and admiration. So, paradoxically, the self-admiring narcissist craves further admiration (Chatterjee and Hambrick, 2007). And the craving for admiration is continuous, meaning that the narcissist requires a steady stream of self-image reinforcement (Kohut and Wolf, 1986). To obtain such applause and attention, the narcissist may undertake highly visible tasks, frequently. The narcissist, however, is especially susceptible to criticism, and tend to ignore the feelings, words, and behaviors of others and therefore is lack of empathy (Rijsenbilt and Commandeur, 2013).

Narcissism is related to but distinct from the construct of overconfidence. While overconfidence results from over estimating one's abilities and skills due to positive past experiences or previous success and illustrates unrealistically optimistic views about uncertain outcomes, on the other hand, narcissism is thinking that one is superior and omnipotent. First of

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all, overconfidence is primarily triggered by external stimuli, but the self-importance aspect of narcissism, which is correlated with overconfidence, is an internal disposition. Second, overconfidence lacks key elements of the narcissistic personality, a sense of entitlement, preoccupation with self, and continuous need for affirmation and applause (Chatterjee and Hambrick, 2007).

CEOs tend to be more narcissistic than the general population, as Kets de Vries (2004) says that "narcissism lies at the heart of leadership". The great power and influence of CEO positions may provide a steady narcissistic supply, which in turn drive narcissists to pursue and retain CEO positions. Prior papers have examined the CEO narcissism on risk-taking behavior and earnings management.

Chatterjee and Hambrick (2007) construct a CEO narcissism measure based on the size of the CEO's photograph in annual reports, the CEO's prominence in media, use of first-person singular pronouns in interviews, and compensation relative to the second-highest-paid executive, and examine the effect of CEO narcissism on firm strategy and performance. They find that their narcissism measure is quite stable and consistent with scores based on survey. Using a sample of 111 CEOs in 1992 – 2004, they show that CEO narcissism is positively associated with strategic dynamism and grandiosity, number and size of acquisitions, and extreme firm performance. Ham et al. (2014) measure narcissism using the size of CEO signatures in annual report and show that CEO narcissism is associated with overinvestments, lower innovation, and worse firm performance, yet narcissistic CEOs receive higher compensation.

Rijsenbilt and Commandeur (2013) use narcissism scores obtained from a factor analysis of 15 variables to investigate the effect of CEO narcissism on the SEC Accounting and Auditing Enforcement Releases (AAER) fraud. They find a positive relation between CEO narcissism and

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the likelihood of AAER fraud, and conclude that the pursuit of narcissistic supply result in a CEO undertaking unethical decisions. Similarly, Ham et al. (2015) find that CFO narcissism is positively associated with earnings management, lower conservatism, weaker internal control, and financial restatements, using signature size in annual reports as a narcissism measure.

Two related studies have examined CEO overconfidence and management forecasts. Using an experiment and survey, Libby and Rennekamp (2012) show that overconfidence increases the likelihood of issuing management forecasts. Hribar and Yang (2015) use overconfidence measures constructed based on option and press coverage, and find that overconfidence increases the likelihood of issuing management forecasts, increases optimism, and increases precision of management forecasts. While narcissism is correlated with overconfidence, they are distinct constructs. Campbell et al. (2004) argue that narcissism, as a fundamental personality, leads to overconfidence and risk-taking behavior. The entitlement sense of a narcissist may come out of no reason, and a narcissist may be lack of self-confidence and therefore try to compensate this shortcoming by presenting himself as being more important than and superior to others. Due to the uniqueness and paradox of narcissism, its effect on management forecast may be very different from overconfidence. We will lay out our hypotheses as follows respectively.

2.2 Hypotheses

Prior studies on management forecasts have investigated incentives for and constraints on management forecasts: proprietary costs (Verrecchia, 1983), litigation risk (Skinner, 1997), personal wealth maximization (Nagar et al., 2003), career concerns (Cotter et al., 2006),

corporate governance (Ajinkya et al., 2005). CEO personality traits, particularly narcissism can influence management forecast decisions. On one hand, narcissistic CEOs are exhibitionists (Raskin and Terry, 1988). They constantly seek attention and admiration of others. Management forecasts, as one of the most important information sources for investors (Beyer et al., 2010), provide a venue for attention and visibility. Making management forecasts provides narcissistic supply and therefore narcissistic CEOs are more likely to issue and more frequently issue management forecasts. On the other hand, narcissistic CEOs are fragile in that external criticism can cause a down hit to narcissistic CEOs and they try to avoid criticism and shame at all costs. Furthermore, narcissistic CEOs lack empathy, tend to ignore the demand of investors for more information, and thus are reluctant to make voluntary management forecasts. Narcissists are also lack of commitment in interpersonal relationships (Campbell and Foster, 2002). Narcissistic CEOs, therefore, are reluctant to issue management forecasts which could lead to market's expectation of a routine management forecast policy. In addition, narcissistic CEOs favor grandiosity and drama and are easily bored of small numbers and routine actions. Therefore, the threshold for narcissistic CEOs to make earnings forecasts are higher, which suggests that the likelihood and frequency of issuing management forecasts is lower. Furthermore, when the narcissistic CEO's private information tells that the earnings performance is more dramatic and eye-catching, he will be more willing to make a forecast about the dramatic earnings, to feed his desire for grandiosity and investors' attention. We therefore hypothesize that:

Hypothesis 1a: A more narcissistic CEO is more likely to issue management forecasts.

Hypothesis 1b: A more narcissistic CEO makes more frequent management forecasts.

Hypothesis 1c: A more narcissistic CEO is more likely to issue management forecasts when earnings change is more extreme.

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Narcissists are so fragile to criticism from others that they try to avoid criticism at all costs. When making management forecasts, narcissistic CEOs tend to reduce criticism/shame due to missing the forecast. Reducing the precision/specificity of the forecast is a safe way of avoiding missing the forecast. Making a range forecast instead of a point forecast easily reduces the risk of missing the forecast. On the other hand, narcissistic CEOs tend to be overconfident, which leads the CEOs to underestimate the variance of the forecasted performance and to believe that they can more precisely forecast the future performance (Hribar and Yang, 2015). We therefore hypothesize that:

Hypothesis 2: *CEO narcissism is negatively associated with the precision of management forecasts.*

Narcissists tend to engage in bold, attention-catching behaviors to grasp attention and admiration of others (Campbell et al., 2004; Wallace and Baumeister, 2002). Providing a forecast that is expected and no surprise does not cause enough attention from the investor audience and thus does not supply to the needs of narcissistic CEOs. Furthermore, narcissistic CEOs need constant applause and admiration from the investor audience. Providing a pessimistic forecast will not create applause or admiration. Therefore, narcissistic CEOs are more likely to issue bold optimistic forecasts. On the other hand, missing the forecast target may cause damage to the CEO's reputation, and this is particularly true for narcissistic CEOs since they care more about their self-image and any shame/criticism will cause a devastating pain to them (Hotchkiss, 2003). Therefore, narcissistic CEOs are more likely to issue more accurate forecasts. We hypothesize that:

Hypothesis 3a: *CEO narcissism is positively associated with the optimism of management forecasts.*

Hypothesis 3b: CEO narcissism is negatively associated with the accuracy of management forecasts.

3. Research Design

3.1 Measurement of narcissism

Lying in the center of narcissism is the notion of "all about me" (Hotchkiss, 2003), and therefore the use of first-person singular pronouns, reflecting self-absorption, a sense of superiority, and a sense of entitlement, is an indicator of narcissism (Chatterjee and Hambrick, 2007; Raskin and Shaw, 1988). We measure narcissism with the use of first-person singular pronouns in CEOs' public speeches during conference calls, similar to Chatterjee and Hambrick (2007). Our choice of conference call speeches is based on the fact that speech is a form of express behavior which reflects the most dominant and consistent personality traits of an individual (Ramsay, 1968), and that conference calls provide a homogenous context of business language to all CEOs, in which the language choices are comparable across CEOs (Duranti and Goodwin, 1992; Handford, 2010; Loughran and McDonald, 2011). We first extract 145,534 transcripts for all conference calls and presentations from Factiva and SeekingAlpha in the period 2002 to 2014. We start from 2002 because the coverage in Factiva starts in 2000 and only becomes comprehensive in 2002. We then merge these transcripts Compustat ExecuComp, namely S&P 1,500 companies, using company and executive names, and obtain 64,425 unique transcripts for 2,317 companies. We then isolate only those words of CEO talks, and count the number of first-person singular pronouns (I, me, my, mine, myself) the CEO uses, divided by the sum of those pronouns plus the number of first-person plural pronouns (we, us, our, ours,

ourselves). For a given year t, we take an average of the ratio over the prior three years to get our measure of narcissism. We construct the narcissism measure for CFOs similarly. Finally we obtain speeches for 12,061 CEOs and CFOs. Chatterjee and Hambrick (2007) conduct a validity test for this measure and find that it is consistent over time for each individual but varies greatly over time for each company, suggesting that this measure captures CEO narcissism instead of corporate narcissistic culture. We also conduct our own validity test and find that the narcissism measure has a high autocorrelation (Pearson correlation of 0.86) for each individual. We alternatively measure narcissism using all speeches made by an individual during our sample period and this alternative measure has a correlation of 0.88 with the 3-year average measure. We also identify 28 CEOs that serve in more than two companies and the correlation of narcissism across companies is as high as 0.80. On the other hand, we identify 785 firms that have at least CEO turnovers and the correlation of narcissism across CEOs for such companies is as low as 0.26. This suggests that our narcissism measure better captures the characteristic of a CEO other than a company.

