CEO Narcissism and Corporate Decisions

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Abstract

This thesis contains three essays investigating the effects of CEO narcissism on corporate decisions. In the first essay, I study whether CEO narcissism affects a firm's share repurchase announcements and their implementations. I find that US firms with narcissist CEOs are more likely to make repurchase announcements and announce higher repurchase dollar amounts. However, these firms are less likely to follow through. Actual repurchases by these firms are less frequent and they use a smaller amount of cash for share buyback because they have a higher cashflow sensitivity of cash. Narcissist CEOs' repurchase announcements are less driven by market timing and have a lower announcement effect compared to those by other CEOs. Finally, The higher rate and amount of repurchase announcements are more pronounced in poorly-governed firms with narcissistic CEOs.

In the second essay, I examine the relationship between CEO narcissism and the management of firm employees' defined benefit (DB) pension plans in a sample of US firms. I find that firms with narcissist CEOs adjust their DB plan deficits at a slower rate than other firms. Further, narcissist CEOs display a slower speed of adjustment of the funding deficit towards the fully funded level if they have cash flow as a metric for their compensation. However, I find narcissist-managed firms to increase their adjustment speed more than other CEOs when they can enjoy more tax benefits through the tax deductions that come with pension contributions. I find that delay in DB pension adjustment by narcissist CEOs is more pronounced in poorly governed firms. Taken together, the results suggest that firms run by narcissist CEOs have a tendency to borrow more from employees to fund business operations and personal compensation than other firms.

In the third essay, I examine the effect of CEO narcissism on corporate lobbying activities. I find keen involvement of narcissist-managed firms in corporate lobbying activities compared to other firms. Narcissist CEO lobbying activities increase corporate gains and firm value. Also, narcissist CEOs promote lobbying issues that serve the interest of shareholders. Further findings indicate that political strategies like lobbying by narcissistic CEOs significantly impact the allocation of government contracts. Finally, I find a significant positive relationship between CEO narcissism and environmental-related lobbying. My results suggest that narcissistic CEOs use environmental lobbying as a channel to generate narcissism supply.

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Author's Declaration

I declare that the work in this dissertation was carried out in accordance with the requirements of the University's Regulations and Code of Practice for Research Degree Programmes and that it has not been submitted for any other academic award. Except where indicated by specific reference in the text, the work is the candidate's own work. Work done in collaboration with, or with the assistance of, others, is indicated as such. Any views expressed in the dissertation are those of the author.

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Contents

List of Tables

List of Figures

Chapter 1

Introduction

In recent years, the study of CEO characteristics has gained significant attention in the field of finance, accounting and management. One such characteristic that has emerged as a focal point of research is CEO narcissism. Narcissism, a personality trait characterized by excessive self-admiration, entitlement, and a grandiose sense of self-importance, has the potential to shape the behaviour and decision-making of individuals in positions of power.

As CEOs play a pivotal role in guiding organizations towards success or failure, understanding the impact of CEO narcissism is crucial for scholars, practitioners, and stakeholders alike. This PhD thesis aims to explore the concept of CEO narcissism comprehensively and shed light on its implications for organizational behaviour and performance. The primary objective of this thesis is to provide an empirical analysis of CEO narcissism and its influence on various aspects of organizational functioning. By examining the antecedents, manifestations, and consequences of CEO narcissism, this study seeks to contribute to the existing body of knowledge on the effect of CEO traits on corporate finance and accounting decisions.

In Chapter 2, the thesis aims to empirically examine the influence of CEO narcissism and firm share repurchase activities. I investigate the relationship

between CEO narcissism and the presence and intensity of corporate share repurchase announcements. Considering the signalling hypothesis of share repurchase announcement which assert that firms with negative returns are likely to announce repurchase (Comment and Jarrell, 1991; Vermaelen, 1981), this thesis expects narcissistic CEO characterised by inflated self-images and overestimated self-intelligence to announce more share repurchases (Zajenkowski et al., 2022). This is because the inflated abilities make narcissistic CEOs value their firm more optimistically and they are more likely to perceive their firm's share as underpriced when they are not. I find strong evidence that narcissist CEO-managed firms are more likely to announce more share repurchases and announce a larger dollar amount than other firms. However, I empirically find narcissistic CEOs fail to follow through and purchase what they announce. These results point out that narcissistic CEOs are more likely to use repurchase as a price adjustment tool due to their inflated self-view causing them to register their disagreement with the current market value of their company rather than a mode of paying out.

In further analysis, I find negative cumulative abnormal returns (CAR) prior to the announcement of repurchase for the average firm consistent with existing literature (Evgeniou and Vermaelen, 2017). However, the narcissist CEO-managed firms have insignificant negative prior CAR. Also, I find lower CAR post-repurchase announcements for narcissist CEO-managed firms than other CEOs. Examining the channel through which narcissistic CEOs announce more repurchases and fail to follow through, the study finds narcissistic CEOs have more demand for liquidity, hence have a more positive and significant cashflow sensitivity of cash. This suggests that narcissistic CEOs prefer to use additional operating cash flows to increase their liquid assets rather than transfer this to shareholders through share repurchases.

Overall, Chapter 2 extends the literature on the influence of CEO narcissism on corporate payout decisions. The study introduces CEO narcissism as

an additional motive for the growing share repurchase activities. This suggests that the transfer of cash to shareholders may not be the prime motive of repurchase but a mechanism to manipulate the share price.

In Chapter 3, I investigate the influence of CEO narcissism on the funding of employees' pensions. This chapter focuses on an important question the finance and accounting literature has left unanswered. Does narcissistic CEO underfund their employees' defined benefit pension plan? I argue that the narcissism of a CEO can be a crucial variable affecting a DB plan's funding level and the management of its deficit. I study the speed of adjusting the DB plan funding to the fully funded level. This study focuses on what narcissistic CEOs do when they deviate from the fully funded level of their firms' DB pension plans. Using the signature size and other alternative proxies for CEO narcissism, I find narcissistic CEOs reduce the adjustment speed of employees' DB pension plan to the fully funded level.

Examining the channel through which CEO narcissism reduces the DB pension plan adjustment speed, I find this effect to be more pronounced in poorly governed firms and firms where operating cashflow is a metric of CEO performance measures. Using changes in tax policies regarding pension deductibility, I explore how narcissistic CEOs react to the Tax Cut Job Acts (TCJA) of 2017. This tax cut incentivises firms to increase their DB pension funding status by increasing contributions in 2017 in order to take advantage of a higher tax deduction rate. I find narcissistic CEOs increase their employees' DB pension funding level to enjoy greater tax deductions than other CEOs.

Overall, my results in Chapter 3 suggest that narcissistic CEOs are more likely to delay the adjustment of their employeees' DB pension plan to the fully funded level in order to personally benefit from higher compensation through reporting higher annual cash flow from operations. Specifically, narcissistic CEOs are more likely to use the benefits of internal cashflow through delaying

DB plan funding rather than the costly external financing.

Chapter 4 investigates the relationship between CEO narcissism and corporate lobbying. Narcissistic CEOs feel more entitled and therefore less likely to take no for an answer. Narcissistic CEOs are more likely to push for what they want and refuse to accept any alternative view. These tendencies can influence them to engage in criminal activities (Buchholz et al., 2020; O'Reilly III et al., 2018). In line with this, I hypothesize that CEO narcissism is likely to affect the corporate lobbying activities of a firm. I argue that narcissist CEOs are likely to use corporate lobbying as a channel to influence members of Congress and government officials on issues that are of interest to them.

Using a sample of 1,192 unique CEOs, I find keen involvement of narcissist-managed firms in corporate lobbying activities compared to other firms. Economically, there is a 7% marginal likelihood of corporate lobbying in narcissist-managed firms compared to other firms. Also, narcissist CEOs managed firms spend more significant dollar amounts on corporate lobbying than other firms. To better understand the lobbying activities of narcissist CEOs, I test the relationship between narcissistic CEOs lobbying and firm outcome. I find a significant positive relationship between narcissist CEO lobbying and firm value. Our results indicate that narcissist CEO lobbying activities increase corporate gains and firm value. I further test whether narcissist lobbying activities can increase the likelihood of government contract allocation and find a positive significant relationship between narcissist CEOs' lobbying activities and the likelihood of being awarded government contracts compared to other CEOs. These findings indicate that political strategies like lobbying by narcissist CEOs significantly impact the allocation of government contracts. Finally, I investigate whether narcissist CEO lobby more for environmental-related issues and to what extent narcissist CEOs promote environmentally friendly activities in their business activities. I find a significant positive relationship between CEO narcissism and environmental-related lobbying. These results

suggest that narcissist CEOs use environmental lobbying as a channel to generate narcissism supply. Specifically, narcissist CEOs use environmental-related lobbying to attract the outside world's attention in the form of praise. I cannot test whether narcissist CEOs lobby for or against environmental-related issues. In line with this, I examine the impact of CEO narcissism on the corporate environmental scores of a firm and find an insignificant positive relationship between CEO narcissism and the firm environmental scores. This indicates that narcissistic CEOs' increasing environmental lobbying activities are not in line with their firm's environmental activities.

The results of this thesis have important implications for policymakers and managers. As firm CEOs are key decision-makers, their psychological traits (narcissism) are essential for the firm's decisions. Thus, when companies are recruiting CEOs and are considering their psychological traits and capabilities, they might also take into account whether these might play a role in the firm's repurchase announcement, DB pension funding strategies and political strategies of the firm.

Chapter 2

The beguiling behaviour of narcissistic CEOs: Evidence from repurchase announcements

2.1 Introduction

In recent decades, share repurchase has become the predominant method of payout and researchers have been trying to fully understand the factors that affect firms' repurchase plans and their timing. According to Goldman Sachs, S&P500 companies repurchased a record US$806 billion shares in 2018, well above the US$550 billion in 2017[1]. Substantial research has focused on the timing of repurchase announcements, the influence of firm characteristics, and institutional pressures but, thus far, key organizational leaders' role in the repurchase decisions has been missing [2]. Except for Banerjee et al. (2018) that focus on actual repurchases, the effect of a CEO's psychological charac-

[1]See: US Companies Cling to Share Buybacks despite Collapse in Profits — Financial Times

[2]For repurchase literature see: (Bonaimé, 2012; Bonaimé et al., 2014; Brav et al., 2005; Comment and Jarrell, 1991; Dann, 1981; Eisdorfer et al., 2015; Ikenberry et al., 1995; Isa and Lee, 2014; Vermaelen, 1981)

teristics on repurchase decisions has been rarely explored. This is surprising considering the documented evidence of firm executives' influence on firm decisions (Bertrand and Schoar, 2003; Hambrick and Mason, 1984). This paper focuses on an important question that the literature has left unanswered: *Do some managerial behavioural traits influence their repurchase announcement decisions?* The study addresses this critical question by focusing on CEO narcissism.

The upper echelons theory suggests that firm executives' decisions are influenced by their personalities, values, limited cognitive mind, experience, and available information (Chatterjee and Hambrick, 2007). Also, Carpenter et al. (2004) report that a firm's top executives make decisions based on their past experiences, present and future aspirations. Executives focus not only on their self-interest but also on their ambitions, confidence levels, narcissism, pride, arrogance, and overestimated abilities (Hayward and Hambrick, 1997). In line with this, executives are likely to make decisions based on their inherent characteristics. Hence, the personal attributes of executives affect the choices they make for a firm. The CEO is the most powerful executive of the firm and s/he usually has a strong influence in rewarding and punishing employees, including other top executives and managers. Considering the power dynamic of the position, a CEO's personality traits can significantly affect the firm's decisions and strategic choices.

Narcissism is a personality trait well researched in the psychology literature (Emmons, 1997; Goncalo et al., 2010; Raskin and Hall, 1979; Wallace and Baumeister, 2002). Narcissism is defined by the American Psychiatric Association (APA) as *"a multifaceted personality trait that combines grandiosity, attention seeking, an unrealistically inflated self-view, a need for that self-view to be continuously reinforced through self-regulation, and a general lack of regard for others"* (American Psychiatric Association et al., 2013). Growing research in finance and accounting finds CEO narcissism associated with ad-

verse firm outcomes. Buchholz et al. (2020) find that narcissist CEOs take advantage of accounting choices and engage in accrual-based earnings management. Narcissistic CEOs opportunistically exclude recurring expenses from non-GAAP earnings to report good performance (Abdel-Meguid et al., 2021); engage in corporate tax sheltering (Olsen and Stekelberg, 2016); subject their firms to lawsuits and litigation (O'Reilly III et al., 2018); associated with overinvestment and poor performance (Ham et al., 2018); place more emphasis on externally oriented CSR activities (Al-Shammari et al., 2019); increase the riskiness of bank policies (Buyl et al., 2019) and sacrifice compensation for media coverage (Aabo et al., 2022).

Share repurchase is a mode of paying out free cash to shareholders, but the timing of the repurchase is often determined by the perceived undervaluation of the company's share price by the insiders. Based on the market timing motivation, I hypothesise that there is a positive relationship between CEO narcissism and the announcement of share repurchases. I base my argument on the unrealistically inflated self-image and overestimated self-intelligence narcissist CEOs (Zajenkowski et al., 2022). The inflated view of their abilities makes narcissistic CEOs more likely to perceive their firm's share as more underpriced. Narcissist CEOs are likely to value their shares above the prevailing price of their firm more often. In line with this, these companies are more likely to use the share repurchase announcement as a share price management mechanism rather than a channel to transfer free cash to shareholders.

To empirically examine the relationship between CEO narcissism and repurchase announcement, I follow existing literature (Chou et al., 2021; Church et al., 2020; Ham et al., 2018) and create a narcissism score for each CEO. Chaudhari and Thakkar (2019) provide a survey of the research in the psychology area that establishes that handwriting styles reflect personality. Following Ham et al. (2018), I measure CEO narcissism using the area per character signature size narcissism measure. Using an unobtrusive measure such as sig-

nature size reduces the reactivity, researcher expectation and demand characteristics that can weaken the measure's validity (Chatterjee and Hambrick, 2007). I draw a rectangle that touches the CEO signature's edges to measure the area per character signature size. I measure the area by multiplying the length and width of the rectangle. I measure CEO narcissism by dividing the area by the number of characters in the CEO's signed name. According to my prediction, the greater a CEO's narcissism score, as measured by the signature size, the more likely the announcement of repurchases and target a larger dollar amount.

Using a sample of 7,816 firm-year observations of S&P500 firms over the period 2000 to 2018 for which narcissism measures are available, I find strong evidence that narcissist CEO-managed firms are more likely to announce more share repurchases and announce a larger dollar amount than other firms. The results are economically significant: a one standard deviation increase in the area per character narcissism measure leads to a 14.9% increase in the likelihood of a share repurchase announcement. Also, a one standard deviation increase in the area per character narcissism measure increases the dollar amount of targeted repurchase by 23.3%.

Next, I examine the likelihood of a narcissistic CEO making an actual repurchase and the dollar amount repurchased. I point out that narcissistic CEOs are more likely to use repurchase as a price adjustment tool due to their inflated self-view causing them to register their disagreement with the current market value of their company rather than a mode of paying out. Furthermore, they may pay out less as parting with cash may be considered more costly by narcissist CEOs due to a higher sense of personal insecurity (Kowalchyk et al., 2021). I find that narcissistic CEOs are less likely to make an actual repurchase and allocate less dollar amount towards such activities when they decide to repurchase.

I further analyse why narcissistic CEO make more announcements but fail to follow through to complete them. One argument is that narcissistic CEOs use repurchases announcement as a share price management mechanism rather than to payout excess cash. Hence there is no incentive to follow through to make an actual repurchase unless it is necessary to correct underpricing. I also point out that narcissistic CEOs have higher insecurities and are more likely to hold on to a higher portion of operating cash flows as a cash balance. Using a partitioned sample based on narcissism score, I find narcissist CEOs have more demand for liquidity and these firms have a more positive and significant cashflow sensitivity of cash. This suggests that narcissistic CEOs prefer to use additional operating cash flows to increase their liquid assets rather than transfer this to shareholders through share repurchases.

Considering the frequent repurchase announcement of narcissistic CEOs, it is important to check whether they are able to time the market and influence the price using repurchase announcements. In doing this, I examine the pre and post-cumulative abnormal return around a firm's repurchase announcement. I find negative CAR prior to the announcement of repurchase for the average firm consistent with existing literature (Evgeniou and Vermaelen, 2017). However, the narcissist CEO-managed firms have insignificant negative prior CAR. Also, I find lower CAR post-repurchase announcements for narcissist CEO-managed firms than other CEOs. This is because narcissistic CEOs are more likely to poorly time the market because of their inflated perceived share price. Therefore, they make frequent repurchase announcements without rationally considering whether their shares are truly undervalued. Another possible reason for the lower market reaction could be due to the market not putting a high probability of the announcement being implemented.

Further, I examine whether CEO narcissism independently drives the post-announcement returns of repurchase announcements. Using different event windows in a multivariate setting, I find that CEO narcissism negatively af-

fects short-term CAR post-repurchase announcements. This indicates that the narcissism of the CEO negatively influences the credibility of a firm's repurchase announcement. The market possibly sees the repurchase announcements of narcissistic CEOs as a stock price signalling mechanism that is less likely to be implemented than a channel to transfer free cash flow to shareholders.

Share repurchase is not a short-term decision. Firms require authorization from the board before the announcement. In line with this, it is important to consider the stock performance in prior years to test whether negative prior-year returns influence the repurchase decisions of narcissistic CEOs. Accordingly, using a partitioned sample based on firms with negative and positive prior year stock return (Comment and Jarrell, 1991), I find narcissistic CEOs making repurchase announcements even when they have positive prior year stock returns. This suggests that narcissistic CEOs consider their companies' stock price under-priced more often when the stock price increases in the previous year because they perceive their companies to have a value above what the market reports even when the trend is rising. This distorted view of narcissist CEOs influences them to announce repurchases to indicate their disagreement with how their shares are priced.

CEOs are at the top of the decision chain but firms' strategies can be influenced by other senior executives and the board of directors if they have a bigger say. Using the argument of the moderating effect of good governance on CEO discretion on the firm's risk-taking other strategic decisions by Li and Tang (2010), I predict that a narcissist CEO with more power *(a CEO who is subject to lower levels of scrutiny or opposition)* will announce more share repurchase than other CEOs. A well-governed firm where managerial discretion is strictly monitored is likely to mitigate a narcissistic CEO's impact and control their repurchase announcements. Patton and Baker (1987) report that the dual role of a CEO as chair of the board causes significant agency problems. This is because the board's role in supervising the CEO on behalf of

shareholders is lost. Consistent with this view, I find those narcissistic CEOs doubling as the chair of the board of directors announces more repurchases and targets larger dollar amounts than other CEOs.

A potential concern of this study is that the appointment of CEOs can be endogenous. That is, some board members are interested in some personal characteristics of a CEO before an appointment. A firm may appoint a narcissistic CEO because of their narcissistic traits; hence, such appointments can be endogenous. Ham et al. (2018) find that narcissist CEOs perform poorly, and companies may consider such characteristics before appointments. This may motivate some firms to employ CEOs with some particular characteristics. If firms appointing narcissist CEOs are also more likely to announce share repurchases, then there is some level of selection bias. Further, if firms that make frequent repurchase announcements also prefer to appoint narcissist CEOs, there is an endogeneity concern.

The study addresses endogeneity concerns in three ways. First, since narcissism is a stable personality trait (Raskin and Terry, 1988), one key concern in analyzing the effect of CEO narcissism on corporate repurchase announcements is to identify an exogenous shock that can change the level of narcissism in the CEO. I adopt a similar approach used by Shang (2021) to address this concern by focusing on CEO exogenous turnover. I employ a difference-in-difference (DiD) estimation method that provides a more robust identification of the relationship between CEO narcissism and repurchase announcement. Using CEO exogenous turnover events, I find an increase (decrease) in the likelihood of repurchase announcements following CEO turnover events where the departing CEO is replaced with another with a higher (lower) narcissism score. This indicates that narcissistic CEOs act differently from other CEOs in terms of repurchase announcement decisions. Second, for each firm-year observation with a narcissist CEO (CEOs with narcissism score greater than the mean of the sample), I match it with other CEO in the same year and industry

from a different firm with the closest propensity score calculated based on firm and CEO-related characteristics. Firms with similar characteristics are likely to have an equal probability of appointing a narcissistic CEO. The results regarding both announcements of and actual repurchases remain qualitatively similar when I use this matched sample for the empirical analysis. This assures us that the CEO narcissism effect is not explained by the firm and CEO observable difference between narcissist-managed firms versus others. Finally, I control for firm fixed effects that remove the impact of time-invariant firm characteristics. Using firm fixed effects, I find CEOs with high narcissism scores announce share repurchases more frequently than firms with other CEOs.

Finally, the study results are robust after controlling for CEO overconfidence and conservatism. I find the repurchase announcement activities of narcissistic CEOs are beyond their overconfidence and not driven by their conservatism. Using an alternative measure of narcissism, my results remain significant and robust. I also create residual signature size variables (*Resid narcissism*) from the raw signature size OLS regressions on the CEO demographic characteristics and other traits. Using the residual variable, I find similar and robust results that support my main findings.

This study contributes to several strands of the literature. First, the results contribute to the literature on the impact of CEO narcissism on corporate decision-making. The study introduces an additional factor in determining repurchase activities: CEO narcissism. This provides an insightful addition that the payout motive may not be the prime motive for share repurchase announcements by narcissist CEOs. The unrealistic inflated image of narcissistic CEOs' makes them more likely to perceive their companies as underpriced and put forward a repurchase plan. However, these CEOs prefer to hold on to a higher portion of their operating profit as cash and are less likely to actually pay out. The paper also makes some indirect contributions to the corporate governance literature. I find support for Li and Tang (2010) results that poor governance

escalates the impact of CEO discretion in firms. I demonstrate this by finding a significant positive relationship between repurchase announcements and a narcissist CEO doubling as the chairperson of the board of directors.

The results of this study have important implications for investors and the board of directors. As firm CEOs are key decision-makers, their psychological traits (narcissism) are essential for the firm's decisions. Although research has associated CEO narcissism with authority, self-reliance and supremacy that can foster leadership effectiveness, promote company performance, and be attractive to loyal employees (Hogan and Kaiser, 2005; Maccoby, 2000), narcissistic CEOs are likely to act on their characteristics to perceive their companies as underpriced and announce more repurchases. Thus, companies recruiting CEOs should consider their narcissistic traits and capabilities, which may also influence the firms' path for the announcement of share repurchases.

The rest of the paper is organised as follows. Section 2 provides the literature and the hypotheses, 3 describes how data is collected, the definition of key variables, and the sample construction. Section 4 presents empirical analysis and the study's main results. Section 5 shows the robustness test and section 6 presents my conclusion.

2.2 Background Literature and Hypotheses

2.2.1 CEO Narcissism

Bertrand and Schoar (2003) reports that firm executives influence organisations' decisions. The type of executives in the organisation influences the strategic choice and performance. Theoretically, the influence of firm executives' inherent characteristics on a firm's strategic choices and performance is rooted in the upper echelon theory. Accordingly, Hambrick and Mason (1984) suggests that executives' perceptions, values, and cognitions reflect in their decisions for and on behalf of the organisations they lead. Carpenter et al. (2004) reports that a firm's top executives make decisions based on their past experiences, present and future aspirations. Executives focus not only on their self-interest but also on their ambitions, confidence, narcissism, pride, arrogance, and overestimated abilities (Hayward and Hambrick, 1997). In line with this, a CEO's narcissism can affect a firm's rational and irrational choices.

Narcissism is defined by the American Psychiatric Association's Diagnostic and Statistical Manual for Mental Disorders as a personality trait that combines attention seeking, grandiosity, the need for reinforcement of self-view through self-regulation, unrealistic inflated self-image and a lack of empathy and regard for others (APA, 2013). *Attention seeking* implies that an individual ensures that he/she becomes the focus of attention. *Grandiosity* is the belief that the individual is better than others. *Self-regulation* is an individual's strategies to manage and shape their self-image. *Unrealistic inflates self-view* is the overinflated, distorted and biased picture of one's self. Finally, a general lack of regard for others refers to a *lack of empathy* toward others and a tendency to exploit situations and persons for personal gain.

The influence of the executive's personality on firm decisions has heightened researchers' interest in the personality of CEOs and how this can af-

fect the fortunes of a firm (Chatterjee and Hambrick, 2007, 2011). Early research by Kernberg (1967) finds narcissists to exhibit characteristics like grandiose imaginations, self-importance, over-dependence, cleverness, egoism, dominance, ambition, lack of empathy and constant need for supremacy.

CEOs are considered incredibly special in an organisation because of their position. Such a position gives them a sense of power and influence, which inflate their self-esteem. Considering the status of a CEO in a firm, they are likely to score higher on a narcissism scale compared to an average individual (Chatterjee and Hambrick, 2007).

Other personality traits such as overconfidence have been shown to be related to narcissism (Aktas et al., 2016). Campbell et al. (2011) find a positive correlation between narcissism and overconfidence. Despite some overlapping characteristics between narcissism and overconfidence, overconfidence is a cognitive bias that only relates to a perception of reality, whilst narcissism includes both cognitive bias and behavioural personality trait (Aktas et al., 2016). According to Ham et al. (2018), the constant quest for respect and devotion and the sense of power and willingness to emphasise one's self-interest is the main difference between narcissism and other psychological traits. Empirical support by Bosson et al. (2008) using a betting setting finds that the poor performance of narcissist individuals is not because of their overconfidence alone but the strong propensity to take more risk.

2.2.2 CEO Narcissism and Firm Outcome

Research has examined the overall impact of CEO narcissism on firm performance, but these have provided mixed results. Early studies by Chatterjee and Hambrick (2007) find CEO narcissism engendering the extremes and fluctuations in firm performance. Their results indicate that narcissist-managed

firms are no better or worse than other firms. Likewise, Olsen et al. (2014) report that narcissist CEOs have higher earnings per share compared to other non-narcissist CEOs. Specifically, the study finds narcissistic CEO-managed firms have higher earnings-per-share (EPS) and share price than other CEO-managed firms. They examine the mechanism driving the observed results and find narcissistic CEOs are more likely to increase reported EPS through real and operational activities rather than accrual-based manipulations. However, Ham et al. (2018) find firms led by narcissist CEOs experience lower financial productivity in the form of profitability and operating cash flows.

Exploring the relationship between CEO narcissism and innovation, Kashmiri et al. (2017) argue that narcissist-managed firms are more likely to introduce new products and a greater proportion of radical innovations in their new product portfolios. Also, Zhang et al. (2017) finds humble narcissist CEOs likely to cultivate an innovative culture and deliver better innovative performance. Ham et al. (2018) argue that CEO narcissism is associated with over-investment through research and development and mergers and acquisition expenditures.

Understanding the risk-taking activities of narcissist CEOs, Buyl et al. (2019) finds narcissist CEOs to be associated with risky bank policies, especially when compensation is tied to risk-taking. Similarly, Chatterjee and Hambrick (2011) argues that narcissist CEOs take risky firm decisions for recognition. Further, narcissist CEOs increase the financial leverage of their firms to improve performance (Capalbo et al., 2018; Buyl et al., 2019).

Narcissist CEOs take bold decisions to obtain frequent attention and praise. In pursuit of this, narcissist CEOs are likely to engage in fraudulent activities (Rijsenbilt and Commandeur, 2013). Also, CEO narcissism is associated with a low probability of completing acquisition deals that they announce (Aktas et al., 2016). The above discussions indicate that CEO narcissism plays a key

role in firm decisions.

2.2.3 Share repurchase

Shares repurchase programmes begin with authorisation by the board of directors. After approval, the firm announces the programme publicly to avoid any liability under insider trading laws. Firms disclose the maximum number of shares, dollar value and how the shares will be acquired. An announcement of a repurchase programme is, however, not a commitment to repurchase. In executing a repurchase programme, the firm employs the services of an investment bank. This helps price manipulations and comply with the safe habor rules of SEC Rule 10b-18.

Share repurchase is a major financial decision and it has been well researched[3]. The literature has focused on the motives of repurchase, market reactions to repurchase-related events, the timing of the announcement, the price paid to acquire shares, the timing of actual repurchase, the short- and long-term performance of shares after the announcement and the actual repurchase (Evgeniou and Vermaelen, 2017; Banerjee et al., 2018; Bonaimé et al., 2014; Dittmar and Field, 2015; Grullon and Michaely, 2004).

Considering the numerous motivations for share repurchase, Dittmar (2000) finds five traditional motives for announcing a share repurchase; including potential undervaluation signalling, transfer of excess cash to shareholders, attaining a targeted leverage ratio, control for the dilution by employee options, and to deter takeover activities. These reasons for share repurchases are likely to be affected by the personality traits of a CEO, specifically, the narcissistic personality trait of a CEO.

[3]Evgeniou and Vermaelen (2017); Dittmar and Field (2015); Grullon and Ikenberry (2000); Grullon and Michaely (2004); Eisdorfer et al. (2015); Isa and Lee (2014); Bonaimé (2012); Brav et al. (2005); Comment and Jarrell (1991); Vermaelen (1981); Dann (1981); Dittmar (2000)

According to Vermaelen (1981) and Comment and Jarrell (1991), the undervaluation signalling hypothesis suggests that managers of firms use share repurchase announcements to signal that their firms' stocks are undervalued and that their firms have good prospects in the future. With a sample of 243 open market repurchase announcements from 1962 to 1976, Vermaelen (1981) finds that price reactions related to repurchase events are consistent with the undervaluation hypothesis. Isa and Lee (2014) argue that it is logical for management to repurchase their shares if they are confident that the market is undervaluing them. Brav et al. (2005) assert that managers who make share repurchase announcements rank stock undervaluation as a primary reason. This is because share repurchase announcements convey more information about stock valuation than the announcement of dividend payments. They further report that more than 85% of executives in their survey believe repurchase announcements give investors information and more than 86% of firms repurchase when their stocks are undervalued. However, investors may not consider the repurchase announcement as a prime signal of undervaluation in part due to the increasing use of share repurchases as a mechanism to distribute cash to shareholders (Grullon and Michaely, 2004).