The self-admiration dimension of narcissism could be correlated overconfidence (Campbell et al., 2004), and CEO overconfidence is associated with management forecasts (Hribar and Yang, 2015; Libby and Rennekamp, 2012). To isolate the effects of narcissism from overconfidence, we control for CEO overconfidence in our analyses. Following Hribar and Yang (2015), we construct an overconfidence indicator variable based on CEO vested option holdings reported in Compustat ExecuComp. Specifically, we first estimate, for each year t, the realizable value per option as the total realizable value of options divided by the number of exercisable options. We then estimate the average striking price as the market price of the stock at year t end minus the realizable value per option. The ratio between the realizable value per option to

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average striking price is the average moneyness of the option. If a CEO holds vested options even when the average moneyness of the option is above 67% for at least twice end year t, we code this CEO an overconfident CEO.

3.2 Sample selection and variable definitions

We start our sample with the Compustat ExecuComp dataset in the period 2002 – 2013, with transcripts available from Factiva and SeekingAlpha. Our management forecast data are extracted from First Call CIG database and I/B/E/S Guidance Detail database. The First Call CIG database was discontinued by year 2011 and I/B/E/S Guidance Detail database is provided as a substitute since then by the same data provider Thomson Reuters. We combine these two databases and conduct our analyses based on annual forecasts from the combined dataset. We obtain corporate financial information from Compustat Fundamentals, stock market data from CRSP, institutional holding data from Thomson-Reuters Institutional Holdings (13F) Database, and data on board of directors from BoardEx. Our final sample consists of 27,743 management forecasts made for 11,447 firm-years during the period 2003 – 2013.

Table 1 reports the sample distribution over time. The CEO narcissism measure is relatively stable over time, between 0.19 and 0.20. The CEO overconfidence measure constantly increases over time, consistent with Hribar and Yang (2015). The different patterns of narcissism and overconfidence is possibly due to that narcissism is an innate and persistent personality while overconfidence is gained over past experience and manifests itself over time. The percentage of companies issuing management forecasts and frequency of management forecasts are generally consistent with prior studies.

We investigate management forecasting decisions in the following aspects: likelihood of issuing a forecast (*Issue*), frequency of forecasts (*Freq*), the precision/specificity of forecasts (*Specificity*), and bias (*Miss* and *Bias*) and accuracy (*Error*) of forecasts. *Issue* = 1 if firm makes at least one management earnings forecast during the fiscal year *t*, and 0 otherwise. *Freq* = the number of management earnings forecasts made during the fiscal year *t*. *Specificity* is an ordered nominal variable which takes a value of 3 if the firm issued a point forecast during a fiscal period, 2 if an interval forecast, 1 if an open-ended forecast, and 0 if a qualitative forecast. *Miss* = 1 if actual earnings is less than the management forecast, and 0 otherwise. For range forecasts, *Miss* = 1 if actual earnings is less than the lower bound of the range estimate. *Bias* = [(management forecast of EPS − actual EPS)/logged assets per share at the beginning of the fiscal period]. If *Bias* > 0, the earnings forecast is optimistically biased. *Error* = absolute value [(management forecast of earnings per share (EPS) − actual EPS)/ logged assets per share at the beginning of the fiscal period]. Accuracy of forecasts is the inverse of *Error*. We also control for forecast horizon and forecast news, where *Horizon* = number of days between the forecast date and the fiscal period-end date, and *News* = Management forecast of EPS – analysts' consensus forecast of EPS prior to management forecast, scaled by logged assets per share.

Table 2 reports the summary statistics for CEO narcissism, overconfidence, and management forecast characteristics. The mean CEO narcissism is 0.193, and the mean overconfidence is 0.405. The average number of management forecasts issued each year is 1.9, and on average 44.7% companies issue management forecasts each year. A typical management forecast is a range forecast (*Specificity* = 2), 31% of management forecasts are optimistic, and the mean forecast bias is pessimistic -0.048. The mean forecast error is 0.107. The mean forecast horizon is 196 days, and on average the forecast contains bad news to the market.

Table 3 reports the Pearson correlation between CEO narcissism, overconfidence, and management forecast qualities. Overall CEO narcissism is negatively correlated with overconfidence, and the correlation between CEO narcissism and forecast qualities is in the opposite direction to the correlation between CEO overconfidence and forecast qualities. For example, CEO narcissism is negatively associated with *Issue* and *Freq* while overconfidence is negatively associated with these two variables. These correlations, however, are general small in magnitude.

4. Empirical Results

4.1 Main results

To test Hypothesis 1a, we estimate a logit model predicting the likelihood of issuing a forecast, *Issue*:

$$Logit(Issue) = \beta_0 + \beta_1\,Narci\_CEO + \beta_2\,OverConf + \beta_3\,CEOTenure + \beta_4\,logCashComp +$$
$$\beta_5\,logEquityComp + \beta_6\,InstHolding + \beta_7\,OutDir + \beta_8\,logNAF + \beta_9\,logMV + \beta_{10}$$
$$BM + \beta_{11}\,EarnVol + \beta_{12}\,Litigate + \beta_{13}\,ChgEarn + \beta_{14}\,Loss + \beta_{15}\,CEOHolding +$$
$$\beta_{16}\,ROA + \beta_{17}\,Beta + \beta_{18}\,Idiosync + Industry\ \&\ Year\ Fixed\ Effects + \varepsilon \qquad (1a)$$

And for Hypothesis 1b, we estimate a multivariate linear model of frequency of management forecasts (*Freq*) on the same set of independent variables.

$$Freq = \beta_0 + \beta_1\,Narci\_CEO + \beta_2\,OverConf + \beta_3\,CEOTenure + \beta_4\,logCashComp + \beta_5$$
$$logEquityComp + \beta_6\,InstHolding + \beta_7\,OutDir + \beta_8\,logNAF + \beta_9\,logMV + \beta_{10}\,BM$$

$$+ \ \beta_{11} \ EarnVol + \beta_{12} \ Litigate + \beta_{13} \ ChgEarn + \beta_{14} \ Loss + \beta_{15} \ CEOHolding + \beta_{16}$$

$$ROA + \beta_{17} \ Beta + \beta_{18} \ Idiosync + Industry \ \& \ Year \ Fixed \ Effects + \varepsilon \qquad (1b)$$

The coefficient β_1 is of our interest for testing Hypothesis 1a. We control for CEO tenure (*CEOTenure*) which is measured as number of years the CEO has been in position, because prior studies have shown and CEO tenure is associated with CEO power and incentives and therefore affects corporate financial reporting and disclosure decisions (Ali and Zhang, 2015; Hui, 2004). We also control for CEO incentives as measured by the natural log of cash compensation (*logCashComp*) and the natural log of equity compensation (*logEquityComp*), since prior studies have found that CEOs strategically make disclosure decisions to maximize personal wealth (Aboody and Kasznik, 2000; Nagar et al., 2003). CEO compensation is also argued to be correlated with CEO narcissism (Chatterjee and Hambrick, 2007; Rijsenbilt and Commandeur, 2013), and therefore omission of compensation variables will possibly cause omitted correlated variables problem. We also control for percentage of outstanding shares held by CEOs (*CEOHolding*) since it helps align CEOs' interest with shareholders and incentivize CEOs to disclose, and it is correlated with CEO overconfidence (Malmendier and Tate, 2005). We control for institutional holding (*InstHolding*) and the percentage of independent directors on board (*OutDir*), as Ajinkya et al. (2005) have documented that firms with greater institutional holding and more independent directors are more likely to provide management forecasts and their forecasts are more accurate and precise. We next control for firm information environments. Managers of firms with greater analyst following (*logNAF*) and of greater size (*logMV*), face a greater demand for information and are likely to provide more voluntary disclosure (Ajinkya and Gift, 1984; Hutton, 2005; Lang and Lundholm, 1996). We also control for earnings volatility

(*EarnVol*), market beta (*Beta*) and idiosyncratic risk (*Idiosync*), as Waymire (1985) finds that

firms with higher uncertainty as measured by higher earnings volatility are less likely to issue

management forecasts, Bushee and Noe (2000) find that association between corporate

disclosures and market risk, and Ajinkya et al. (2005) find that market beta is negatively

associated with the likelihood of issuing a forecast, forecast frequency, and specificity. We

control for litigation risk (*Litigate*), as Skinner (1997) argues that firms make voluntary

disclosures to reduce litigation risk. We lastly control for book-to-market ratio (*BM*) which

proxies for growth and proprietary costs (Bamber and Cheon, 1998), and performance measured

as return on assets (*ROA*), change in earnings (*ChgEarn*), and an indicator for loss (*Loss*), as

Miller (2002) shows that performance is negatively associated with voluntary disclosures.

Detailed variable definitions are listed in the appendix. The summary statistics for these control

variables are reported in table 2, and are generally consistent with prior studies (Ajinkya et al.,

2005; Hribar and Yang, 2015), except that institutional ownership and analyst following are

slightly higher due to that our sample contains larger firms and more recent years.