A body of literature point out that firms try to maintain a target capital structure and when they deviate from it, they have several options. Fama & French (2002) explain that a firm could slowly adjust its leverage towards the targeted level. This can be done by issuing equities or reducing debt to decrease leverage and can also be achieved by repurchasing equity or issuing debt to increase leverage. When a firm gives capital back to the shareholders through a repurchase agreement, it increases its leverage ratio. According to the Modigliani-Miller (MM) theorem, a company's market value can be improved by changing the firm's leverage ratio. When a company increases its leverage by increasing debt, it receives some tax deductions, which enhances the firm's profitability. Dittmar (2000) tests the leverage motive of repurchase

by using all firms listed on the Compustat database between 1977 and 1997 and concludes that firms with lower leverage ratios are more likely to repurchase stock to increase their leverage ratio, while high-leveraged firms are unlikely to engage in share repurchases activities.

In addition to the economic motives, some personal characteristics and traits of CEOs can influence repurchase decisions. For example, if a CEO is more likely to overvalue their firm, they might want to repurchase more. On the other hand, if a CEO is insecure, they may want to maintain a higher level of cash and payout less. In section 2.2.4, I discuss how CEO narcissism influences a firm's repurchase announcement, stock valuation perceptions, and execution decisions. I also discuss the trade-off between payout and cash holding in the context of actual repurchase. My empirical analyses address these issues and contribute to the extant literature on the effects of CEO traits on financial decisions.

2.2.4 Hypotheses

Brav et al. (2005) report that the prime motive for repurchase announcement is the signalling hypothesis. The signalling hypothesis asserts that firms announce repurchases when their shares are priced lower than what they expect them to be (Comment and Jarrell, 1991; Vermaelen, 1981). Therefore, when firms are confident that their shares are being priced lower by the market, it is logical for them to announce their disagreement through a repurchase plan (Isa and Lee, 2014). The psychology literature finds narcissist individuals to have inflated self-images and overestimated self-intelligence (Zajenkowski et al., 2022). These inflated abilities make narcissistic CEOs value their firm more optimistically and they are more likely to perceive their firm's share as underpriced when they are not. In line with this, narcissist CEOs are more likely to use the share repurchase announcement as a signalling and share

price management mechanism relative to other CEOs. I propose and test the following hypothesis:

Hypothesis 1: *Narcissist CEOs are more likely to announce share repurchases.*

Following the same argument, I would expect CEOs who undervalue their stock to be making larger dollar amounts of actual repurchases. Announcing a repurchase plan is however easier to do as it could be cheap talk, while actual repurchases involve parting with cash which increases the risk profile of the company. Kowalchyk et al. (2021) reports that the narcissistic trait is characterised by insecurities. The more insecure a CEO is, the more value he is going to put into cash holding. Narcissistic CEOs are likely payout less and use repurchase announcements as a price signalling tool rather than a payout mechanism. In spite of the expected price reaction to actual repurchases, on the balance, I expect narcissistic CEOs to make actual repurchases less often and repurchase lower dollar amounts when they do. I formally write this hypothesis below:

Hypothesis 2: *Narcissist CEOs are less likely to make actual share repurchases and repurchase lower amounts.*

As explained above, narcissistic CEOs are more likely to make repurchase announcements but fail to follow through to completion more often. Operating profits can be used in different ways including investment, payout or/and increased cash holding. Ham et al. (2018) point out that narcissist CEOs overinvest. Therefore, I would expect narcissistic CEOs to invest more and payout less. The insecurities of the narcissist argument would indicate that narcissist CEOs would want to save more cash than the payout. Both the overinvestment and higher preference for cash holding can explain lower actual repurchase. I try to empirically establish whether narcissistic CEOs are more likely to keep a larger portion of cash flow as liquid assets. I formally state the testable

hypothesis below:

Hypothesis 3: *Narcissist CEO-managed firms display a higher cash flow sensitivity of cash relative to other CEOs.*

As discussed above, narcissist CEOs are more likely to use repurchase announcements as a price adjustment mechanism, but also likely to overvalue their share because of their inflated self-image. Hence, the effectiveness of market timing of repurchase announcements by narcissistic CEOs is an interesting empirical question. On balance, I expect that the impact of the overvaluation dominates and narcissistic CEOs are more likely to poorly time the market. I may find the stock returns prior to announcement of repurchase less negative for firms with narcissistic CEOs if the are more likely to overvalue their stock and the market may not react to the announcement as strongly. Also, if the market believes that narcissistic CEOs are less likely to follow through with their announcement, I would expect to see a negative relationship between CEO narcissism and repurchase announcements.

If narcissist CEOs are less efficient in timing the market because of their inflated image, I expect a smaller signalling effect following the repurchase announcement compared to other CEOs. Also, if the market believes that narcissist CEOs are using repurchase announcements as a stock price management mechanism rather than a payout channel, I would expect to see a negative relationship between repurchase announcement returns and CEO narcissism. I formally test the hypothesis below:

Hypothesis 4a: *Short-term excess return after repurchase announcement will be smaller for firms with narcissist CEOs.*

Hypothesis 4b: *Prior returns are likely to be less negative for firms with narcissist CEOs compared to other firms.*

Although CEOs are the most powerful executives in a company, governance

mechanisms often limit their disagreeable activities. I would expect the personality traits of CEOs with more power to have a greater impact on firm decisions. There are several studies on the impact of a CEO also serving as the chairperson of the board of directors on firm outcomes. Early research by Donaldson and Davis (1991) finds that CEOs with dual roles as chairs of the board lead to a concentration of power. Even though the separation of the CEO and chair of the board protect shareholders' interest as argued by the agency theory, the study finds that the concentration of power improves operational efficiency. Alternatively, Patton and Baker (1987) report that the dual role of a CEO as chair of the board causes some agency problems. This is because the board's role in supervising the CEO on behalf of shareholders is lost. Also, CEO duality can negatively affect a company's performance since the supervision function of the board of directors is weakened by duality.

In line with this, Li and Tang (2010) finds CEO hubris and risk-taking abilities are higher when the CEO has more power and discretion without resistance. Likewise, a narcissist CEO with more power – *a CEO who is not subject to scrutiny or opposition is likely to act on their own beliefs and announce repurchases based on their distorted views.* One way to increase the power of a CEO is by appointing him/her as the chair of the board of directors (*Duality*). I formally test the hypothesis below:

Hypothesis 5: *The frequent repurchase announcement by narcissist CEOs is more pronounced in firms where the CEO hold a dual role as chairperson of the board.*

2.3 Data and Sample Selection

To test the relationship between CEO narcissism and share repurchase announcements, I compile a dataset of signature characteristics and other relevant data of S&P500 constituents over a period between 2000 and 2018 (*882 unique firms and 2245 unique CEOs*). I start my study period from 2000 because I collect some data from Boardex that do not have data before 2000. I delete financial (SIC codes 6000-6999) and utility (SIC code 4900-499) firms since these firms are subject to regulations and different accounting reporting principles (*208 unique firms and 514 unique CEOs were deleted*). Further, I delete firms and CEO observations where I are unable to collect information on the CEO narcissism score (*97 unique firms and 613 unique CEOs deleted*). The final panel dataset consists of 7,686 firm-year observations for 577 unique firms and 1,118 unique CEOs. To identify repurchase announcements made by the 577 unique firms over the period 2000 to 2018, I search the Thomson One database. A repurchase announcement is included in my sample if the firm reports the dollar value of shares they intend to repurchase. I now define my repurchase presence variable (announcement indicator), which is equal to one when a firm makes a repurchase announcement in a year and zero otherwise. In addition, I examine the intensity of the repurchase announcement which is the dollar amount of shares the firm targets to repurchase. Like Grullon and Michaely (2004), I collect data on actual share repurchases from Compustat. This allows us to create my actual repurchase presence (actual indicator), which takes the value of one when a firm makes an actual repurchase in a year and zero otherwise, and examines the dollar amount a firm spends on repurchase in a fiscal year. From Compustat and Boardex, I obtain a set of control variables that might influence a firm and a CEO's decision to announce and/or repurchase shares. I then merge the data on CEO narcissism and other firm and CEO-level control variables that might affect share repurchase decisions.

2.3.1 Measuring CEO Narcissism

Previous research has indicated that it is challenging to get CEOs to complete the narcissism personality inventory (NPI) since firm executives are reluctant to take a personality test. Hence, an unobtrusive measure such as signature size is used to capture the narcissism traits. Ham et al. (2018) report that the area per character signature size measure of narcissism correlates with the Narcissistic Personality Inventory (NPI) scores. The authors demonstrate the robustness of this in many ways, even after controlling for overconfidence. In addition to the novel nature of the measure, the study chooses to use it to capture CEO narcissism because it is theoretically grounded in the psychology and personality literature (Zweigenhaft, 1970; Zweigenhaft and Marlowe, 1973; Zweigenhaft, 1977; Jorgenson, 1977; Dillon, 1988). Further, the signature of CEOs is readily available and can be measured. On 27th June 2002, the SEC ordered all CEOs and CFOs of firms with revenue over $1.2billion to provide handwritten signatures to attest to the reliability of their financial statement. Before this order, some firms already used to provide their handwritten signatures. For example, Jerald G. Fishman of Analog Device Inc. has provided handwritten signatures since 1999. I obtain every CEO's most recent handwritten signature from the annual report or the proxy statement from the US Securities and Exchange Commission (SEC). In cases where the CEO's signature is not present in the proxy statement or annual report, I check other online sources for the CEO's signature.

For example, Warren Buffet, CEO of Berkshire Hathaway's signature was retrieved from a report he shared online[4]. The narcissism score is measured as the area per character of the CEO's signature size. A rectangle is drawn around the CEO's signature, where each side of the rectangle touches the extreme endpoints of the signature. The area is the *length* $\times$ *width* (in centimetres) of

[4]See: Warren Buffet signature

the rectangle. The number of characters in the CEO's sign name then divides the area. Since narcissism is a stable personality trait as detailed by the psychology literature (Raskin and Terry, 1988), I compare the current CEO's signature to that of the early years of the CEO appointment to ensure that the CEO's signature does not change over time. In instances where there is a change in the CEO's signature, I use the most recent signature. For example, Frank Martire of Fidelity National Information Service had different signatures in 2009[5] and 2013[6]. To validate my signature size measure, I compare my descriptive statistics with that of Ham et al. (2018) by limiting my sample to their sample period and find a mean of 0.485, which is similar to 0.493 reported by Ham et al. (2018).

Despite the novel nature of the signature size measure of narcissism, there are other unobtrusive measures of narcissism. Chatterjee and Hambrick (2007, 2011) define a composite measure of narcissism. This measure includes five components: (1) the relative cash pay of the CEO to the next-highest paid executive, (2) the relative non-cash pay of the CEO to the next-highest paid executive, (3) the size of the CEO's picture in the annual report, (4) the number of CEO mentions in company press releases, and (5) the number of first-person singular pronouns used by the CEO during interviews. I do not use this narcissism measure in my study because of the following limitations. First, Brown (2016) argues that Chatterjee and Hambrick (2007) narcissism index has limited empirical validation and may not be directly linked to CEO narcissism. Also, the index may measure other personality traits different from narcissism. More specifically, the CEO compensation may be measuring CEO overconfidence. Second, the picture size of a CEO is a time varying measure and also beyond the control of the CEO (Cragun et al., 2020). Further, the two compensation components of the index may be influenced by firm size (Tosi et al., 2000).

[5]See: page 6 of 2009 Fidelity National Information Service Annual Report
[6]See: page 5 of 2013 Fidelity National Information Service Annual Report

Aktas et al. (2016) and Capalbo et al. (2018) use personal pronoun usage as a stand-alone measure of CEO narcissism. This measure uses the speech style of a CEO in interviews and conference calls to measure narcissism. They calculate the narcissism score as the ratio of singular pronouns to plural pronouns used in a CEO speech. I use CEO pronoun usage as an alternative measure to test the robustness of my findings.

2.3.2 Control variables

Following existing literature, I employ a set of control variables that affect firm repurchase decisions. Data on the firm and CEO-level control variables are collected from Boardex, Datastream and Compustat. Firm-level control variables include firm size, leverage, market to book, prior year stock return, cash holding, cash flow, cash flow volatility, capital expenditure and dividend. CEO-level controls include age, gender, duality, board size, percentage of shares owned by the CEO, CEO tenure, CEO equity-linked compensation and outside directorship. All these variables are defined in the appendix.

2.3.3 Descriptive statistics

After merging the hand-collected CEO narcissism score with all firm and CEO-related data, I winsorise all variables at the 1st and 99th percentile to eliminate all outliers, which may influence the study results. From Table 2.1, I report the descriptive statistics of the full and split samples. I split the sample by whether the CEO's narcissism score is above the sample's median (Narcissist) or below the median (Other). I compare the mean and median of the split sample based on CEO and firm-related characteristics. Columns 1&2 report the full sample summary statistics; columns 3&4 (5&6) report summary statistics of the narcissist CEO sample (other CEO samples).

Considering the full sample in columns 1&2 in Table 2.1, on average, 17% of the sample announce a repurchase and 72% make the actual repurchase. The sample mean profitability is 5.7%, with a mean capital expenditure of 5% of total assets; cash is 14% of the total asset on average. The mean CEO age is 56 years, CEO tenure is five years, and the Female CEOs comprise 3.4% of the sample. On average, CEOs own 6% of company shares, and the average narcissism score is 0.479, ranging from 0.107 to 2.062.

The univariate analysis of the means of firm-related characteristics indicates that narcissist CEOs manage small firms, perform lower than other CEOs and spend more on research and development (Ham et al., 2018). In addition, they have high book leverage and keep more cash. Examining the CEO and board-related characteristics by comparing the means and medians of the subgroups, I find narcissistic CEO-leaning firms to be more overconfident and less conservative. Secondly, narcissist learning firms have their CEOs acting as the board's Chairman and have a higher number of outside directors. Finally, I compare the means and medians of the split sample presence and intensity of share repurchase announcements and actual repurchase. On average, the narcissistic CEO sample has a higher likelihood of repurchase announcements and targets a higher dollar amount compared to other CEOs. However, the narcissistic sample is less likely to make an actual repurchase of the shares announced compared to other CEOs.

Using Pearson Correlation matrix between CEO narcissism and my primary dependent and control variables (unreported because of brevity). I find the CEO narcissism score to be positively correlated with the repurchase announcement indicator, while there exists a negative correlation between CEO narcissism and actual repurchase. Also, firm profitability correlates negatively with CEO narcissism. This is not surprising considering the reported negative relationship between firm performance (ROA) and CEO narcissism (Ham et al., 2018).

Also, the area per character signature size measure of narcissism may reflect CEO conservatism. Duong et al. (2021) report that the style and nature of a CEO's handwritten signature capture the conservative traits of the CEO. They classify managers signing their full names as liberal and other variations such as only first name or abbreviation signatures as conservative. Following Duong et al. (2021), I classify my sample CEOs into conservative and liberal. Like the significant difference between the average difference between the conservatism of narcissists and other CEOs, I find a negative and significant correlation between my CEO's narcissism and conservatism proxy. This suggests that narcissism and conservatism do not capture the same trait.