Table 4 reports the estimation of models (1a) and (1b). In panel A of table 4, we estimate

the logit model (1a). We first include CEO narcissism and overconfidence independently and

then include both. Across all specifications, CEO narcissism loads significantly and negatively,

and CEO overconfidence remains insignificant consistently. In column (4), including further

controls on CEO tenure and compensation, the magnitude and significance of CEO narcissism

decreases a little but still significant at 1% confidence level with a coefficient of -3.204 and *t*-

value of -4.93. The coefficient of -3.204 suggests that one standard deviation increase in CEO

narcissism from sample mean is associated with 7% increase in likelihood of issue a

management forecast. The coefficient of CEO overconfidence, although insignificant, is positive,

consistent with Hribar and Yang (2015). Consistent with prior studies, independent directors (*OutDir*) and analyst following (*logNAF*) have significant positive coefficients, while earnings volatility (*EarnVol*), change in earnings (*ChgEarn*), loss dummy (*Loss*), CEO holding (*CEOHolding*), market beta (*Beta*), and idiosyncratic risk (*Idiosync*) have significant negative coefficients.

Table 4 panel B reports estimation for model (1b). The results are consistent with panel A. CEO narcissism loads consistently significantly and negatively, while overconfidence has a insignificant but positive coefficient. The coefficient of CEO narcissism is -2.715 with a t-value of -4.80 in column (4) when all controls are included, suggesting that increase of one standard deviation in CEO narcissism is associated with an increase of 0.18 forecasts, after controlling everything else. The evidence in table 4 panels A and B rejects Hypotheses 1a and 1b, specifically, CEO narcissism is negatively associated with the likelihood and frequency of issuing management forecasts.

We further investigate whether the mitigating effects of extreme earnings news are due to extreme good earnings news or extreme bad earnings news. We create indicators for extreme good news *XGoodEarn* and for extreme bad news *XBadEarn*, and then interact them with CEO narcissism. We report the results in columns (5) and (6) of panels A and B in table 4. We find that both *XGoodEarn* and *XBadEarn* have negative main effects for *Issue* and *Freq*. The interaction terms are significant at 5% confidence level and positive, except the interaction of extreme bad news and CEO narcissism in the logit regression of *Issue* dummy. The evidence in columns suggests that the mitigating effects of extreme earnings news exist for both extreme good news and extreme bad news, but are more pronounced for extreme good news, consistent with the view that a narcissistic CEO enhances his self-image and self-admiration by providing

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grandiose forecasts and particularly positive grandiose forecast and attracting attention and applause.

4.2 CEO narcissism and the qualities of management forecasts

We next test the qualities of forecasts regarding Hypotheses 2, 3a and 3b. In the following tests, we use all forecasts made a firm in the year t.[1] To test Hypothesis 2, we estimate an ordered logit model of forecast specificity on CEO narcissism:

$$Ologit(Specificity) = \beta_0 + \beta_1\,Narci\_CEO + \beta_2\,OverConf + \beta_3\,CEOTenure + \beta_4$$

$$logCashComp + \beta_5\,logEquityComp + \beta_6\,InstHolding + \beta_7\,OutDir + \beta_8\,logNAF +$$

$$\beta_9\,logMV + \beta_{10}\,BM + \beta_{11}\,EarnVol + \beta_{12}\,Litigate + \beta_{13}\,ChgEarn + \beta_{14}\,Loss + \beta_{15}$$

$$CEOHolding + \beta_{16}\,ROA + \beta_{17}\,Beta + \beta_{18}\,Idiosync + \beta_{19}\,DAcc + \beta_{20}\,News + \beta_{21}$$

$$logHorizon + Industry\ \&\ Year\ Fixed\ Effects + \varepsilon \qquad\qquad (2)$$

Besides the controls in models (1a) and (1b), we further control for discretionary accruals (*DAcc*) estimated from the modified Jones model, as Kasznik (1999) finds that firms tend to manage earnings to meet their own forecasts, forecast news (*News*) and horizon (*logHorizon*), as forecasts issued later in the periods should be subject to less earnings uncertainty and, thus, are more likely to be precise (Ajinkya et al., 2005; Choi et al., 2010), and news amount is positively associated with forecast error and bias and thus precision (Ajinkya et al., 2005).

The results are presented in table 5. Consistent with our prediction, the coefficient of CEO narcissism is significant and negative, -1.256 with *t*-value of -2.07, suggesting higher CEO narcissism is associated with less precise forecasts. Forecast horizon loads significantly and

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[1] Alternatively, we keep only the last forecast made by a firm in a given fiscal year, and our results do not change significantly.

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negatively, suggesting that the earlier the forecast is made, the more uncertainty the CEO has and thus less precise the forecast is. Institutional holding loads significantly and positively, while director independence loads negatively, generally consistent with Ajinkya and Gift (1984). In contrast, CEO overconfidence does not load significantly.

We next test our Hypotheses 3a and 3b. We measure forecast optimism using an indicator on whether management forecast is higher than actual earnings (*Miss*) and the difference between management forecasts and actual earnings, scaled by logged total assets per share (*Bias*). And we measure forecast accuracy using the absolute value of the difference between management forecasts and actual earnings (*Error*). We estimate a logit model of *Miss* and linear models for *Bias* and *Error*:

$$logit(Miss)/Bias/Error = \beta_0 + \beta_1\,Narci\_CEO + \beta_2\,OverConf + \beta_3\,CEOTenure + \beta_4$$
$$logCashComp + \beta_5\,logEquityComp + \beta_6\,InstHolding + \beta_7\,OutDir + \beta_8\,logNAF +$$
$$\beta_9\,logMV + \beta_{10}\,BM + \beta_{11}\,EarnVol + \beta_{12}\,Litigate + \beta_{13}\,ChgEarn + \beta_{14}\,Loss + \beta_{15}$$
$$CEOHolding + \beta_{16}\,ROA + \beta_{17}\,Beta + \beta_{18}\,Idiosync + \beta_{19}\,DAcc + \beta_{20}\,News + \beta_{21}$$
$$logHorizon + Industry\ \&\ Year\ Fixed\ Effects + \varepsilon \qquad\qquad (3)$$

The estimation results are reported in table 6. Column (1) reports the logit regression of *Miss*, column (2) reports the linear regression of magnitude of *Bias*, and column (3) reports the linear regression of forecast *Error*. Consistent with our Hypothesis 3a, CEO narcissism is positively associated with the likelihood of issuing an overoptimistic forecast. The coefficient of CEO narcissism is 1.065, significant at 5% confidence level, in column (1). The coefficient of CEO narcissism, although positive, is insignificant when the magnitude of *Bias* is regressed in column (2). The coefficient of CEO narcissism loads significantly and negatively in the regression of forecast *Error*, -0.049 with t-value of -2.34, in the opposite direction to our

prediction. The coefficient suggests that an increase of one standard deviation in CEO narcissism is associated with a decrease in 0.003 in forecast error, which is equivalent to a 7% decrease in the mean forecast error. The evidence in table 6 suggests that narcissistic CEOs are in a paradox of concerns about criticism from missing the forecast and craving for grandiosity of boasting forecasts. Narcissistic CEOs are concerned about missing the forecast and therefore only issue forecasts when the uncertainty is relatively small and the forecast can be reasonably made, yet they crave for grandiosity and therefore tend to forecast optimistically. CEO overconfidence does not consistently load. It loads negatively for *Miss* only, and its coefficients are consistently in the opposite direction to CEO narcissism.

The evidence in tables 4 to 7 coherently draw the picture of narcissistic CEOs. Root in the self-admiration and sense of superiority, narcissists are so intolerant of shame/criticism that they try their best to avoid shame and not to experience it at all. What psychologists call "bypassed shame" is hiding behind the coldness, lack of empathy, and exploitativeness of narcissists (Hotchkiss, 2003). And narcissists are less likely to make commitment in interpersonal relationships (Campbell and Foster, 2002). In the decision-making process of issuing management forecasts, narcissistic CEOs tend to avoid making forecasts that could possibly be missed. They are not as likely to issue forecasts as non-narcissists, likely to issue forecasts less frequently, and only likely to issue forecasts when the uncertainty is relatively low. Yet their craving for grandiosity leads to optimistic forecasts given the decision to issue forecasts.

4.3 Additional analyses

Our measure of narcissism has two possible issues. One issue is that it may capture the narcissistic organizational ideal/culture of the company since the conference calls are in

corporate context. Through a validity test, we have found that our narcissism measure is highly persistent for a particular individual, but much more volatile for a particular organization, especially when CEO turnovers are happening. As narcissism is an innate characteristic, we think our measure better captures CEO narcissism instead of corporate narcissism. We further address this issue by including firm fixed effects in our analyses. Another issue of our measure is that it may capture CEO style. Bamber et al. (2010) show that CEOs have their own style of financial reporting, and their styles are associated with their demographic characteristics such as education background, life, professional, and military experience. While it is not impossible that our narcissism measure is associated with CEOs' past experience and habits, they are distinct in nature. Narcissism may be manifested by experience, but experience itself cannot foster narcissism. We address this issue by including CEO fixed effects in our analyses. Table 7 reports the results. After including firm fixed effects or CEO fixed effects, the association between our narcissism measure and likelihood and frequency of issuing forecasts remains the significant and negative. The significance does decrease, however. This suggests that our narcissism measure is not explained by organizational ideal, and that the association between narcissism and management forecast are not solely due to CEO styles.

Prior studies find that CFOs have significant influence on financial reporting (Ham et al., 2015; Jiang et al., 2010). It is possible that the relation between CEO narcissism and management forecasts becomes weaker or even insignificant once CFO narcissism is included. We examine this concern by including CFO narcissism and overconfidence in our analyses, and reports the estimation in table 8. In panel A, we re-estimate our previous models by replacing CEO narcissism and overconfidence for CFO narcissism and overconfidence. We find that CFO narcissism loads significantly and negatively for *Issue* and *Freq*, but insignificantly in forecast

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qualities. CFO overconfidence, however, loads significantly and positively for *Issue* and *Freq*,

negatively for *Specificity*, and positively for *Miss*, consistent with the findings for CEO

overconfidence in Hribar and Yang (2015). In panel B, we include both CEO and CEO

narcissism and overconfidence all at once. Our results for CEO narcissism still hold overall,

except for forecast *Error*. CFO narcissism, however, only loads significantly in *Freq* and *Bias*,

and even that, its sign in Bias flips to negative, suggesting that CEO narcissism dominates CFO

narcissism in management forecast decisions. This is not surprising though. The CEO have the

most power in a company, and a narcissistic CEO will overrule and exploit all other staff within

the company. It is also possible that narcissistic CEOs and narcissistic CFOs do not coexist in the

same company. One interesting observation is that CFO overconfidence consistently loads

significantly, in the direction opposite to CEO narcissism, consistent with the findings for CEO

overconfidence in Hribar and Yang (2015). This also confirms our notion that narcissism is a

distinct construct from overconfidence.

Finally, there might be inconsistency in the databases of First Call CIG and I/B/E/S

Guidance Detail. We address this issue by re-conduct all our analyses for the First Call CIG data

only, and the results are reported in table 9. Consistent with our main findings, CEO narcissism

loads significantly in the likelihood and frequency of issuing forecasts, specificity, optimism, and

accuracy of forecasts, suggesting that our findings are not subject to data inconsistency issues.

5   Conclusion

This study investigates the association between CEO narcissism and management forecasting

practice. Distinct from economic incentives and constraints, narcissism, the personality trait,

plays a unique role in management forecasting decision. We measure CEO narcissism as the usage of first-person singular pronouns in conference calls and presentations, and find that CEO narcissism is negatively associated with the likelihood and frequency of issuing forecasts, negatively associated with forecast precision, and positively associated with forecast optimism and accuracy. Our evidence is consistent with the view that narcissistic CEOs' self-admiration and sense of superiority drives them to avoid possible unfavorable outcome, specifically missing the forecast, at all costs, and therefore they are reluctant to issue forecasts, and only issue forecasts when uncertainty is lower and accuracy is higher, and issue less precise forecasts. Additional analyses show that it is CEO narcissism, not CFO narcissism, that plays a role in management forecasting decisions.

Our paper contributes to our understanding of CEO decision making behavior and determinants of management forecasts. We show that psychological traits of CEOs play a significant role in their decision making process which may not be well explained by economic incentives. We also show that besides economic incentives and constraints, CEO narcissism is a significant determinant of management forecasts.

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Appendix

Variable Definitions

Narcissism and Overconfidence Measures

Narci_CEO = CEO narcissism, the ratio of the number of first person singular pronouns to the total number of first person singular plus plural pronouns in CEO's speeches in conference calls during the past three years.

Narci_CFO = CFO narcissism, the ratio of the number of first person singular pronouns to the total number of first person singular plus plural pronouns in CFO's speeches in conference calls during the past three years.

OverConf = CEO overconfidence, defined as a dummy variable equal to one if the CEO holds options despite a 67 percent increase in stock price (or more) relative to striking price for at least twice, beginning in the first year the CEO exhibits this behavior.

OverConf_CFO = CFO overconfidence, defined as a dummy variable equal to one if the CFO holds options despite a 67 percent increase in stock price (or more) relative to striking price for at least twice, beginning in the first year the CFO exhibits this behavior.

Management Forecast Variables

Issue = 1 if firm makes at least one management earnings forecast during the fiscal year *t*, and 0 otherwise.

Freq = the number of management earnings forecasts made during the fiscal year *t*.

Specificity = 3 if the firm issued a point forecast during a fiscal period, 2 if an interval forecast, 1 if an open-ended forecast, and 0 if a qualitative forecast.

Miss = 1 if actual earnings is less than the management forecast, and 0 otherwise. For range forecasts, *Miss* = 1 if actual earnings is less than the lower bound of the range estimate.

Bias = [(management forecast of EPS − actual EPS)/logged assets per share at the beginning of the fiscal period]. If *Bias* > 0, the earnings forecast is optimistically biased.

Error = absolute value [(management forecast of earnings per share (EPS) − actual EPS)/ logged assets per share at the beginning of the fiscal period]. Accuracy of forecasts is the inverse of *Error*.

Horizon = number of days between the forecast date and the fiscal period-end date.

News = Management forecast of EPS – analysts' consensus forecast of EPS prior to management forecast, scaled by logged assets per share.

Control Variables

logMV	=	Natural log of the market value of the firm's common equity (in $ million) at the beginning of the fiscal year t.
BM	=	ratio of book value to market value of common equity at the beginning of the fiscal year t.
ChgEarn	=	change of earnings, scaled by market cap at the beginning of the fiscal year t.
EarnVol	=	standard deviation of annual earnings for the past 5 years.
Beta	=	market beta, estimated using daily stock returns in year t.
Idiosync	=	idiosyncratic risk, standard errors of the residuals from the market model, using daily stock returns in year t.
CashComp	=	CEO's cash compensation for the fiscal year t.
EquityComp	=	CEO's equity compensation for the fiscal year t.
InstHolding	=	average percentage of institutional holdings in the fiscal year t.
OutDir	=	percentage of the board of directors that are not also officers of the firm for year t, obtained from BoardEx.
NAF	=	number of analysts following the firm, before the fiscal year end for firms without management earnings forecasts, before the last earnings forecast for forecasting firms.
Disp	=	analyst forecast dispersion for the fiscal year, standard deviation of analyst forecasts scaled by median analyst forecast. For forecasting firms, this measure is calculated before the last earnings forecasts. For non-forecasting firms, this measure is calculated before the fiscal year end.
CEOTenure	=	Number of years CEO in position.
CEOHolding	=	Percentage of shares outstanding owned by the CEO in year t.
DAcc	=	Discretionay accruals in year t, estimated from the modified Jones model.
Loss	=	1 if the firm reports loss in year t, and 0 otherwise.
Litigate	=	1 if the firm belongs to the biotechnology (SIC codes 2833–2836), R&D services (8731–8734), programming (7371–7379), computers (3570–3577), electronics (3600–3674), or retailing (5200–5961) industry, and 0 otherwise.
Capx	=	Capital expenditure in year t, scaled by total assets in year t-1.
R&D	=	R&D expenditures in year t, scaled by total assets in year t-1.
R&D_Dummy	=	1 if Compustat reports a missing R&D expenditure in year t, and 0 otherwise.

Table 1. Distribution of CEO Narcissism and Management Forecasts over Time

Year	N	*Narci_CEO*	*OverConf*	*Issue*	*Freq*
2003	866	0.191	0.186	0.513	1.805
2004	957	0.194	0.318	0.532	1.962
2005	961	0.200	0.382	0.506	1.978
2006	902	0.199	0.427	0.527	2.155
2007	966	0.197	0.431	0.513	2.136
2008	1105	0.188	0.416	0.481	2.176
2009	1182	0.188	0.415	0.413	1.826
2010	1168	0.188	0.429	0.438	2.080
2011	1095	0.190	0.454	0.459	2.083
2012	1042	0.196	0.467	0.461	2.187
2013	1203	0.197	0.470	0.160	0.746
Total	11447				

This table reports the distribution of CEO narcissism and management forecasts over time. Our sample spans the period 2002 to 2013. *Narci_CEO* is CEO narcissism measured as the ratio of the number of first person singular pronouns to the total number of first person singular plus plural pronouns in CEO's speeches in conference calls during the past three years. *OverConf* = CEO overconfidence, defined as a dummy variable equal to one if the CEO holds options despite a 67 percent increase in stock price (or more) relative to striking price for at least twice, beginning in the first year the CEO exhibits this behavior. See the appendix for other variable definitions.