Further, research has indicated some similarities between narcissism and overconfidence, which are well-studied in the finance literature Campbell et al. (2004). Considering this, a potential concern of this study is that the narcissism measure used might capture a CEO's overconfidence. I construct an overconfidence measure using the CEO's options holdings (Malmendier and Tate, 2005; Banerjee et al., 2018). I find a positive correlation between CEO narcissism and the overconfidence proxy. The coefficient is relatively small (0.02), suggesting that a narcissistic CEO may have some level of overconfidence. However, the narcissism and overconfidence proxy do not capture the same personality trait. Thus, being a narcissist does not necessarily mean you are overconfident or vice versa.

INSERT TABLE 2.1 HERE

2.4 Empirical Analysis

2.4.1 CEO Narcissism and share repurchase announcements

From hypothesis 1, I predict that narcissist CEOs are more likely to announce repurchases compared to other CEOs. I test this empirically using the equation below:

$$Announcement_{i,t} = \alpha + \beta Narcissism_{i,t} + \theta X_{i,t} + \gamma Y_{i,t} + \rho_t + \delta_j + \varepsilon_{i,t} \quad (2.1)$$

In the above equations, the $Announcement_{i,t}$ dependent variable takes on two variables: the presence and intensity of the repurchase announcement. Announcement presence is a dummy variable that equals one if a firm announces a repurchase in a fiscal year and zero otherwise. The announcement intensity is the targeted repurchase dollar amount scaled by the firm's total assets at the end of the fiscal year. Narcissism is the area per-character signature measure of CEO narcissism. $X_{i,t}$ and $Y_{i,t}$ are vectors of CEO and firm-level control variables that may affect a CEO's decision to announce shares repurchase. ρ_t and δ_j represent year and industry fixed effects respectively. I estimate the announcement indicator regression with a logit model and the announcement value regression with a Tobit model with a lower bound of zero. In both models, standard errors are clustered at the firm level.

The results of the regression analysis are reported in Table 2.2. Columns 1 and 3 examine the likelihood of a narcissistic CEO announcing a repurchase. Columns 2 and 4 examine the targeted dollar amount of shares a narcissist CEO intends to repurchase. In columns 3 and 4, the primary variable of interest, CEO narcissism, is an indicator variable - *High narcissist Dummy* which takes the value of one if the CEO narcissism score is above the 75th percentile

score of the sample narcissism and 0 otherwise. This will help us understand the impact of extreme narcissist CEOs. From Table 2.2, I find a positive significant relationship between CEO narcissism and repurchase announcement (presence and intensity). This suggests that narcissist CEOs have a greater likelihood of announcing share repurchases and target a significantly larger dollar amount of shares to be repurchased. The reported results are economically meaningful; from column 1, a one standard deviation increase in the area per character narcissism measure leads to a 14.9% increase in the likelihood of a share repurchase announcement. Also, a one standard deviation increase in the area per character narcissism measure increases the dollar amount of targeted repurchase by 23.3% (see column 2). Further, a high narcissist CEO (above 75% narcissism score) has an 18.7% likelihood of announcing a repurchase and increases the dollar amount of repurchase by 64%.

The above discussions suggest that the unrealistic inflated image of narcissistic CEOs make them perceive their firms as priced lower than what they perceive and therefore motivate them to announce repurchase and announce larger dollar amount to express their disagreement. Also, unlike dividends, a narcissistic CEO does not commit to completing or distributing cash regularly to shareholders after announcing a repurchase. The flexible nature of a repurchase allows a narcissistic CEO to take advantage and announce more repurchases.

From Table 2.2, I find that young CEOs are more likely to announce a share repurchase. The more a CEO grows older, the lesser the frequency of repurchase announcements they make and the dollar value of the targeted amount. The findings are consistent with Hambrick and Mason (1984), suggesting that older CEOs have less physical and mental ability to be chasing new and challenging ideas and are hence unlikely to take the risk to announce or repurchase shares. Male CEOs are more likely to announce repurchases than female CEOs. From the table, firms with larger cash are likely to announce a repurchase and

target a larger dollar amount to repurchase. This explains that companies that do not face financial constraints are more likely to announce repurchases and target a larger dollar amount to repurchase. Also, firms with low growth opportunities are likely to announce a repurchase and target a higher dollar amount of shares. Further, good-performing firms are more likely to announce repurchases; firms with high research and development expenditure and high book leverage are less likely to announce repurchases and target a higher dollar amount; dividend-paying firms are less likely to announce share repurchases. The coefficient of other control variables used in the study is consistent with prior research findings.

INSERT TABLE 2.2 HERE

2.4.2 Evidence from Exogenous CEO turnover

Since CEO narcissism is a stable and intrinsic trait, identifying an exogenous shock that changes CEO narcissism to understand the relations between narcissism and repurchase activities is difficult. Like Shang (2021), I focus on CEO exogenous turnover as a shock that can alter the level of CEO narcissism. If the narcissism of the CEO explains the presence and intensity of the repurchase announcement, then the change in CEO narcissism caused by the exogenous replacement of CEOs should alter the presence and intensity of the corporate repurchase announcement. It is important to note that the turnover of a CEO can be endogenous. Firms are not required to report the reason behind a CEO departing from the company, and they are most unlikely to do so when the CEO is forced to leave or fired (Schwartz-Ziv and Weisbach, 2013). Using information from board minutes, existing literature has been able to distinguish between different reasons for CEO turnover (Jenter and Lewellen, 2021). A CEO may be forced to leave a firm because of performance, managerial style, competition and personal scandals (Warner et al., 1988; Denis

and Denis, 1995; Parrino, 1997). A new CEO may be appointed to implement policies in line with that of the board. In this case, the change in corporate repurchase announcement presence or intensity after turnover may not be directly influenced by the narcissism of the new CEO but rather by other factors that caused the change in the CEO. Given this, this study focuses on only exogenous CEO turnover.

Data for CEO turnover events are collected from the Execucomp database. Execucomp reports reasons for CEO turnover and classifies them into the following categories: death, health, retirement and unknown. For turnover events with reasons missing, I manually search the company website and SEC filings to identify the reason for turnover. Following existing literature, I classify a CEO turnover as exogenous if the CEO departs from a firm because of death, health condition and natural retirement. For a turnover event to be classified as a natural retirement, the CEO must be 60 years or above at the time of departure.

Since CEO needs ample time to affect corporate decisions, I require a departing CEO to serve at least 3 years before they depart from the firm and the incoming CEO is also required to stay with the firm for at least 3 years. Using these criteria, I identify 206 exogenous turnover events. I merge the turnover sample with my repurchase data and keep only turnover events where there is at least one share repurchase announcement in the years before or after the exogenous CEO turnover. I then use a difference-in-difference (DiD) specification to empirically examine the impact of changes in CEO narcissism caused by exogenous CEO turnover on the presence and intensity of corporate repurchase announcements:

$$Announcement_{i,t} = \alpha + \beta_1 NasChange_i \times After_t + \beta_2 NasChange_i + \beta_3 After_t + \theta X_{i,t} + \gamma Y_{i,t} + \rho_t + \delta_i + \varepsilon_{i,t} \quad (2.2)$$

$NasChange_i$ takes on two variables: Nas_{Coming} and Nas_{Going}. Nas_{Coming} (Nas_{Going}) is a dummy variable equal to one for firm-year observations where the replacement CEO has a narcissism score greater (less) than the departing CEO and zero otherwise. $After_t$ is a dummy variable equal to one for firm-year observations post-turnover and zero pre-turnover. Note that the $NasChange$ and $After$ dummies are absorbed in the equation above. While the $NasChange_i$ is collinear with the firm fixed effects, the After dummy is collinear with the year fixed effects. However, the variable of interest in this analysis is $\beta_1 NasChange_i * After_t$ and the coefficient β_1 captures the impact of CEO narcissism on the presence and intensity of share repurchase announcements. $X_{i,t}$ is a vector of firm-level control variables. The vector $Y_{i,t}$ includes CEO-related control variables. ρ_t is the year fixed effects and δ_i is firm fixed effects. Standard errors are clustered at the firm level.

The results of the difference in difference specification are reported in Table 2.3 panel A. Columns 1&2 (3&4) have the Nas_{Coming} (Nas_{Going}) as my main independent variable. From columns 1&2, the $Nas_{Coming} * After$ has a positive and significant coefficient. The results suggest that firms replacing the outgoing CEO with a more narcissistic CEO tend to experience an increase in the presence and intensity of share repurchase announcements. In addition, the coefficient of the $Nas_{Going} * After$ is negative and significant (see columns 3&4), suggesting that firms that replace departing CEOs with less narcissistic CEO have a reduction in the presence and intensity of repurchase announcements. The above results from the DiD specification support my baseline results that narcissist CEOs increase the presence and intensity of corporate share repurchase announcements.

Recent economics literature has questioned the validity of the use of the Two-way Fixed Effects (TWFE) staggered DiD setting in empirical analysis. Baker et al. (2022) and Goodman-Bacon (2021) assert that estimating β_1 from equation 4.2 above is problematic because the TWFE estimation compares

treated firm-year observation to firm-year observations that were treated in prior years. More specifically, an exogenous change in narcissism in prior years could be used as a control in subsequent years in a TWFE estimation. These previous exogenous changes in narcissism are not valid controls for subsequent years because such firm-year observations contain part of the treatment effect itself. Therefore, using the TWFE can bias the β_1 coefficient depending on the heterogeneity of the post-treatment dynamics and treatment effect (Cookson et al., 2022).

Following Callaway and Sant'Anna (2021) and Sun and Abraham (2021), I estimate the causal effect coefficient β_1 that allows for arbitrary effect heterogeneity and post-treatment dynamics. This setup alleviates the issue by estimating group time treatment effects based on treated versus control and before versus after comparisons. This provides weighted aggregate averages of group-time effects. Table 2.3 panel B reports the overall average treatment effect using Callaway and Sant'Anna (2021) estimation method. Columns 1&2 (3&4) present average treatment effect for Nas_Coming (Nas_Going) treatment group. Columns 1&3 (2&4) use the announcement indicator (announcement amount) as the dependent variable for the estimation. From column 1 of Table 2.3 panel B, I find a significant positive causal relationship between narcissism and the presence of share repurchase announcements. More specifically, firms that experience an exogenous increase in CEO narcissism score experience an increase in the presence of share repurchase announcements. Considering the parallel trend assumption in column 1 of Table 2.3 panel B, I find no significant difference between the treated and control cohort prior to the exogenous increase in CEO narcissism for the presence of share repurchase announcement. However, I do not find any significant difference in share repurchase amount before and after the exogenous decrease in CEO narcissism despite a positive significant causal relationship between CEO narcissism and the targeted repurchase dollar amount announced. Also, I do not find any causal relationship

and difference in share repurchase presence and dollar amount before and after an exogenous decrease in CEO narcissism (Nas_Going).

INSERT TABLE 2.3 HERE

2.4.3 Are narcissist CEOs more likely to make actual share repurchases?

From the above discussion, it is essential to examine the likelihood of a narcissist CEO making an actual repurchase of the shares announced. This is examined using a logit model, where the dependent variable is an actual repurchase indicator (presence) that is equal to one when a firm makes an actual repurchase in a year as reported by CompuStat and zero otherwise. The study uses a Tobit model to examine the relationship between narcissism and the dollar amount of actual repurchase (intensity). Using the same independent and control variables in Equation 4.6 above, the study examines these relationships.

The results of the regression analysis are reported in Table 2.4. Columns 1 and 3 examine the likelihood of a narcissistic CEO making an actual repurchase. Columns 2 and 4 examine the actual dollar amount of shares a narcissist CEO repurchases. In columns 3 and 4, the main variable of interest, narcissism is an indicator variable - Highly narcissist Dummy equals one if the CEO narcissism score is greater than the 75th percentile score of sample CEO narcissism and 0 otherwise.

The results in Table 2.4 show a negative relationship between CEO narcissism and the likelihood of actual repurchase and the dollar amount of actual repurchase. This holds even in regression with or without control variables. The results in column 1 of Table 2.4 indicate that a one standard deviation increase in the area per character narcissism measure leads to a 14.7% less like-

lihood of a narcissist CEO making an actual repurchase. Also, from column 3, a high narcissist CEO (above 75% narcissism score) has a 15.6% less likelihood of making an actual repurchase and this is significant at 5%. Bonaimé (2012) suggests that there is a reputational cost of not completing a repurchase announcement. The study finds that larger firms are more likely to make an actual share repurchase. This is consistent with Jagannathan and Stephens (2003), who find large firms to be frequent repurchases. Also, the study finds profitable firms to be efficient repurchasers. This explains that profitable firms have enough cash to cater for existing investment opportunities and also transfer cash to shareholders.

Consistent with expectations, the study finds CEOs with more control in the organisation by holding a dual role as the chairperson and CEO to be positively related to the likelihood of an actual repurchase. This means that CEOs with dual roles have more influence on the board, which enables them to undertake actual repurchase activities without resistance. Further, the number of outside directors on the board is positively related to the frequency of actual repurchases. This explains that firms with more outside directors on their boards are likely to uphold their reputation by fulfilling their repurchase announcement promise. Finally, like Stephens and Weisbach (1998), the study finds that actual share repurchases are negatively related to prior year stock performance, indicating that firms are likely to make more actual repurchases depending on their prior year stock return.

INSERT TABLE 2.4 HERE

From the above discussions, a key question of concern is why narcissist CEOs announce more share repurchases but only purchase a few of them. In order to understand this, I test how sensitive narcissist CEOs are to cash. From my hypothesis above, I should expect a strong positive relation between cashflow and the changes in cash holding for narcissist CEO-managed firms. Other

firms in contrast should display no such relation. Following Almeida et al. (2004), I empirically test this with the model below:

$$\Delta CashHoldings_{i,t} = \alpha + \beta Cashflow_{i,t} + \theta Controls_{i,t} + \varepsilon_{i,t} \tag{2.3}$$

Like Almeida et al. (2004), $CashHoldings_{i,t}$ is the ratio of cash and cash equivalents to total assets, $Cashflow_{i,t}$ is the ratio of earning before extraordinary items, depreciation and dividend to total assets. I control for CEO and firm-related variables including investments (Research and development and Capital expenditure) and dividends. I estimate the sensitivity for the narcissist CEOs and other CEO samples and report my results in Table 2.5.

INSERT TABLE 2.5 HERE

From Table 2.5, columns 1&2 (3&4) report regression results for the narcissist (other CEO) sample. Columns 1&3 include year and industry fixed effects while columns 2&3 include year and firm fixed effects. From Table 2.5, I find the cash flow sensitivity of cash to be close to and not statistically different from zero for the other CEO sample. However, I find a positive and significant cashflow sensitivity of cash for my narcissism sample. This result supports my hypothesis that narcissist CEOs are more likely to hold more cash because of their insecurities (Kowalchyk et al., 2021).

2.4.4 CEO narcissism and short-term returns around repurchase

Table 2.6 reports the Cumulative Average Return (CAR) for five subperiod around share repurchase announcements for the narcissist and other CEO samples. For each event, I calculate the Fama and French three-factor model betas using 60 days before day -10 of the repurchase announcement. Using the betas

computed, I calculate the CAR for the subperiod reported in Table 2.6.