Table 2. Descriptive Statistics

	(1)					
	count	mean	sd	p25	p50	p75
Narci_CEO	11447	0.193	0.067	0.145	0.187	0.235
Narci_CFO	7189	0.159	0.061	0.115	0.152	0.195
OverConf	11447	0.405	0.491	0.000	0.000	1.000
OverConf_CFO	11447	0.201	0.401	0.000	0.000	0.000
Freq	11447	1.904	2.497	0.000	0.000	4.000
Issue	11447	0.447	0.497	0.000	0.000	1.000
Specificity	21976	2.055	0.372	2.000	2.000	2.000
Miss	21976	0.311	0.463	0.000	0.000	1.000
Bias	21886	-0.048	0.185	-0.057	-0.014	0.011
Error	21886	0.107	0.185	0.013	0.035	0.100
Horizon	21976	196.407	100.178	103.000	201.000	290.000
News	21210	-0.039	0.152	-0.020	-0.003	0.008
logMV	11447	7.593	1.535	6.520	7.495	8.569
BM	11447	0.567	0.411	0.294	0.480	0.750
ChgEarn	11447	0.183	2.034	-0.280	0.180	0.640
EarnVol	11447	0.059	0.070	0.017	0.034	0.073
Beta	11447	1.205	0.450	0.886	1.158	1.471
Idiosync	11447	2.135	1.088	1.372	1.894	2.597
CashComp	11447	1194.725	1983.313	600.000	856.731	1200.000
EquityComp	11407	3197.586	5202.145	532.925	1720.371	3961.705
InstHolding	11447	0.752	0.214	0.665	0.800	0.898
OutDir	11240	0.789	0.116	0.714	0.818	0.889
NAF	10456	15.048	10.283	7.000	13.000	21.000
Disp	10271	0.067	0.414	0.016	0.040	0.102
CEOTenure	11447	7.224	6.760	2.000	5.000	10.000
CEOHolding	11331	1.632	3.917	0.107	0.319	1.052
DAcc	11447	0.001	0.103	-0.026	0.006	0.035
Loss	11447	0.169	0.375	0.000	0.000	0.000
Litigate	11447	0.323	0.468	0.000	0.000	1.000
Capx	11447	0.052	0.057	0.017	0.034	0.065
R&D	11447	0.035	0.059	0.000	0.000	0.049
R&D_Dummy	11447	0.405	0.491	0.000	0.000	1.000

This table reports the descriptive statistics for our sample in the period 2002 to 2013. *Narci_CEO* is CEO narcissism measured as the ratio of the number of first person singular pronouns to the total number of first person singular plus plural pronouns in CEO's speeches in conference calls during the past three years. *OverConf* = CEO overconfidence, defined as a dummy variable equal to one if the CEO holds options despite a 67 percent increase in stock price (or more) relative to striking price for at least twice, beginning in the first year the CEO exhibits this behavior. See the appendix for other variable definitions.

Table 3. Pearson Correlation

	Narci_CEO	OverConf
OverConf	-0.021	
	(0.03)	
Freq	-0.075	0.05
	(0.00)	(0.00)
Issue	-0.087	0.035
	(0.00)	(0.00)
Specificity	-0.013	0.017
	(0.06)	(0.01)
Miss	0.005	-0.044
	(0.45)	(0.00)
Bias	-0.011	-0.069
	(0.10)	(0.00)
Error	-0.007	0.046
	(0.29)	(0.00)
Horizon	0.01	0.004
	(0.15)	(0.54)
News	-0.017	-0.03
	(0.01)	(0.00)

This table reports the Pearson correlation between CEO narcissism and overconfidence and management forecast variables. P-values are reported in parentheses below the correlation coefficients. Our sample spans the period 2002 to 2013. *Narci_CEO* is CEO narcissism measured as the ratio of the number of first person singular pronouns to the total number of first person singular plus plural pronouns in CEO's speeches in conference calls during the past three years. *OverConf* = CEO overconfidence, defined as a dummy variable equal to one if the CEO holds options despite a 67 percent increase in stock price (or more) relative to striking price for at least twice, beginning in the first year the CEO exhibits this behavior. See the appendix for other variable definitions.

Table 4. CEO Narcissism and the Tendency of Management Forecasts

Panel A. Logit Regression of the Probability of Management Forecast Issuance

	Dependent variable = *Issue*					
	(1)	(2)	(3)	(4)	(5)	(6)
Narci_CEO	-3.234***		-3.227***	-3.204***	-3.828***	-3.755***
	(-5.05)		(-5.06)	(-4.93)	(-5.63)	(-5.45)
XEarn					-0.390*	
					(-1.65)	
XGoodEarn						-0.548***
						(-2.64)
XBadEarn						-0.078
						(-0.45)
*Narci_CEO * XEarn*					2.020*	
					(1.78)	
*Narci_CEO * XGoodEarn*						2.411**
						(2.51)
*Narci_CEO * XBadEarn*						0.445
						(0.46)
OverConf		0.075	0.068	0.059	0.056	0.056
		(0.73)	(0.68)	(0.57)	(0.54)	(0.54)
CEOTenure				-0.001	-0.001	-0.001
				(-0.10)	(-0.12)	(-0.12)
logCashComp				0.254***	0.256***	0.258***
				(4.24)	(4.28)	(4.28)
logEquityComp				0.033**	0.033**	0.033**
				(2.24)	(2.27)	(2.26)
InstHolding	0.392	0.411	0.380	0.325	0.333	0.339
	(1.16)	(1.20)	(1.12)	(0.96)	(0.99)	(0.99)
OutDir	1.386***	1.427***	1.395***	1.297***	1.295***	1.303***
	(2.90)	(2.97)	(2.93)	(2.74)	(2.72)	(2.76)
logNAF	0.737***	0.720***	0.735***	0.744***	0.746***	0.744***
	(2.76)	(2.70)	(2.74)	(2.75)	(2.75)	(2.74)
logMV	-0.116	-0.134	-0.117	-0.197**	-0.198**	-0.195**
	(-1.22)	(-1.41)	(-1.22)	(-2.02)	(-2.00)	(-1.96)
BM	-0.099	-0.099	-0.092	-0.140	-0.139	-0.134
	(-0.89)	(-0.86)	(-0.81)	(-1.25)	(-1.25)	(-1.22)
EarnVol	-5.517***	-5.505***	-5.517***	-5.491***	-5.518***	-5.451***
	(-7.19)	(-7.22)	(-7.17)	(-7.25)	(-7.29)	(-7.22)
Litigate	-0.254	-0.249	-0.249	-0.211	-0.215	-0.214
	(-1.15)	(-1.13)	(-1.12)	(-0.95)	(-0.96)	(-0.96)
ChgEarn	-0.053***	-0.052***	-0.052***	-0.054***	-0.054***	-0.043***
	(-4.96)	(-4.63)	(-4.90)	(-5.08)	(-5.25)	(-3.20)
Loss	-0.619***	-0.628***	-0.619***	-0.586***	-0.585***	-0.578***
	(-6.26)	(-6.26)	(-6.28)	(-5.58)	(-5.22)	(-5.42)
CEOHolding	-0.021*	-0.022**	-0.021*	-0.013	-0.013	-0.013
	(-1.91)	(-1.99)	(-1.92)	(-1.12)	(-1.13)	(-1.12)
ROA	0.032	0.023	-0.033	0.198	0.200	0.212
	(0.05)	(0.04)	(-0.05)	(0.31)	(0.32)	(0.33)
Beta	-0.524***	-0.512***	-0.526***	-0.542***	-0.544***	-0.542***

	(-4.49)	(-4.33)	(-4.52)	(-4.65)	(-4.68)	(-4.69)
Idiosync	-0.204***	-0.195***	-0.206***	-0.211***	-0.209***	-0.207***
	(-3.13)	(-3.00)	(-3.15)	(-3.26)	(-3.17)	(-3.12)
Pseudo.R2	0.2399	0.2345	0.2400	0.2433	0.244	0.244
N	11104	11104	11104	11068	11068	11068

Panel B. Linear Regression of Frequency of Management Forecasts

	Dependent variable = *Freq*					
	(1)	(2)	(3)	(4)	(5)	(6)
Narci_CEO	**-2.835*****		**-2.819*****	**-2.715*****	**-3.453*****	**-3.451*****
	(-5.00)		**(-4.99)**	**(-4.80)**	**(-5.60)**	**(-5.28)**
XEarn					-0.538***	
					(-2.83)	
XGoodEarn						-0.542**
						(-2.52)
XBadEarn						-0.397***
						(-3.57)
*Narci_CEO * XEarn*					**2.223****	
					(2.47)	
*Narci_CEO * XGoodEarn*						**2.245****
						(2.20)
*Narci_CEO * XBadEarn*						**1.423****
						(2.02)
OverConf		0.101	0.092	0.104	0.102	0.101
		(1.11)	(1.03)	(1.12)	(1.10)	(1.09)
CEOTenure				-0.008	-0.008	-0.008
				(-1.30)	(-1.32)	(-1.32)
logCashComp				0.181***	0.186***	0.185***
				(3.41)	(3.47)	(3.45)
logEquityComp				0.034**	0.034**	0.034**
				(2.50)	(2.52)	(2.52)
InstHolding	0.314	0.320	0.297	0.244	0.273	0.279
	(1.33)	(1.31)	(1.24)	(1.03)	(1.16)	(1.16)
OutDir	1.251***	1.298***	1.258***	1.154***	1.157***	1.153***
	(3.27)	(3.32)	(3.29)	(3.07)	(3.10)	(3.09)
logNAF	0.487***	0.476***	0.484***	0.487***	0.484***	0.484***
	(3.63)	(3.50)	(3.57)	(3.59)	(3.55)	(3.55)
logMV	0.110	0.094	0.109	0.043	0.049	0.049
	(1.56)	(1.31)	(1.53)	(0.63)	(0.71)	(0.72)
BM	-0.138	-0.136	-0.129	-0.161*	-0.142	-0.141
	(-1.58)	(-1.53)	(-1.48)	(-1.85)	(-1.62)	(-1.63)
EarnVol	-3.827***	-3.820***	-3.827***	-3.825***	-3.699***	-3.675***
	(-6.29)	(-6.44)	(-6.26)	(-6.21)	(-6.25)	(-6.25)
Litigate	-0.378**	-0.379**	-0.372*	-0.341*	-0.352*	-0.351*
	(-1.98)	(-2.00)	(-1.94)	(-1.78)	(-1.84)	(-1.83)
ChgEarn	-0.012	-0.010	-0.010	-0.012	-0.009	-0.011
	(-0.91)	(-0.77)	(-0.79)	(-0.90)	(-0.72)	(-0.90)
Loss	-0.498***	-0.508***	-0.497***	-0.479***	-0.448***	-0.451***
	(-4.38)	(-4.34)	(-4.41)	(-4.27)	(-3.94)	(-4.07)
CEOHolding	-0.017	-0.018	-0.017	-0.005	-0.004	-0.004
	(-1.48)	(-1.58)	(-1.50)	(-0.37)	(-0.36)	(-0.36)
ROA	-0.615	-0.658	-0.692	-0.536	-0.558	-0.572
	(-1.04)	(-1.14)	(-1.21)	(-0.95)	(-0.99)	(-1.00)
Beta	-0.522***	-0.513***	-0.523***	-0.533***	-0.533***	-0.534***
	(-6.09)	(-5.88)	(-6.10)	(-6.06)	(-6.15)	(-6.17)
Idiosync	-0.090*	-0.085*	-0.092*	-0.097**	-0.092*	-0.092*

	(-1.89)	(-1.76)	(-1.93)	(-2.07)	(-1.93)	(-1.93)
Adj.R2	0.260	0.255	0.260	0.263	0.264	0.264
N	11127	11127	11127	11091	11091	11091

This table reports the impact of CEO narcissism on the tendency of management forecasts. Panel A reports results from a logit regression of forecast issuance dummies on CEO narcissism and overconfidence, and panel B reports results from a linear regression of management forecast frequencies. *Issue* = 1 if firm makes at least one management earnings forecast during the fiscal year *t*, and 0 otherwise. *Freq* = the number of management earnings forecasts made during the fiscal year *t*. *Narci_CEO* is CEO narcissism measured as the ratio of the number of first person singular pronouns to the total number of first person singular plus plural pronouns in CEO's speeches in conference calls during the past three years. *OverConf* = CEO overconfidence, defined as a dummy variable equal to one if the CEO holds options despite a 67 percent increase in stock price (or more) relative to striking price for at least twice, beginning in the first year the CEO exhibits this behavior. See the appendix for other variable definitions. Industry and year fixed effects are included but not tabulated. *T*-statistics are calculated based on standard errors clustered by firm and year, and reported in parenthese. [*], [**], and [***] indicate 1%, 5%, and 10% significance levels, respectively.

Table 5. Ordered Logit Regression of Forecast Specificity

	Dependent variable = *Specificity*			
	(1)	(2)	(3)	(4)
Narci_CEO	-1.206**		-1.204**	-1.256**
	(-1.99)		(-1.99)	(-2.07)
OverConf		-0.025	-0.021	-0.023
		(-0.19)	(-0.16)	(-0.16)
CEOTenure				0.001
				(0.08)
logCashComp				0.102
				(1.15)
logEquityComp				-0.018
				(-0.93)
InstHolding	0.756*	0.773*	0.766*	0.763*
	(1.79)	(1.89)	(1.88)	(1.93)
OutDir	-1.601***	-1.625***	-1.606***	-1.575***
	(-2.72)	(-2.69)	(-2.70)	(-2.60)
logNAF	0.187	0.201	0.189	0.194
	(1.34)	(1.44)	(1.36)	(1.37)
logMV	0.100	0.087	0.100	0.087
	(1.63)	(1.47)	(1.63)	(1.19)
BM	-0.165	-0.183	-0.167	-0.182
	(-0.75)	(-0.83)	(-0.76)	(-0.80)
EarnVol	1.477	1.449	1.481	1.582
	(1.24)	(1.20)	(1.24)	(1.34)
Litigate	0.196	0.213	0.194	0.190
	(0.70)	(0.75)	(0.67)	(0.67)
ChgEarn	-0.023	-0.024	-0.023	-0.025
	(-0.54)	(-0.58)	(-0.56)	(-0.62)
Loss	0.012	0.016	0.011	-0.006
	(0.04)	(0.06)	(0.04)	(-0.02)
CEOHolding	0.008	0.008	0.008	0.006
	(0.30)	(0.30)	(0.30)	(0.21)
ROA	-0.311	-0.227	-0.285	-0.323
	(-0.23)	(-0.17)	(-0.21)	(-0.24)
Beta	0.402**	0.399**	0.403**	0.393**
	(2.52)	(2.46)	(2.52)	(2.44)
Idiosync	0.048	0.049	0.048	0.045
	(0.67)	(0.70)	(0.67)	(0.62)
DAcc	0.697	0.752	0.691	0.656
	(1.39)	(1.56)	(1.43)	(1.41)
News	0.428	0.430	0.426	0.435
	(1.13)	(1.16)	(1.12)	(1.13)
logHorizon	-0.294***	-0.294***	-0.294***	-0.294***
	(-6.39)	(-6.41)	(-6.40)	(-6.38)
Pseudo.R2	0.036	0.035	0.036	0.036
N	20691	20694	20691	20635

This table reports results from a ordered logit regression of management forecast precision, measured as *Specificity*, which = 3 if the firm issued a point forecast during a fiscal period, 2 if an interval forecast, 1 if an open-ended forecast, and 0 if a qualitative forecast. *Narci_CEO* is CEO narcissism measured as the ratio of the number of first person singular pronouns to the total number of first person singular plus plural pronouns in CEO's speeches in conference calls during the past three years. *OverConf* = CEO overconfidence, defined as a dummy variable equal to one if the CEO holds options despite a 67 percent increase in stock price (or more) relative to striking price for at least twice, beginning in the first year the CEO exhibits this behavior. See the appendix for other variable definitions. Industry and year fixed effects are included but not tabulated. *T*-statistics are calculated based on standard errors clustered by firm and year, and reported in parentheses. *, **, and *** indicate 1%, 5%, and 10% significance levels, respectively.

Table 6. Regression of Forecast Bias and Error on CEO Narcissism

	(1) Miss	(2) Bias	(3) Error
Narci_CEO	**1.065****	**0.022**	**-0.049****
	(2.06)	**(1.13)**	**(-2.34)**
OverConf	-0.132*	-0.004	0.006
	(-1.75)	(-1.13)	(1.20)
CEOTenure	0.007	0.000	-0.000
	(1.15)	(0.74)	(-1.53)
logCashComp	-0.318***	-0.017***	0.019***
	(-2.81)	(-2.90)	(2.64)
logEquityComp	-0.012	0.000	-0.001
	(-0.85)	(0.15)	(-0.69)
InstHolding	-0.323	-0.020	0.012
	(-1.57)	(-1.59)	(0.96)
OutDir	0.223	-0.004	0.056***
	(0.63)	(-0.21)	(3.05)
logNAF	0.438***	0.026***	-0.007
	(4.80)	(5.24)	(-1.00)
logMV	-0.149**	-0.005*	0.008**
	(-2.46)	(-1.82)	(2.11)
BM	1.187***	0.058***	0.025**
	(7.97)	(5.54)	(2.32)
EarnVol	-0.532	0.034	0.070
	(-0.51)	(0.64)	(1.36)
Litigate	-0.063	-0.007	-0.014***
	(-0.44)	(-1.07)	(-2.90)
ChgEarn	-0.304***	-0.023***	-0.003
	(-6.67)	(-9.15)	(-1.04)
Loss	0.180	0.013	0.087***
	(1.12)	(1.23)	(6.18)
CEOHolding	-0.027**	-0.001*	0.001
	(-2.45)	(-1.65)	(0.98)
ROA	-3.661***	-0.367***	0.241***
	(-4.03)	(-6.38)	(4.66)
Beta	-0.100	-0.020***	0.019***
	(-0.81)	(-3.04)	(2.78)
Idiosync	0.104	0.007**	0.030***
	(1.52)	(2.05)	(5.66)
DAcc	1.768***	0.088***	-0.024
	(3.01)	(2.97)	(-0.74)
News	3.858***	0.849***	-0.802***
	(13.05)	(40.62)	(-24.84)
logHorizon	0.470***	0.001	0.031***
	(11.05)	(0.36)	(19.15)
Adj.R2	0.160	0.660	0.510
N	20626	20635	20635

Column (1) reports results from a logit regression of *Miss*, an indicator of optimistic forecasts, on CEO narcissism, column (2) reports results from a linear regression of forecast bias, and column (3) reports results from a linear regression of forecast error. *Miss* = 1 if actual earnings is less than the management forecast, and 0 otherwise. For range forecasts, *Miss* = 1 if actual earnings is less than the lower bound of the range estimate. *Bias* = [(management forecast of EPS − actual EPS)/logged assets per share at the beginning of the fiscal period]. If *Bias* > 0, the earnings forecast is optimistically biased. *Error* = absolute value [(management forecast of earnings per share (EPS) − actual EPS)/ logged assets per share at the beginning of the fiscal period]. Accuracy of forecasts is the inverse of *Error*. *Narci_CEO* is CEO narcissism measured as the ratio of the number of first person singular pronouns to the total number of first person singular plus plural pronouns in CEO's speeches in conference calls during the past three years. *OverConf* = CEO overconfidence, defined as a dummy variable equal to one if the CEO holds options despite a 67 percent increase in stock price (or more) relative to striking price for at least twice, beginning in the first year the CEO exhibits this behavior. See the appendix for other variable definitions. Industry and year fixed effects are included but not tabulated. *T*-statistics are calculated based on standard errors clustered by firm and year, and reported in parentheses. [*], [**], and [***] indicate 1%, 5%, and 10% significance levels, respectively.