In both the narcissist and other CEO samples, I find a negative CAR 10 days before the repurchase announcement, which is consistent with prior literature on repurchase announcement (Evgeniou and Vermaelen, 2017; Dann, 1981). Also, the narcissist CEO sample has a higher negative CAR than other CEOs. However, the narcissist CEO sample negative CAR is insignificant. The large abnormal returns of the other CEO sample indicate that the repurchase announcement of narcissistic CEOs is driven by their perceived undervaluation rather than a channel to transfer free cash flow to shareholders. Considering CAR after the announcement day, I find a positive and significant abnormal return for both the narcissist and other CEO samples. However, the narcissist CEO sample experience lower abnormal returns compared to the other CEO sample. For example, CAR(0, +1), which is the sum of abnormal returns for day 0 and day +1, I find a CAR of 0.35% higher in the other CEO sample than in the narcissist CEO sample. The other CEO sample dominates in CAR throughout the sub-event period reported in Table 2.6. This result suggests that the other CEO sample does better in return after repurchase announcements. This supports my hypothesis that narcissist CEOs are less efficient in timing the market because of their inflated image, hence experiencing a smaller signalling effect following the repurchase announcement compared to other CEOs.

From figure 2.1, on average, share repurchase announcements by narcissist CEO-managed firms generate economically and statistically lower short-term excess returns compared to other CEO-managed firms. This holds from day -10 to day +10 as indicated in figure 2.1.

INSERT TABLE 2.6 & Figure 2.1 HERE

We further test whether CEO narcissism independently drives short-term returns after share repurchases announcement. I test this using the cross-

sectional regression equation below;

$$CAR = \alpha + \beta Narcissism_{i,t} + \theta X_{i,t} + \gamma Y_{i,t} + \rho_t + \delta_j + \varepsilon_{i,t} \tag{2.4}$$

In the above equations, the CAR is the cumulative abnormal returns for different event windows, all other variables remain as defined in equation 4.6 above. Columns 1,2&3 of table 2.7 present cross-sectional regression results for the effect of CEO narcissism on short-term cumulative abnormal return for event window CAR(0, +1), CAR(-1, +5) and CAR(0, 10) respectively. From table 2.7, controlling for CEO and firm-related characteristics, I find CEO narcissism negatively affects short-term CAR. These results support my hypothesis that the market believes that narcissistic CEOs are using repurchase announcements as a stock price management mechanism rather than a payout channel. This suggests that the credibility of a firm's repurchase announcement is negatively influenced by CEO narcissism.

INSERT TABLE 2.7 HERE

Share repurchase is not a short-term decision. Firms require authorization from the board before the announcement. In line with this, it is important to consider the stock performance in prior years to test whether negative prior-year returns influence the repurchase decisions of narcissistic CEOs. Accordingly, Comment and Jarrell (1991) assert that firms with recent negative returns are more likely to repurchase their shares. In examining this, I divide the sample into two groups - negative prior stock return and positive prior stock return, consistent with Comment and Jarrell (1991). A firm is said to have a negative return if the previous year's stock return is negative, and otherwise. I further introduce an additional sample for this analysis called highly positive return (unreported for brevity). This sample includes only firms with prior year stock returns greater than the 75th percentile of the sample stock return. This is to help understand whether the inflated view of a narcissistic

CEO affects their repurchase activities despite their company shares being far away from negative returns. I would expect narcissistic CEOs to announce repurchase even when their firms have a positive prior-year stock return. I run the same regression as in equation 1 above using the samples and report results in Table 2.8.

Table 2.8, columns 1&2 report regression results for the negative prior-year return sample, and columns 3&4 reports result for the positive prior-year return sample. From the results, there is a positive relationship between narcissist CEOs and the presence of share repurchase announcements in firms with negative prior-year stock returns. However, this is insignificant. Also, in instances where a narcissistic CEO in negative prior year stock return firms announces a repurchase, they target a larger dollar amount (see column 2). This is expected because when firms have negative prior year stock returns, CEOs who are even not narcissists are likely to announce a large dollar amount of shares to be repurchased Comment and Jarrell (1991). Further, I find the relationship between narcissism and share repurchase to be positive and statistically significant for both the presence and intensity in firms that have positive prior-year stock returns. Further to the above, the unreported high positive return sample also exhibits a positive relationship between CEO narcissism and the presence of share repurchase announcements and targeted dollar amounts.

Considering the above, the presence and intensity of repurchase announcements in narcissist-managed firms are driven by the distorted views of their CEOs due to their unrealistic inflated self-view. Like Brav et al. (2005), who report that managers who announce share repurchase rank negative prior-year return as the prime motive. My results in Table 2.8 indicate that unrealistic inflated views of narcissist CEOs influence how they view their companies. They consider the stock price of their companies under-priced whilst they are not because they perceive their companies to have a value above what is reported by the market. This distorted view of narcissist CEOs influences them

to announce repurchases to indicate their disagreement with how their shares are priced. The above discussion shifts the attention squarely from the signalling hypothesis to CEO narcissism as an explanation for the growing share repurchase announcements.

INSERT TABLE 2.8 HERE

2.4.5 Does CEO power facilitate repurchase announcements by Narcissistic CEOs?

Narcissistic CEOs with more power in an organisation are likely to face less resistance from the board and make more repurchase announcements. In line with this, narcissist CEOs with more power, as evidenced by their dual role as CEO and chair of the board of directors are likely to act on their distorted views and announce more share repurchases since such CEOs are insulated from internal and external discipline. The study captured the role of duality in narcissist repurchase announcement decisions with the models below:

$$Announcement_{i,t} = \alpha + \beta_1 Narcissism_{i,t} * Duality_{i,t} + \beta_2 Narcissism_{i,t} + \beta_3 Duality_{i,t} + \theta X_{i,t} + \gamma Y_{i,t} + \rho_t + \delta_j + \varepsilon_{i,t} \quad (2.5)$$

Duality is an indicator variable equal to one if the CEO holds a dual role as chair of the board and zero otherwise. I modify the baseline model to include an interaction of Duality and CEO Narcissism score. All other variables are defined in the appendix.

The results in Table 2.9 indicate that the coefficient of the interaction term β_1 is positive and significant in both the presence and intensity of repurchase announcement regressions. Economically, narcissist CEOs with more power evidenced by their dual role as chairperson of the board are likely to announce

more repurchases and target to repurchase a larger dollar amount of shares. The reported results are economically meaningful; a one standard deviation increase in the narcissism of a CEO with a dual role as the chair of the board will increase the likelihood of a repurchase announcement by 32.1%. Comparing this to the above results in Table 2.2, the dual role of a narcissist CEO as the chair of the board increases the frequency of announcing a repurchase by approximately 5%. Also, a one standard deviation increase in the narcissism of a CEO with a dual role as the chair of the board will increase the dollar amount of targeted repurchase by 30.1% (see column 2 of Table 2.9). The above analysis indicates that the presence and intensity of narcissist CEOs' repurchase announcement activities are more pronounced in poorly governed firms.

INSERT TABLE 2.9 HERE

2.5 Robustness Tets

2.5.1 Propensity Score Matching

The baseline results suggest that there is a strong association between CEO narcissism and the likelihood of a share repurchase announcement. However, firms managed by CEOs with high narcissism scores may be fundamentally different from those managed by lower narcissism scores CEOs. If this is the case, the control variables used in the baseline regression will be inadequate. This could bias the reported results. To account for these biases, I create two samples of my CEO narcissism score variable that are comparable in all control variables used in the baseline regression except CEO narcissism. I create two samples based on the CEO narcissism score: Narcissistic CEOs are defined as CEOs with a narcissism score greater than the mean of the sample CEOs' narcissism score. While other CEOs have a narcissism score less than the mean of the sample. Following Aktas et al. (2019), I use the propensity score matching (PSM), I match firm-year observations with narcissist CEOs in my sample with other CEOs having comparable control variables. In doing this, I use a logit regression to estimate the propensity score, based on the probability of a firm having a narcissistic CEO condition on control variables. I then use the nearest neighbour propensity score specification to find a firm-year observation with other CEO-managed firms and comparable control variables. I use an absolute difference in propensity score of 0.05 to ensure I have a suitable match. I only match other CEO firm-year observations with the smallest propensity score when more than one form meets the criteria above. I find 1,813 unique pairs of matched sample firm-year observations.

We report the difference in means of control variables for the unmatched (columns 1&2) and matched (columns 3&4) sample in Panel A of Table 2.10. In columns 1&2, I find a significant difference between the narcissist and other

CEO samples. Specifically, I find narcissist-managed firms to be performing poorly; larger in size; have lower cash flow; have more directors; take more risk (research & development cost and leverage) compared to other CEOs. This suggests that narcissist-managed firms are fundamentally different and the results in the baseline may pick up some non-linear effects of the control variables used in the estimation. Columns 3&4 report the matched sample mean difference where I find no significant difference between the narcissist and other CEO samples. Using the matched sample, I run my baseline estimation using equation 1 above and report the results in Panel B of Table 2.10. Columns 1&2 report regression results for the repurchase announcements, while columns 3&4 report actual repurchase regression. From columns 1&2 of Table 2.10, I find a significant positive relationship between CEO narcissism and the presence and intensity (dollar amount) of repurchase announcements. While in columns 3&4, I find a negative relationship between CEO narcissism and actual repurchase. The results confirm my baseline analysis, hence my results are not driven by misspecification biases.

INSERT TABLE 2.10 HERE

2.5.2 Controlling for Firm Fixed effects

Adding to the list of control variables used in the baseline regression analysis, controlling for firm fixed effects alleviates any concern of firm unobserved heterogeneity. However, CEO narcissism is a stable and intrinsic trait, therefore, a CEO fixed effect. In line with this, examining the direct effect of CEO narcissism on the presence and intensity of repurchase announcements with a fixed effect model is impossible because the CEO narcissism effect on repurchase is absorbed by the fixed effects. Using fixed effects in my analysis can only be possible when there is a within-firm variation of CEO narcissism. That is when the narcissism score of a newly appointed CEO is different from the

previous CEO. To use firm fixed effect in my analysis, I limit my sample to firms with at least two CEO changes and run a panel fixed effect regression and report results in Table 2.11.

From Table 2.11, I find a positive and significant (10%) coefficient for the relationship between CEO narcissism score and the presence of share repurchase announcement. However, I do not find any significant relationship between CEO narcissism and the dollar amount of repurchase announced. This may be due to the small sample size used in this analysis. Also, for the actual repurchase analysis, I find a negative and significant relationship between CEO narcissism and the likelihood of actual repurchase and the dollar amount of shares purchased. The above results confirm my baseline results that CEO narcissism increases the presence of share repurchase announcements but fail to follow through to complete the purchase of what was announced.

INSERT TABLE 2.11 HERE

2.5.3 Controlling for other CEO traits

Research has indicated some similarities between narcissism and other behavioural traits like overconfidence which has been well studied in the finance literature[7]. Considering this, a potential concern of this study is that the CEO narcissism measure used might be measuring the overconfidence of a CEO. Also, it is important to establish that the narcissist's likelihood to announce repurchases and target a larger dollar amount is beyond their overconfidence. To ensure that the overconfidence of a CEO does not influence my results, I construct an overconfidence measure using the CEO's options holdings (Malmendier and Tate, 2005; Banerjee et al., 2018). CEOs have their human capital concentrated in the company they manage and would rationally exercise and

[7]For overconfidence literature see: (Banerjee et al., 2018; Malmendier and Tate, 2005; Campbell et al., 2011; Deshmukh et al., 2013; Goel and Thakor, 2008; Ho et al., 2016)

cash out any stock option that is in the money to diversify their firm-specific risk (Korczak and Liu, 2014). However, keeping a highly vested in the money stock option would indicate some form of overconfidence in the CEO. CEO overconfidence is defined as the measure of how in the money CEO options are, which is calculated by dividing the value per option[8] by the share price at the end of the fiscal year. Like Banerjee et al. (2018), I use a continuous overconfidence variable.

Also, the signature size proxy measure of CEO narcissism may reflect CEO conservatism. For example, Duong et al. (2021) report that the style of a CEO's signature reflects some conservative or liberal traits of a CEO. Duong et al. (2021) conjecture that CEOs signing full names or first and last names are liberal and those with the first name or abbreviation signatures are classified as conservative. CEO conservatism takes a dummy variable one if the CEO sign with first name only or abbreviations and zero otherwise. To test this concern, I follow Duong et al. (2021) and use signature style as a proxy of CEO conservatism and control for this in my analysis.

Further, I create another CEO narcissism (*Resid Narcissism*) variable by taking the residuals from OLS regressions of CEO narcissism on CEO demographics, overconfidence, conservatism and all other covariate used in the baseline regression (unreported for brevity). Although the correlation among my narcissism measure, demographics and firm covariates are not that high, creating a Resid Narcissism variable further eliminates their impact. I report my results for overconfidence and conservatism and Table 2.12. From columns 1&2 of Table 2.12, the coefficient of the CEO narcissism variable remains qualitatively similar and significant after controlling for CEO overconfidence and CEO conservatism. From Table 2.12, the narcissistic CEO's frequent repurchase announcements and failure to follow through to completion are beyond

[8]Value per option is defined as the value of unexercised exercisable option divided by the number of the unexercised exercisable option)

their overconfidence and are not driven by their conservatism.

INSERT TABLE 2.12 HERE

2.5.4 Alternative Measure of CEO Narcissism

In an attempt to check the robustness of my baseline results in this study, I use an alternative measure of CEO narcissism. Raskin and Terry (1988) find a correlation between the ratio of first-person singular pronouns to first-person plural pronoun usage with the NPI scores. This is robust after controlling for some traits like extraversion, neuroticism, and locus of control. Using this measure of CEO narcissism, Aktas et al. (2016) find CEO narcissism to be associated with high bid premiums in acquisitions and a low probability of deal completion. I replace the area per character signature size measure of narcissism with the pronoun usage of a CEO in the quarterly conference call. Using machine learning software (R-studios), I tabulate the personal pronoun usage by CEOs in the quarterly conference calls in the first two years in office as a CEO. I only focused on the questions and answers section of the conference call since the presentation aspect can be scripted and may be difficult for narcissistic CEOs to express their narcissistic features. The narcissism score is measured as the ratio of first-person singular pronouns to total first-person pronouns in the CEO speech in the questions and answers section of the quarterly conference calls. Replacing pronoun usage as the main independent variable in equations 1, I test the baseline analysis and report the results in Table 2.13. The estimated coefficient of the pronoun usage for the announcement indicator and value regression are 0.278 and 0.039 respectively, which are all statistically significant. These results further confirm my baseline analysis that narcissist CEOs are more likely to make repurchase announcements and announce large repurchase values.

INSERT TABLE 2.13 HERE

2.6 Conclusion

In this paper, I contribute to the existing literature on managerial characteristics and their impact on corporate decisions by examining the influence of CEO narcissism on their repurchase activities. The existing literature has focused on how narcissism affects performance, earnings management, and CEOs' risk-taking activities. This paper aims to extend the literature by examining how the narcissism of a CEO affects their share repurchase activities.