Table 7. Firm Fixed Effects and Executive Fixed Effects

	Firm-fixed Effects		CEO-fixed Effects	
	(1)	(2)	(3)	(4)
	Issue	*Freq*	*Issue*	*Freq*
Narci_CEO	**-2.331****	**-0.723***	**-3.966****	**-1.621*****
	(-2.25)	**(-1.96)**	**(-2.56)**	**(-3.32)**
OverConf	-0.017	0.086	0.118	0.098
	(-0.12)	(1.63)	(0.56)	(1.46)
CEOTenure	0.018	0.001	-0.028	0.036*
	(1.56)	(0.35)	(-0.49)	(1.67)
logCashComp	0.140	-0.008	0.285**	0.031
	(1.31)	(-0.20)	(2.16)	(0.67)
logEquityComp	-0.010	-0.004	-0.020	-0.001
	(-0.53)	(-0.60)	(-0.94)	(-0.15)
InstHolding	0.727	-0.030	0.855	0.110
	(1.50)	(-0.18)	(1.52)	(0.64)
OutDir	0.346	0.114	-0.383	0.183
	(0.54)	(0.45)	(-0.52)	(0.65)
logNAF	1.525***	0.638***	1.519***	0.620***
	(14.75)	(22.48)	(12.35)	(20.82)
logMV	-0.069	0.086*	-0.244*	-0.015
	(-0.56)	(1.88)	(-1.68)	(-0.30)
BM	0.055	0.016	-0.173	-0.078
	(0.30)	(0.23)	(-0.79)	(-1.04)
EarnVol	-3.554***	-1.806***	-3.682***	-1.748***
	(-3.23)	(-4.52)	(-2.77)	(-3.99)
ChgEarn	-0.077***	-0.015*	-0.081***	-0.012
	(-3.44)	(-1.86)	(-3.20)	(-1.42)
Loss	0.053	-0.116*	0.182	-0.022
	(0.31)	(-1.81)	(0.95)	(-0.33)
CEOHolding	-0.013	0.003	-0.034	0.009
	(-0.45)	(0.37)	(-0.88)	(0.81)
ROA	3.761***	1.030***	4.773***	1.326***
	(4.62)	(3.38)	(5.10)	(4.21)
Beta	-0.091	-0.078	-0.096	-0.165***
	(-0.65)	(-1.52)	(-0.60)	(-3.08)
Idiosync	-0.075	-0.047*	-0.065	-0.036
	(-0.98)	(-1.69)	(-0.76)	(-1.24)
Adj.R2	0.341	0.672	0.324	0.705
N	5690	11091	4155	11091

This table reports the results for management forecast issuance and frequency, incorporating firm fixed effects and CEO fixed effects. *Issue* = 1 if firm makes at least one management earnings forecast during the fiscal year *t*, and 0 otherwise. *Freq* = the number of management earnings forecasts made during the fiscal year *t*. *Narci_CEO* is CEO narcissism measured as the ratio of the number of first person singular pronouns to the total number of first person singular plus plural pronouns in CEO's speeches in conference calls during the past three years. *OverConf* = CEO overconfidence, defined as a dummy variable equal to one if the CEO holds options despite a 67 percent increase in stock price (or more) relative to striking price for at least twice,

beginning in the first year the CEO exhibits this behavior. See the appendix for other variable definitions. Year fixed effects are included but not tabulated. *T*-statistics are calculated based on standard errors clustered by firm and year, and reported in parentheses. *, **, and *** indicate 1%, 5%, and 10% significance levels, respectively.

Table 8. The Impact of CFO Narcissism on Management Forecasts

Panel A. CFO narcissism alone

	(1) Issue	(2) Freq	(3) Specificity	(4) Miss	(5) Bias	(6) Error
Narci_CFO	**-1.698****	**-1.843*****	**0.256**	**-0.097**	**-0.025**	**-0.023**
	(-2.41)	**(-3.58)**	**(0.37)**	**(-0.28)**	**(-1.44)**	**(-0.59)**
OverConf_CFO	0.357***	0.313***	-0.218***	0.154***	-0.002	-0.004
	(2.79)	(2.89)	(-3.43)	(3.15)	(-0.92)	(-0.91)
Insider	-0.017	-0.005	0.010*	-0.016***	-0.000	-0.000
	(-1.45)	(-0.52)	(1.79)	(-3.09)	(-0.90)	(-0.78)
InstHolding	0.052	0.196	0.535**	-0.801***	-0.031***	0.009
	(0.13)	(0.62)	(2.45)	(-6.19)	(-5.50)	(0.47)
OutDir	1.961***	1.851***	-1.559***	0.342	-0.002	0.061*
	(2.68)	(2.90)	(-4.95)	(0.96)	(-0.24)	(1.86)
logNAF	0.902***	0.543***	0.097	0.419***	0.021***	-0.006
	(2.78)	(3.40)	(0.89)	(6.77)	(5.59)	(-1.17)
logMV	-0.209*	0.073	0.113**	-0.219***	-0.006***	0.009**
	(-1.77)	(0.84)	(2.51)	(-5.67)	(-2.93)	(2.51)
BM	-0.084	-0.154	-0.494***	1.033***	0.050***	0.023**
	(-0.65)	(-1.34)	(-3.13)	(12.79)	(6.93)	(2.04)
EarnVol	-6.112***	-4.503***	0.696	-1.933**	-0.027	0.129*
	(-7.53)	(-7.60)	(0.82)	(-2.16)	(-0.83)	(1.81)
Litigate	-0.400	-0.498*	-0.046	-0.038	0.000	0.008
	(-0.82)	(-1.81)	(-0.22)	(-0.38)	(0.10)	(0.80)
ChgEarn	-0.046**	0.004	0.027	-0.313***	-0.021***	-0.004*
	(-2.46)	(0.21)	(0.81)	(-8.39)	(-11.09)	(-1.68)
Loss	-0.577***	-0.433***	0.236	0.390***	0.023***	0.071***
	(-4.22)	(-2.76)	(1.09)	(3.89)	(4.34)	(4.45)
ROA	-0.071	-0.705	-1.448	-1.668***	-0.273***	0.184***
	(-0.10)	(-1.20)	(-1.42)	(-2.75)	(-8.54)	(2.88)
Beta	-0.597***	-0.654***	0.351**	-0.028	-0.017***	-0.009
	(-4.61)	(-4.71)	(2.47)	(-0.26)	(-3.14)	(-0.85)
Idiosync	-0.247**	-0.100	0.121**	0.133***	0.011***	0.030***
	(-2.48)	(-1.26)	(2.20)	(2.94)	(3.65)	(4.64)
DAcc			1.254***	1.762***	0.082***	-0.004
			(3.05)	(3.42)	(4.13)	(-0.14)
News			0.437	3.550***	0.841***	-0.773***
			(1.56)	(8.91)	(31.16)	(-17.11)
logHorizon			-0.284***	0.496***	0.001	0.032***
			(-6.75)	(8.69)	(0.28)	(8.99)
Adj.R2	0.267	0.282	0.040	0.154	0.621	0.490
N	7061	7106	13292	13276	13292	13292