The study uses the area per character signature size (Ham et al., 2018; Zweigenhaft, 1977) to measure CEO narcissism. I find that narcissist CEOs are more likely to announce a share repurchase and target to repurchase a higher dollar amount. Further, narcissist CEOs do not repurchase shares because of the signalling hypothesis documented by Comment and Jarrell (1991) and Dittmar (2000). Narcissistic CEO announces repurchases because of their unrealistic inflated self-view which make them perceive their firms as underpriced when they are not. They show their disagreement through the announcement of repurchases.

Also, I find governance to play a role in the repurchase behaviour of a narcissistic CEO. Firms, where a narcissist CEO holds a dual role as the board of directors chairperson, are more likely to act on their behavioural biases and announce more repurchases. However, I find that narcissist CEOs are less likely to make an actual repurchase and allocate less dollar amount to the actual repurchase in the firm they manage.

The findings of this paper contribute to the literature on CEO narcissism and share repurchases. The growing repurchase activities in corporate America have attracted many debates, and my results indicate that repurchase activities are more prone to some particular types of firms. Narcissistic managed firms are more likely to perceive their firms as priced lower because of their

unrealistic inflated self-view influencing them to announce more repurchases to disagree with how the market is pricing them. The paper's findings indicate that proper governance is essential to control the excessive repurchase activities of these CEOs.

The results of this study have important implications for policymakers and managers. As firm CEOs are key decision-makers, their psychological traits – narcissism- are essential for the firm's decisions. Although research has associated CEO narcissism with authority, self-reliance and supremacy that can foster leadership effectiveness, promote company performance, and be attractive to loyal employees (Hogan and Kaiser, 2005; Maccoby, 2000). Narcissistic CEOs are likely to act on their unrealistic inflated self-views to perceive their companies stock as priced lower and announce more repurchases. Thus, when companies are recruiting CEOs, they should consider their psychological traits and capabilities, which may also influence the firms' path for share repurchases.

2.7 Appendices and Tables

A Description of Variables

Firm related	Description	Source
Return on Asset	Net income scaled by the book value of totals assets	Compustat
Cash flow	Income before extraordinary items plus depreciation, scaled by book value of total assets.	Compustat
Cash flow volatility	Standard deviation of annual operating cashflow (OIBDP) scaled by total assets over the previous 3 years.	Compustat
Research and Development	Ratio of Research and development cost to total asset	Compustat
Slack	Cash and short-term investments scaled by the book value of total assets.	Compustat
Market to Book	Market value of Asset scaled by the book value of asset.	Compustat
Firm Size	Natural logarithm of the book value of total assets.	Compustat
Capital Expenditure	Measured as capital expenditures (CAPX) over total assets (AT).	Compustat
Cash Dividend payout	Annual cash dividends scaled by Net incomes (NI) during the measurement period. When net incomes are zero or negative, cash dividend payout is set to missing.	Compustat
Book Leverage	Long-term debt plus current debt, scaled by the book value of the asset.	Compustat
Announcement Indicator	This is an indicator variable equal to one if a firm announces a repurchase in a year and zero otherwise.	Thormsonone
Actual repurchase Indicator	An indicator variable equal to one if a firm make an actual repurchase in a year and zero otherwise.	Thormsonone/ Compustat
Announcement Value	Target repurchase dollar amount scaled by total asset.	Compustat
Actual repurchase value	Actual cash repurchase scaled by total assets.	Compustat

Prior repurchaser	Dummy variable equal to one if a firm makes a repurchase announcement in year t-1 or/and t-2.	CRSP
Return	Measured as the average monthly return for a year.	CRSP

CEO Related	**Description**	**Source**
CEO Age	Age of a CEO in a year	Execucomp
CEO Tenure	Measured as the number of years that the CEO has been the CEO of the company	Execucomp
CEO Gender	This is an indicator variable that is equal to one if the CEO is a male and zero otherwise.	Execucomp
Equity Compensation	Equity-linked compensation as a percentage of total compensation (TDC1). Equity-linked compensation is defined as option awards plus stock awards. Suppose equity-linked compensation based on this definition cannot be calculated because of missing data. In that case, equity-linked compensation is alternatively defined as total compensation (TDC1) – salary plus bonus (TOTAL_CURR) – non-equity compensation (NONEQ_INCENT).	Execucomp
CEO Share ownership	CEO Share ownership is the natural logarithm of the number of shares that are owned by the CEO at the end of the year excluding options granted	Execucomp
CEO Duality	Duality is an indicator variable which is one when the CEO is also the chairman of the board and zero otherwise	Datastream
Outside Directors	Outside Directors is measured as the ratio of the number of outside directors to total directors on the board of the company at the end of a year.	Execucomp
Executive Option Grant	Executive option is the natural log of the total option granted to executives in year t+1	Execucomp
Narcissism Variable	Narcissism score is the area per character signature size measure of narcissism	
High Narcissism Dummy	An indicator variable that is equal to 1 if a CEO's narcissism score is greater than the 75^{th} percentile and zero otherwise	

Table 2.1: Univariate Analysis Summary Statistics

The table presents the descriptive statistics of the variables used in this study. All variables are defined in the appendix. Columns 1&2 report the descriptive statistics for the full sample. Columns 3&4 (5&6) report descriptive statistics for the narcissist (Other CEO) managed firm-year observation. *, ** and *** denote significance difference at 10%, 5% and 1% levels, respectively.

	Full Sample (8637)		**Narcissist CEO (4211)**		**Other CEO (4426)**	
	Mean	Median	Mean	Median	Mean	Median
Firm Related						
Return on Asset	0.057	0.063	0.041	0.04	0.059***	0.059***
Firm Size	8.93	8.84	8.97	8.91	8.90**	8.78***
Research and Development	0.03	0.00	0.04	0.01	0.03***	0.00***
Market to Book	1.82	1.42	1.81	1.42	1.83	1.43
Capital Expenditure	0.05	0.04	0.05	0.04	0.05	0.04
Cash Dividend payout	0.24	0.15	0.24	0.14	0.25	0.16*
Cash flow volatility	0.03	0.02	0.03	0.02	0.03	0.02
Cash flow	0.10	0.10	0.10	0.10	0.11***	0.11***
Slack	0.14	0.09	0.14	0.09	0.13**	0.08***
Book Leverage	0.26	0.24	0.27	0.24	0.26*	0.24
Stock Return	0.01	0.01	0.01	0.01	0.01	0.01
CEO Related						
CEO Overconfidence	0.27	0.21	0.26	0.21	0.24**	0.20*
CEO conservatism	0.49	0.00	0.41	0.00	0.59***	1.00***
CEO Age	56.09	56.00	56.04	56.00	56.14	56.00
CEO Gender	0.97	1.00	0.96	1.00	0.97	1.00
CEO Share ownership	5.96	5.83	5.93	5.84	5.98	5.82
CEO Tenure	5.22	3.80	5.15	3.80	5.29	3.80
CEO Duality	0.71	1.00	0.72	1.00	0.70**	1.00
Equity-linked Compensation	0.47	0.53	0.48	0.53	0.47	0.52*
Outside Directors	0.80	0.83	0.80	0.85	0.79***	0.83**
Repurchase Related						
Announcement Indicator	0.17	0.00	0.19	0.01	0.15***	0.00***
Announcement Amount	0.03	0.00	0.03	0.01	0.02**	0.00**
Actual repurchase Indicator	0.72	1.00	0.71	1.00	0.74***	1.20***
Actual repurchase Amount	0.04	0.02	0.04	0.01	0.04**	0.02**

Table 2.2: Share Repurchase Announcement and CEO Narcissism

The table reports the logit and tobit regression results of the effect of CEO narcissism on the likelihood of share repurchase announcement and the dollar amount of shares announced. All dependent and independent variables are defined in the appendix. The models include both year and Fama-French (1997) 48 industry fixed effects. The t-statistics reported in parentheses are based on standard errors, clustered by firm. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Dependent Variable	Announcement Indicator (1)	Announcement Amount (2)	Announcement Indicator (3)	Announcement Amount (4)
CEO Narcissism Score	0.550***	0.080***		
	(2.98)	(3.08)		
High CEO Narcissism Dummy			0.397***	0.052***
			(3.65)	(3.43)
CEO Age	-0.016**	-0.003**	-0.016**	-0.002**
	(-2.46)	(-2.05)	(-2.49)	(-2.05)
CEO Gender	0.392*	0.021	0.406*	0.020
	(1.71)	(0.43)	(1.69)	(0.52)
CEO Share Ownership	0.011	0.003	0.009	0.003
	(0.31)	(0.66)	(0.27)	(0.59)
CEO Tenure	-0.016	-0.003	-0.017	-0.004*
	(-0.98)	(-1.59)	(-1.05)	(-1.68)
CEO Duality	-0.038	-0.007	-0.034	-0.006
	(-0.32)	(-0.40)	(-0.29)	(-0.34)
CEO Equity Compensation	-0.106	-0.017	-0.104	-0.018
	(-0.81)	(-0.92)	(-0.81)	(-1.00)
Outside Directors	2.481***	0.372***	2.485***	0.373***
	(3.84)	(3.80)	(3.84)	(3.82)
Past repurchaser	0.640***	0.088***	0.629***	0.086***
	(5.38)	(4.94)	(5.31)	(4.88)
Return on Asset	4.380***	0.884***	4.389***	0.878***
	(3.33)	(4.61)	(3.36)	(4.60)
Firm Size	0.122**	0.014*	0.123**	00.014*
	(2.41)	(1.91)	(1.99)	(3.17)
Reseach Development	3.847**	0.864***	3.859**	0.872***
	(2.02)	(2.91)	(2.06)	(2.99)
Market to Book	-0.302***	-0.033***	-0.299***	-0.033***
	(-3.71)	(-3.26)	(-4.66)	(-3.20)
Capital Expenditure	2.360	0.173	2.044	0.134
	(1.40)	(0.70)	(1.22)	(0.54)
Dividend Payout	-0.239**	-0.041***	-0.248***	-0.042***
	(-2.53)	(-2.68)	(-2.66)	(-2.79)
Cashflow Volatility	-4.726**	-0.528*	-4.841**	-0.544*
	(-2.23)	(-1.66)	(-2.30)	(-1.72)
Cash flow	2.475*	0.257	2.386*	0.246
	(1.77)	(1.27)	(1.71)	(1.23)
Slack	1.115**	0.187**	1.035**	0.176**
	(2.17)	(2.53)	(2.03)	(2.39)
Book Leverage	-0.638*	-0.081*	-0.655*	-0.083*
	(-1.80)	(-1.78)	(-1.88)	(-1.87)
Lag Stock Return	-2.715	-0.604*	-2.726	-0.604*
	(-1.44)	(-1.88)	(-1.45)	(-1.88)
Observation	4616	4653	4616	4653
R-Square	0.099	0.159	0.101	0.161

Table 2.3: Panel A - Exogenous CEO turnover events

Panel A presents estimates from the Difference-in-Difference (DID) regressions of the association between CEO Narcissism and Share repurchase announcements around CEO turnover events (-3, +3). For each CEO turnover occurring in year t, we classify firm-year observation into per [t-3, t-1] and post [t+1, t+3] turnover period. The Post variable takes the value of one in [t+1, t+3] and zero in [t-3, t-1]. Nas_{Coming} (Nas_{Going}) is a dummy variable equal to one for firm-year observations where the replacement CEO has a narcissism score greater (lower) than the departing CEO and zero otherwise. The interaction term of the Nas_{Coming} (Nas_{Going}) and Post dummy is my variable of interest. The dependent variable is Repurchase Indicator (Announcement Amount) in columns 1&2 (3&4). All control variables are defined in Appendix. t-statistics are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Dependent Variable	Announcement Indicator (1)	Announcement Indicator (2)	Announcement Amount (3)	Announcement Amount (4)
$Nas_{Coming} \times After$	0.204**	0.038*		
	(2.61)	(1.75)		
$Nas_{Going} \times After$			-0.203**	-0.040*
			(-2.57)	(-1.76)
Controls	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes
Observation	579	579	579	579
R-Square	0.122	0.140	0.122	0.140

Panel B - Evidence from Exogenous CEO Turnover - Callaway and Sant'Anna (2021)

Panel B report Difference-in-difference estimates of the effect of CEO narcissism on share repurchase announcement. We use Callaway and Sant'Anna (2021) difference-in-differences estimator. The variable NasComing (NasGoing) is a treatment cohort variable equal to one for firm-year observation where there is an exogenous increase (decrease) in CEO Narcissism and zero otherwise. The control cohort is firms that have never received any exogenous change in CEO narcissism. The interaction NasComing x post or NasGoing x post captures the average difference in the change in corporate share repurchase announcement between those receiving exogenous change in CEO Narcissism and those in the control sample after the treated firms experience an exogenous change in CEO narcissism. Standard errors clustered by the firm with t-statistics are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	Announcement Indicator (1)	Announcement Amount (2)	Announcement Indicator (3)	Announcement Amount (4)
$Nas_{Coming} \times After$	0.125***	0.035***		
	(3.07)	(2.84)		
$Nas_{Going} \times After$			0.030	0.020
			(-0.76)	(0.22)
Observation	2,412	2,411	2,428	2,428
Pretrend Test	Chi= 32.91	Chi= 41.61	Chi= 54.39	Chi= 51.84
(p-value)	0.16	0.03	0.00	0.00

Table 2.4: Actual Share Repurchase and CEO Narcissism

table reports the logit and tobit regression results of the effect of CEO narcissism on the likelihood of actual share repurchase and the dollar amount of actual shares repurchased. All dependent and independent variables are defined in the appendix. The models include year and Fama-French (1997) 48 industry fixed effects. The t-statistics reported in parentheses are based on standard errors, clustered by firm. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Dependent Variable	Actual Indicator (1)	Actual Amount (2)	Actual Indicator (3)	Actual Amount (4)
Narcissism Score	-0.674**	-0.012**		
	(-2.45)	(-2.32)		
High Narcissistic Dummy			-0.366**	-0.005*
			(-2.41)	(-1.67)
CEO Age	-0.004	-0.000	-0.005	-0.000
	(-0.33)	(-1.16)	(-0.38)	(-1.17)
CEO Gender	0.550	0.015**	0.537	0.015**
	(1.50)	(2.03)	(1.50)	(2.02)
CEO Share ownership	-0.057	-0.002	-0.054	-0.002
	(-1.20)	(-1.46)	(-1.13)	(-1.36)
CEO Tenure	-0.019	-0.000	-0.017	-0.000
	(-1.11)	(-0.03)	(-1.02)	(-0.02)
CEO Duality	0.384**	0.008**	0.387**	0.008*
	(2.43)	(1.98)	(2.42)	(1.94)
CEO Equity linked Compensation	-0.118	0.002	-0.108	0.002
	(-0.86)	(0.76)	(-0.76)	(0.81)
Outside Directors	1.775**	0.056***	1.752**	0.055***
	(2.56)	(3.28)	(2.51)	(3.17)
Return on Asset	6.938***	0.355***	6.896***	0.356***
	(4.12)	(8.39)	(4.11)	(8.38)
Firm Size	0.305***	0.003**	0.302***	0.003**
	(4.32)	(2.25)	(4.24)	(2.19)
Research and Development	-2.230	0.225***	-2.114	0.225***
	(-0.88)	(2.67)	(-0.83)	(2.68)
Market to Book	-0.188**	-0.001	-0.192**	-0.001
	(-2.13)	(-0.37)	(-2.18)	(-0.39)
Capital Expenditure	-4.331**	-0.205***	-4.140*	-0.204***
	(-2.04)	(-4.40)	(-1.95)	(-4.39)
Cash Dividend payout	-0.128	-0.007***	-0.119	-0.007***
	(-1.51)	(-3.49)	(-1.43)	(-3.51)
Cash flow volatility	-4.733***	-0.080*	-4.674***	-0.079
	(-2.67)	(-1.65)	(-2.67)	(-1.64)
Cash flow	2.299*	0.120***	2.454*	0.122***
	(1.70)	(3.14)	(1.82)	(3.20)
Slack	1.616**	0.032	1.639**	0.033*
	(2.31)	(1.62)	(2.36)	(1.67)
Book Leverage	-0.905*	0.014	-0.898*	0.014
	(-1.83)	(1.06)	(-1.83)	(1.09)
Stock Return	-1.605	-0.125***	-1.684	-0.128***
	(-1.12)	(-2.91)	(-1.17)	(-2.97)
Con	-3.216***	-0.105***	-3.432***	-0.111***
	(-2.68)	(-4.23)	(-2.94)	(-4.53)
Observation	4646	4653	4646	4653
R-Square	0.233	0.379	0.233	0.378

Table 2.5: CEO Narcissism and the Cashflow Sensitivity of Cash

The table reports the regression results of the relationship between CEO Narcissism and cashflow sensitivity of cash. All dependent and independent variables are described in the appendix. The models include year and Fama-French (1997) 48 industry fixed effects. The t-statistics reported in parentheses are based on standard errors, clustered by firm. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Dependent Variable	Narcissist Sample		Other Sample	
	ΔCash Holding	ΔCash Holding	ΔCash Holding	ΔCash Holding
	(1)	(2)	(3)	(4)
Cashflow	0.101*	0.165**	-0.012	0.022
	(1.97)	(2.09)	(-0.18)	(0.28)
CEO Age	0.000**	-0.000	0.000	-0.000
	(2.57)	(-0.19)	(0.47)	(-1.01)
CEO Gender	0.000	0.013	-0.012**	-0.012*
	(0.01)	(1.31)	(-2.31)	(-1.85)
CEO Share ownership	0.000	0.000	-0.001	-0.002
	(0.58)	(0.04)	(-1.14)	(-1.38)
CEO Tenure	-0.000	0.000	-0.000	0.000
	(-1.27)	(0.52)	(-0.29)	(0.43)
CEO Duality	-0.002	-0.002	-0.004**	-0.004
	(-1.16)	(-0.44)	(-1.97)	(-1.14)
CEO Equity linked Compensation	-0.003	-0.003	-0.002	0.001
	(-1.13)	(-0.75)	(-0.66)	(0.23)
Outside Directors	-0.010	-0.037**	-0.006	-0.001
	(-1.09)	(-2.13)	(-0.75)	(-0.07)
Return on Asset	-0.085*	-0.120	0.010	-0.017
	(-1.75)	(-1.61)	(0.16)	(-0.22)
Firm Size	-0.001	-0.007**	0.000	-0.008*
	(-1.58)	(-2.05)	(0.12)	(-1.94)
Research and Development	-0.018	-0.193*	-0.065	-0.136
	(-0.62)	(-1.82)	(-1.44)	(-0.71)
Market to Book	0.000	0.000	0.003**	0.004*
	(0.29)	(0.21)	(1.99)	(1.83)
Capital Expenditure	-0.114***	-0.338***	-0.112***	-0.322***
	(-3.27)	(-4.89)	(-2.99)	(-4.09)
Cash Dividend	-0.002	-0.003	-0.006**	-0.008**
	(-1.28)	(-1.57)	(-2.29)	(-2.48)
Book Leverage	0.002	-0.011	-0.002	-0.005
	(0.48)	(-0.81)	(-0.30)	(-0.30)
Cons	0.007	0.095***	0.010	0.116***
	(0.50)	(2.71)	(0.72)	(2.85)
Year Fixed Effect	Yes	Yes	Yes	Yes
Industry Fixed Effect	Yes	No	Yes	No
Firm Fixed Effect	No	Yes	No	Yes
Observation	2731	2731	2742	2742
R-sq	0.046	0.060	0.068	0.076

Table 2.6: Short -term excess return of repurchase announcement

The table present the short-term average cumulative abnormal return around repurchase announcements for various even windows before and after the announcement for the narcissist and other CEO samples. We compute the Fama and French three-factor model betas using 60 days before day -10 from the repurchase announcement. We then estimate the CAR using these betas and the daily returns for the window period around the announcement. *, **, *** denotes statistical significance at 10%, 5% and 1% respectively.

	Narcissist CEO Sample		**Other CEO Sample**	
	(1)	(2)	(3)	(4)
Days	**Cum. Average Return**	**t-statistics**	**Cum. Average Return**	**t-statistics**
Day (-10, -1)	-0.66%	-1.51	-0.20%	-1.75*
Day (0, +1)	1.26%	9.83***	1.48%	8.07***
Day (-1, +5)	1.38%	6.50***	1.66%	6.02***
Day (0, +10)	1.33%	6.28***	1.68%	5.42***

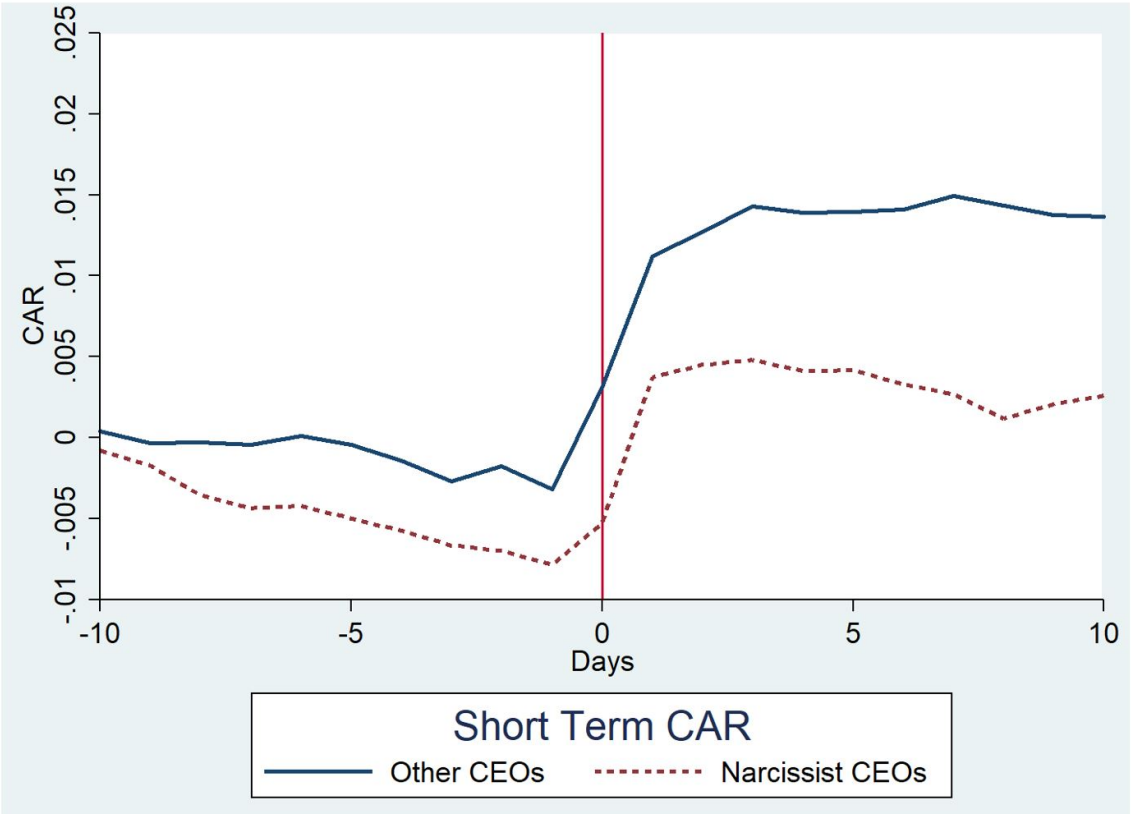

Figure 2.1: *Short-term average Cumulative return*

Table 2.7: Short term excess return and CEO narcissism

The Table presents the cross-section regression of the relationship between CEO narcissism and the short-term excess returns of repurchase announcements. All dependent and independent variables are defined in the appendix. The models include both year and Fama-French (1997) 48 industry fixed effects. The t-statistics reported in parentheses are based on standard errors, clustered by firm. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Dependent Variable	CAR Days (0, +1)	CAR Days (-1, +5)	CAR Days (0, +10)
	(1)	(2)	(3)
CEO Narcissism	-0.011*	-0.015*	-0.015*
	(-1.66)	(-1.70)	(-1.67)
CEO Age	-0.000	-0.000	-0.001
	(-0.36)	(-0.78)	(-1.07)
CEO Gender	0.011	0.011	0.011
	(1.44)	(1.39)	(1.13)
CEO Share ownership	-0.004***	-0.005***	-0.002
	(-2.82)	(-2.86)	(-1.19)
CEO Tenure	0.000	0.001	0.000
	(1.19)	(1.05)	(0.46)
CEO Duality	0.003	0.009*	0.004
	(0.73)	(1.66)	(0.67)
Equity-linked Compensation	-0.004	-0.001	-0.009
	(-0.76)	(-0.19)	(-1.20)
Outside Directors	-0.005	-0.013	0.015
	(-0.24)	(-0.48)	(0.53)
Profitability	-0.097	-0.035	-0.060
	(-1.37)	(-0.32)	(-0.56)
Firm Size	-0.001	-0.001	-0.003
	(-0.55)	(-0.33)	(-1.05)
Research and Development	0.130**	0.241***	0.164*
	(1.98)	(2.75)	(1.67)
Market to Book	0.002	-0.001	-0.004
	(0.83)	(-0.29)	(-0.98)
Capital Expenditure	0.007	0.095	-0.015
	(0.10)	(0.72)	(-0.12)
Cash Dividend payout	0.001	0.004	0.002
	(0.15)	(0.45)	(0.21)
Cash flow volatility	0.044	0.055	0.171
	(0.62)	(0.45)	(1.45)
Cash flow	0.088	0.064	0.109
	(0.99)	(0.36)	(0.72)
Slack	-0.015	-0.023	-0.008
	(-0.84)	(-0.83)	(-0.30)
Book Leverage	-0.010	-0.008	-0.008
	(-0.81)	(-0.45)	(-0.46)
Cons	0.002	-0.012	-0.072*
	(0.05)	(-0.32)	(-1.66)
Year Fixed Effects	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes
Observation	1000	1000	1000
R-square	0.098	0.095	0.102

Table 2.8: CEO Narcissism and Stock Return

The table reports the regression of the relationship between repurchase announcements and CEO narcissism of negative and positive prior-year return firms. All models include industry and year-fixed effects and are clustered by firm. Detailed variable definitions are indicated in the appendix. Statistical significance at the 1%, 5% and 10% is denoted by ***, ** and * respectively with t-statistics in parenthesis.

Dependent Variable	**Negative Return**		**Positive Return**	
	Announcement Indicator	Announcement Amount	Announcement Indicator	Announcement Amount
	(1)	(2)	(3)	(4)
CEO Narcissism score	0.497	0.066***	0.648***	0.086***
	(1.36)	(4.26)	(2.93)	(2.86)
CEO Age	0.001	0.002***	-0.026***	-0.004**
	(0.04)	(12.33)	(-2.64)	(-2.52)
CEO Gender	0.360	-0.027**	0.340	0.016
	(0.61)	(-2.36)	(1.36)	(0.39)
CEO Share Ownership	-0.052	-0.014***	-0.028	-0.002
	(-0.81)	(-8.19)	(-0.74)	(-0.36)
CEO Tenure	-0.007	-0.002**	0.001	-0.001
	(-0.29)	(-2.23)	(0.06)	(-0.32)
CEO Duality	0.168	0.032***	-0.117	-0.016
	(0.78)	(3.30)	(-0.94)	(-0.88)
CEO Compensation (Equity)	-0.136	-0.023**	-0.056	-0.011
	(-0.69)	(-2.52)	(-0.37)	(-0.53)
Outside Directors	1.156	0.169***	1.950***	0.288***
	(1.09)	(12.30)	(3.02)	(3.10)
Return on Asset	3.758*	0.878***	4.895***	0.936***
	(1.94)	(15.93)	(2.88)	(3.96)
Firm Size	0.035	0.001	0.152***	0.021**
	(0.42)	(1.14)	(2.58)	(2.57)
Research and Dev.	2.843	0.827***	4.130**	0.876***
	(0.96)	(7.88)	(2.01)	(2.90)
Growth	-0.245**	-0.037***	-0.323***	-0.032***
	(-2.25)	(-8.47)	(-4.00)	(-2.73)
Capital Expenditure	5.343	0.680***	2.086	0.061
	(1.57)	(5.68)	(1.09)	(0.24)
Dividend	-0.271**	-0.043***	-0.255**	-0.035**
	(-2.04)	(-9.88)	(-2.27)	(-2.21)
Cash flow volatility	-5.720	-0.775***	-3.429	-0.368
	(-1.11)	(-5.04)	(-1.38)	(-0.96)
Cash Flow	2.338	0.247***	2.229	0.224
	(1.03)	(4.39)	(1.21)	(0.83)
Slack	1.155	0.212***	1.227**	0.195**
	(1.31)	(5.76)	(2.06)	(2.28)
Leverage	-1.595**	-0.201***	-0.302	-0.035
	(-2.27)	(-8.33)	(-0.74)	(-0.68)
Stock Return	10.477*	1.093***	-4.740**	-0.523
	(1.66)	(4.21)	(-1.99)	(-1.48)
Cons	-3.353*	-2.248***	-1.449	-0.466***
	(-1.79)	(-194.98)	(-1.44)	(-3.25)
Observation	1282	1358	3268	3295
R-square	0.157	0.262	0.097	0.154