Panel B. CEO and CFO narcissism when included together

	(1) Issue	(2) Freq	(3) Specificity	(4) Miss	(5) Bias	(6) Error
Narci_CEO	**-2.527**	**-1.916**	**-1.506**	**0.741**	**0.029**	**-0.021**
	(-2.31)	**(-2.06)**	**(-2.48)**	**(2.43)**	**(2.78)**	**(-0.72)**
OverConf	-0.087	-0.023	-0.184	-0.125	-0.001	0.009
	(-0.66)	(-0.24)	(-2.07)	(-2.46)	(-0.38)	(2.21)
Narci_CFO	-0.914	-1.238	0.837	-0.346	-0.035	-0.017
	(-1.22)	(-2.49)	(1.10)	(-0.93)	(-1.98)	(-0.44)
OverConf_CFO	0.387	0.317	-0.142	0.204	-0.001	-0.007
	(3.26)	(3.20)	(-1.92)	(4.58)	(-0.68)	(-1.56)
Insider	-0.016	-0.005	0.011	-0.017	-0.000	-0.000
	(-1.43)	(-0.48)	(1.85)	(-3.23)	(-0.97)	(-0.73)
InstHolding	0.055	0.201	0.622	-0.756	-0.030	0.005
	(0.13)	(0.64)	(2.85)	(-6.07)	(-4.94)	(0.26)
OutDir	1.893	1.802	-1.543	0.324	-0.003	0.062
	(2.59)	(2.83)	(-4.79)	(0.92)	(-0.33)	(1.91)
logNAF	0.921	0.550	0.113	0.433	0.021	-0.007
	(2.86)	(3.49)	(1.03)	(7.04)	(5.79)	(-1.41)
logMV	-0.193	0.086	0.129	-0.229	-0.006	0.009
	(-1.62)	(0.97)	(2.80)	(-5.66)	(-3.12)	(2.64)
BM	-0.074	-0.149	-0.471	1.008	0.049	0.024
	(-0.55)	(-1.29)	(-2.98)	(11.92)	(6.73)	(2.13)
EarnVol	-6.059	-4.488	0.854	-1.951	-0.028	0.126
	(-7.41)	(-7.58)	(0.99)	(-2.18)	(-0.87)	(1.79)
Litigate	-0.405	-0.489	-0.085	-0.040	0.001	0.009
	(-0.86)	(-1.87)	(-0.40)	(-0.40)	(0.17)	(0.85)
ChgEarn	-0.046	0.004	0.027	-0.313	-0.021	-0.004
	(-2.50)	(0.21)	(0.83)	(-8.39)	(-11.15)	(-1.67)
Loss	-0.561	-0.422	0.251	0.388	0.023	0.071
	(-4.17)	(-2.74)	(1.15)	(3.88)	(4.31)	(4.48)
ROA	-0.054	-0.710	-1.309	-1.577	-0.271	0.176
	(-0.07)	(-1.21)	(-1.26)	(-2.61)	(-8.23)	(2.75)
Beta	-0.607	-0.663	0.356	-0.031	-0.017	-0.009
	(-4.70)	(-4.73)	(2.50)	(-0.28)	(-3.16)	(-0.85)
Idiosync	-0.250	-0.100	0.129	0.139	0.011	0.030
	(-2.53)	(-1.26)	(2.29)	(3.10)	(3.67)	(4.53)
DAcc			1.175	1.760	0.082	-0.003
			(2.89)	(3.36)	(4.09)	(-0.10)
News			0.429	3.554	0.841	-0.773
			(1.54)	(8.96)	(31.38)	(-16.96)
logHorizon			-0.284	0.496	0.001	0.032
			(-6.76)	(8.70)	(0.28)	(9.04)
Adj.R2	0.270	0.284	0.042	0.155	0.621	0.490
N	7061	7106	13292	13276	13292	13292

This table reports the impact of CFO narcissism on management forecasts. In panel A, only CFO narcissism and overconfidence are included, and in panel B, both CEO and CFO narcissism are included. *Specificity* = 3 if the firm issued a point forecast during a fiscal period, 2 if an interval forecast, 1 if an open-ended forecast, and 0 if a qualitative forecast. *Miss* = 1 if actual earnings is less than the management forecast, and 0 otherwise. For range forecasts, *Miss* = 1 if actual earnings is less than the lower bound of the range estimate. *Bias* = [(management forecast of EPS − actual EPS)/logged assets per share at the beginning of the fiscal period]. If *Bias* > 0, the earnings forecast is optimistically biased. *Error* = absolute value [(management forecast of earnings per share (EPS) − actual EPS/ logged assets per share at the beginning of the fiscal period]. Accuracy of forecasts is the inverse of *Error*. *Narci_CEO* is CEO narcissism measured as the ratio of the number of first person singular pronouns to the total number of first person singular plus plural pronouns in CEO's speeches in conference calls during the past three years. *OverConf* = CEO overconfidence, defined as a dummy variable equal to one if the CEO holds options despite a 67 percent increase in stock price (or more) relative to striking price for at least twice, beginning in the first year the CEO exhibits this behavior. See the appendix for other variable definitions. Industry and year fixed effects are included but not tabulated. *T*-statistics are calculated based on standard errors clustered by firm and year, and reported in parentheses. [*], [**], and [***] indicate 1%, 5%, and 10% significance levels, respectively.

Table 9. Robustness Check: Only Management Forecasts from First Call Data

	(1) Issue	(2) Freq	(3) Specificity	(5) Miss	(5) Bias	(6) Error
Narci_CEO	-4.021***	-2.898***	-1.905***	1.098*	0.053***	-0.060*
	(-6.27)	(-5.63)	(-3.09)	(1.80)	(3.93)	(-1.68)
OverConf	0.120	0.124*	-0.083	-0.177***	0.001	0.003
	(1.21)	(1.65)	(-0.93)	(-2.61)	(0.35)	(0.58)
CEOTenure	-0.001	-0.009*	-0.001	0.017**	0.000	0.000
	(-0.19)	(-1.88)	(-0.15)	(2.34)	(1.50)	(0.47)
logCashComp	0.244***	0.173***	0.104	-0.347***	-0.011**	0.007
	(4.07)	(3.94)	(1.30)	(-3.33)	(-2.15)	(1.32)
logEquityComp	0.031**	0.026**	-0.017	-0.012	0.001	0.001
	(2.03)	(2.12)	(-1.49)	(-0.68)	(1.47)	(0.76)
InstHolding	0.717**	0.328**	0.526**	-0.242	-0.014*	-0.001
	(2.36)	(2.13)	(2.48)	(-0.85)	(-1.87)	(-0.05)
OutDir	1.082**	0.751**	-1.396***	0.280	-0.028**	0.067*
	(2.33)	(2.15)	(-4.28)	(0.55)	(-2.57)	(1.69)
logNAF	0.303***	0.193***	0.211***	0.390***	0.024***	0.001
	(2.86)	(4.69)	(2.72)	(2.98)	(7.84)	(0.15)
logMV	-0.040	0.077	0.082*	-0.153***	-0.007***	0.005
	(-0.69)	(1.62)	(1.75)	(-3.41)	(-4.49)	(1.47)
BM	-0.048	-0.059	0.090	1.100***	0.048***	0.055***
	(-0.41)	(-0.83)	(0.58)	(6.42)	(7.06)	(2.99)
EarnVol	-4.355***	-2.739***	1.576***	-0.526	-0.024	0.194**
	(-5.13)	(-4.39)	(2.76)	(-0.66)	(-0.66)	(2.28)
ChgEarn	-0.061***	-0.020	0.097	-0.277	-0.013**	-0.002
	(-4.12)	(-1.57)	(0.61)	(-1.55)	(-2.68)	(-0.34)
Loss	-0.753***	-0.441***	-0.069*	-0.303***	-0.021***	-0.012***
	(-7.29)	(-3.62)	(-1.93)	(-6.84)	(-9.58)	(-3.00)
CEOHolding	-0.010	-0.001	-0.075	0.087	0.019***	0.075***
	(-0.80)	(-0.08)	(-0.37)	(0.45)	(3.11)	(5.91)
ROA	-0.227	-0.408	0.002	-0.045***	-0.004***	0.003
	(-0.37)	(-0.92)	(0.22)	(-2.96)	(-5.02)	(1.04)
Beta	-0.503***	-0.400***	1.517	-2.740***	-0.253***	0.121
	(-3.64)	(-3.54)	(1.52)	(-2.76)	(-7.65)	(1.59)
Idiosync	-0.169***	-0.103***	0.435***	-0.066	-0.023***	0.007
	(-3.04)	(-2.77)	(4.85)	(-0.56)	(-5.62)	(0.65)
Litigate	-0.096	-0.202	0.081	0.034	0.011***	0.025***
	(-0.45)	(-1.19)	(1.33)	(0.61)	(4.63)	(4.71)
Adj.R2	0.239	0.286	0.033	0.129	0.222	0.158
N	7797	9363	12836	13510	12757	12757

This table reports the results when only management forecasts reported in Firscal Call CIG database are included in our analyses. *Issue* = 1 if firm makes at least one management earnings forecast during the fiscal year *t*, and 0 otherwise. *Freq* = the number of management earnings forecasts made during the fiscal year *t*. *Specificity* = 3 if the firm issued a point forecast during a fiscal period, 2 if an interval forecast, 1 if an open-ended forecast, and 0 if a qualitative forecast. *Miss* = 1 if actual earnings is less than the management forecast, and 0 otherwise. For range forecasts, *Miss* = 1 if actual earnings is less than the lower bound of the range estimate. *Bias* =

[(management forecast of EPS − actual EPS)/logged assets per share at the beginning of the fiscal period]. If *Bias* > 0, the earnings forecast is optimistically biased. *Error* = absolute value [(management forecast of earnings per share (EPS) − actual EPS)/ logged assets per share at the beginning of the fiscal period]. Accuracy of forecasts is the inverse of *Error*. *Narci_CEO* is CEO narcissism measured as the ratio of the number of first person singular pronouns to the total number of first person singular plus plural pronouns in CEO's speeches in conference calls during the past three years. *OverConf* = CEO overconfidence, defined as a dummy variable equal to one if the CEO holds options despite a 67 percent increase in stock price (or more) relative to striking price for at least twice, beginning in the first year the CEO exhibits this behavior. See the appendix for other variable definitions. Industry and year fixed effects are included but not tabulated. *T*-statistics are calculated based on standard errors clustered by firm and year, and reported in parentheses. [*], [**], and [***] indicate 1%, 5%, and 10% significance levels, respectively.