Table 2.9: Narcissistic CEO Power and Share repurchase Announcement

The table reports the regression results of the impact of CEO power on narcissist likelihood of share repurchase announcement. All dependent and independent variables are defined in the appendix. The models include both year and Fama-French (1997) 48 industry fixed effects. The t-statistics reported in parentheses are based on standard errors, clustered by firm. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Dependent Variable	Announcement Indicator	Announcement Amount
	(1)	(2)
CEO Narcissism Score	-0.041	-0.015
	(-0.12)	(-0.30)
CEO Duality	-0.498**	-0.075**
	(-2.24)	(-2.28)
CEO Narcissism $\times CEODuality$	0.925**	0.148**
	(2.21)	(2.42)
CEO Age	-0.018*	-0.002
	(-1.93)	(-1.56)
CEO Gender	0.335	0.010
	(1.31)	(0.22)
CEO Share ownership	-0.030	-0.004
	(-0.86)	(-0.77)
CEO Tenure	-0.002	-0.001
	(-0.11)	(-0.64)
Equity linked Compensation	-0.090	-0.015
	(-0.75)	(-0.84)
Outside Directors	1.806***	0.261***
	(3.19)	(3.10)
Return on Asset	4.636***	0.922***
	(3.45)	(4.72)
Firm Size	0.130**	0.015*
	(2.38)	(1.95)
Research and Development	3.853**	0.880***
	(2.10)	(3.14)
Market to Book	-0.317***	-0.035***
	(-4.56)	(-3.31)
Capital Expenditure	2.524	0.203
	(1.40)	(0.77)
Cash Dividend payout	-0.222***	-0.035***
	(-2.76)	(-2.78)
Cash flow volatility	-4.927**	-0.557*
	(-2.28)	(-1.73)
Cash flow	2.743**	0.294
	(2.02)	(1.46)
Slack	1.152**	0.196**
	(2.11)	(2.50)
Book Leverage	-0.659*	-0.081
	(-1.68)	(-1.61)
Stock Return	-0.560	-0.248
	(-0.34)	(-0.87)
Con	-2.908***	-0.556***
	(-3.19)	(-4.13)
Observation	4616	4653
R-Square	0.101	0.157

Table 2.10: Propensity Score Matching

Panel A presents the mean difference and t-statistics of each of the control variables used in the analysis for both the unmatched and matched samples. for each control variable, we present the difference in means for the narcissist and other samples. Columns 1&2 (3&4) report mean difference statistics for the unmatched (matched) sample. Panel B reports regression results using the matched sample. All dependent and independent variables are defined in the appendix. t-statistics are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Narcissistic CEOs andotherCEOs Mean Difference

	Unmatched Sample		Matched Sample	
Variables	Mean Diff	t-stat	Mean Diff	t-stat
Return on Asset	-0.009***	-2.652	0.000	0.312
Firm Size	0.179***	4.467	-0.072	-0.083
Research and Development	0.003***	2.121	0.001	0.316
Market to Book	0.001	0.029	0.039	0.942
Capital Expenditure	0.000	0.100	0.000	0.273
Cash Dividend payout	0.000	0.006	-0.006	-0.283
Cash flow	-0.006**	-2.516	0.000	0.053
Slack	0.003	0.646	0.002	0.471
Book Leverage	0.016***	2.943	-0.004	0.776
CEO Age	-0.115	-0.626	0.055	0.278
Gender	-0.001	-0.197	0.002	0.387
CEO Share ownership	-0.134***	-2.693	0.018	0.335
CEO Tenure	-0.179	-1.263	0.083	0.541
Duality	0.037	2.642	-0.018	1.165
Equity-linked Compensation	0.017	1.218	-0.001	0.039
Outside Directors	0.011***	3.68	-0.004	1.274
Observation				
Full Sample		4186	3626	
Narcissist Sample		2108	1813	
Rational Sample		2078	1813	

Panel B: Regression with a matched sample

Variables	Announcement Indicator (1)	Announcement Amount (2)	Actual Indicator (3)	Actual Amount (4)
CEO Narcissism	0.596**	0.093***	-0.489*	-0.010*
	(2.57)	(2.87)	(-1.71)	(-1.75)
Controls	Yes	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes
Industry Fixed Effect	Yes	Yes	Yes	Yes
Observation	3217	3247	3195	3247
R-sq	0.105	0.166	0.261	0.411

Table 2.11: Firm Fixed Effects

The table reports the firm fixed effects panel regression results of the effect of CEO narcissism on the likelihood of share repurchase announcement and the dollar amount of shares announced. All dependent and independent variables are defined in the appendix. The models include both year and firm fixed effects. The t-statistics reported in parentheses are based on standard errors clustered by firm. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Dependent Variable	Announcement Indicator (1)	Announcement Amount (2)	Actual Indicator (3)	Actual Amount (4)
CEO Narcissism Score	0.091*	0.011	-0.105*	-0.008*
	(1.66)	(0.92)	(-1.71)	(-1.83)
Controls	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes
Observation	1854	1854	1854	1854
R-Square	0.059	0.043	0.125	0.241

Table 2.12: Controlling for other CEO Traits

The table reports the baseline regression after controlling for CEO Overconfidence. All Firm and CEO-related variables are described in the appendix. The models include both year and industry-fixed effects. The t-statistics reported in parentheses are based on standard errors clustered by firm. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Dependent Variable	Announcement Indicator	Announcement Amount	Actual Indicator	Actual Amount
CEO Narcissism	0.601***	0.088***	-0.58**	-0.013**
	(2.98)	(3.17)	(-2.09)	(-2.35)
CEO Overconfidence	0.137	0.02	0.266	-0.007
	(0.81)	(0.87)	(0.92)	(-1.17)
CEO Conservatism	0.027	0.002	0.237*	-0.001
	(0.25)	(0.15)	(1.67)	(-0.13)
CEO Related Control variables	Yes	Yes	Yes	Yes
Firm Related Control Variables	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Observation	4614	4651	4614	4651
R-square	0.100	0.156	0.099	0.154

Table 2.13: Alternative Measure of Narcissism

The table report regression results using another measure of Narcissism (CEO Pronoun Usage). All dependent and independent variables are described in the appendix. The t-statistics reported in parentheses are based on standard errors, clustered by firm. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Dependent Variable	Announcement Indicator	Announcement Amount
	(1)	(2)
CEO Narcissism Score (Pronouns)	0.278***	0.039**
	(2.62)	(2.39)
CEO Age	-0.020*	-0.002
	(-1.91)	(-1.24)
CEO Gender	0.154	-0.019
	(0.64)	(-0.38)
CEO Share ownership	-0.053	-0.008
	(-1.31)	(-1.22)
CEO Tenure	-0.008	-0.002
	(-0.38)	(-0.78)
CEO Duality	-0.107	-0.011
	(-0.85)	(-0.59)
CEO Compensation (Equity)	-0.083	-0.014
	(-0.57)	(-0.69)
Outside Directors	2.244***	0.296***
	(3.45)	(2.86)
Return on Asset	3.660**	0.776***
	(2.39)	(3.47)
Firm Size	0.175***	0.021**
	(2.86)	(2.33)
Research and Development	4.384**	0.966***
	(2.19)	(3.06)
Market to Book	-0.295***	-0.031**
	(-3.75)	(-2.57)
Capital Expenditure	1.617	0.101
	(0.79)	(0.33)
Cash Dividend payout	-0.189*	-0.030*
	(-1.94)	(-1.95)
Cash flow volatility	-4.950**	-0.587
	(-2.08)	(-1.63)
Cash flow	3.538**	0.405*
	(2.29)	(1.70)
Slack	0.820	0.156*
	(1.31)	(1.71)
Book Leverage	-0.715	-0.080
	(-1.58)	(-1.37)
Stock Return	-1.495	-0.411
	(-0.81)	(-1.31)
Con	-2.864***	-0.553***
	(-2.83)	(-3.53)
Observation	3636	3676
R-square	0.1092	0.1614

Chapter 3

CEO Narcissism and Employee Defined Benefit Pension Plan

3.1 Introduction

Employer-sponsored pension plans can take many forms but broadly can be divided into two main categories: defined-contribution (DC) plans, where the firm pays cash into a scheme and is thereafter absolved from further responsibility, and defined benefit (DB) plans, where the employer commits to meeting the future payments due to the employees when they retire. To ensure that sponsoring firms are able to meet such future commitments, they are required to set aside sufficient assets in funds distinct from the firm to meet this pension obligation in future when they fall due. If the DB fund turns out to be insufficient, the sponsoring firm will be liable to make good the deficit. In recent years, there has been a shift in America's pension plans because of a recognition of the onerous nature of DB commitments. While some employees are still covered under the traditional DB pension plans, there has been a significant shift towards DC plans.

The Bureau of Labour Statistics reports that 65% of private employees have access to a DC plan (Labor, 2021). Likewise, more than 40% of publicly-traded sponsors included on Compustat database have terminated their DB plan as of 2020. Notwithstanding the growth in the DC plan, the DB plan remains a major legacy obligation for many firms. As of 2017, approximately 24,000 DB pension plans in the United States still covered over 40 million workers and retirees (PBGC, 2017). Dimitrova (2015) reports that in 2013 publicly traded sponsors had over $5 trillion in DB plan liabilities amounting to approximately 28% of their financial liabilities on average. Further, the US Department of labour in 2019 reported that there were 32 million active participants in DB plans. These plans' aggregate asset value amounted to 3.6 trillion dollars, providing benefits to about 59% of the US retirement population (Labor, 2021). These summary facts highlight that DB pension plans continue to play a key role in the US economy despite employers' increasing use of DC pension plans in recent years.

The nature of DB plan funding and the associated accounting requirements makes it a very important setting for this study. Unlike a DC plan, a DB plan stipulates the specific benefit that will be paid to the employee on retirement based on the length of service and salary. Under current accounting standards, a contribution by a firm to the DB is a simple cash transfer into the net DB plan asset and does not affect the current reported earnings of the firm. To reduce any incentives a firm may have to underfund its DB pension commitments, the US Congress enacted the Employment Retirement Income Security Act (ERISA) in 1974, which led to the establishment of the Pension Benefit Guaranty Corporation (PBGC)[1] and other ERISA provisions that target firms that are highly at risk of DB pension plan default. More specifically,

[1]Congress set up the PBGC to insure all American DB plans covering over 33 million Americans in private sector jobs. Both single- and multi-employer plans are insured by the PBGC. In the event that a company is declared bankrupt and there are insufficient funds to settle the obligations of their DB plan, the PBGC will provide retirement benefits to the participants of the plan, commitments that are funded firms being required to pay annual premiums to the PBGC.

the PBGC by law requires employers to hold assets of at least 90% of their estimated future pension obligation in the pension fund[2]; but they are under no obligation to ensure their DB plans are 100% fully funded. As a result, the nature of DB pension plan accounting and legal requirements gives CEOs some latitude to decide when and how to fund their pension.

The important studies by Bergstresser and Philippon (2006) and Begley et al. (2015) excepted, little research has been carried out to date on how CEOs can influence the DB plan funding decisions of their firms despite there being considerable evidence that CEO characteristics can have important effects on firm decisions[3]. The upper echelons theory suggests that firm executives' decisions are influenced by their personalities, values, limited cognitive mind, experience, and available information (Chatterjee and Hambrick, 2007). Likewise, apart from the executives' self-interest, ambitions, confidence levels, pride, arrogance, and overestimated abilities, it has been found that their narcissism also plays a role in their decision-making (Hayward and Hambrick, 1997). In line with this, executives are likely to make irrational decisions based on their inherent characteristics. The present study focuses on one key executive in the firm, the CEO. As CEOs hold a key position in the firm that dominates and disproportionately influences firm activities (Finkelstein and Hambrick, 1996), they are key individuals in setting and guiding strategic direction (Calori et al., 1994). Thus, the CEO's personality can have a major influence on the strategic decisions of the firm (Peterson et al., 2003) and the success of the firm. Nadkarni and Herrmann (2010) reports that firms have a higher DB funding level when CEOs have a personal stake in such pensions. Combined, CEOs play a key role in the funding decisions of the employees' DB pension plans.

This study focuses on an important question that the literature has left

[2]For details of PBGC rule 2013-07664 see: https://uk.practicallaw.thomsonreuters.com/4-525-5452

[3]For literature on CEO characteristics and firm decisions, see:(Cragun et al., 2020; Hambrick and Mason, 1984; Ham et al., 2018; Aktas et al., 2016; Olsen and Stekelberg, 2016; Campbell et al., 2011; Deshmukh et al., 2013; Humphery-Jenner et al., 2016)

unanswered – *do CEO personality trait influence their DB pension plan funding decisions? In particular, are there some traits of CEOs that make them underfund their DB pension plans more than other CEOs?* The study addresses this critical question by focusing on *CEO narcissism*. Kernberg (1967) finds narcissists to exhibit characteristics like grandiose imaginations, self-importance, over-dependence, cleverness, egoism, dominance, ambition, lack of empathy and constant need for supremacy. Ham et al. (2018) find that CEO narcissism relates to many adverse outcomes. They overinvest, especially in mergers and acquisitions and research and development expenditures. Likewise, Boamah (2022) find narcissist CEOs to promise more but fail to deliver what they promise. Following the same behavioural implication, I argue that the narcissism of a CEO can be a crucial variable affecting a DB plan's funding level and the management of its deficit. I study the speed of adjusting the DB plan funding to the fully funded level. This study focuses on what narcissist CEOs do when they deviate from the fully funded level of their firms' DB pension plans.

Following measures of CEO narcissism used in existing literature (Aktas et al., 2016; Chatterjee and Hambrick, 2007; Ham et al., 2018), I measure CEO narcissism using signature size, pronoun usage and the Chatterjee Hambrick indicator measures[4]. The study uses a sample of 5,803 firm-year observations of SP500 firms from 2000 to 2018 for 408 unique firms and 852 unique CEOs. First, I examine the impact of CEO narcissism on the speed of adjusting the DB funding status to the fully funded (100%) level. I find the speed of adjusting DB funding status to the fully funded level is slower for firms with narcissistic CEOs. The coefficients imply that it would take an additional eighteen months for firms with narcissist CEOs to adjust their employees' DB

[4]Chatterjee and Hambrick (2007) use five indicator measures: (1) the prominence of the CEO's photograph in the company's annual report; (2) the CEO's prominence in the company's press releases; (3) the CEO's use of first-person singular pronouns in interviews; (4) the CEO's cash compensation divided by that of the second-highest paid executive in the firm; and (5) the CEO's non-cash compensation divided by that of the second highest-paid executive in the firm.

plan to the fully funded level compared to rational CEOs. This is equivalent to a $950 million reduction in DB funding on average. The adjustment speed to the fully funded level may also be influenced by the inclusion of overfunded DB plan in the sample. Therefore, I control for these surplus funded employees' DB pensions and find similar results, which indicates that overfunded pensions do not drive my results. This indicates that narcissist CEOs are more likely to shift risk to employees and the PBGC by underfunding their DB plan and using such cash flow to their benefit through increasing their compensation and overinvesting (Chaudhry et al., 2017).

A potential confounding factor is that the appointment of CEOs can be endogenous: if narcissist CEO-managed firms are different to other firms, then it may not be sufficient simply to include CEO-related control variables; the baseline results could be biased and maybe picking up some non-linear effects if the narcissism of a CEO is endogenous to some firm- and CEO CEO-related characteristics. To address this possibility, I use propensity score matching and firm fixed effects control to mitigate endogeneity (Shipman et al., 2017). I consider narcissist CEO-managed firms as a treated group and firms managed by non-narcissist CEOs as the control group. Following Drucker and Puri (2005); Hainmueller and Xu (2013), I match the treated group (narcissist-managed firms) with the control group (other firms) using the nearest neighbour propensity score and entropy balance matching method. With these changes, I run my baseline regressions and find qualitatively similar results which support my hypothesis that narcissist CEOs reduce the adjustment speed of their employee DB pension plan to a fully funded level. Also, controlling for firm fixed effects, i find qualitative similar results.

Further, despite the continuing use of earnings and stock returns as a measure of CEO performance, recent studies have indicated the growing use of operating cash flows as a way of measuring the performance of CEOs (Cheng and Swenson, 2018). Accordingly, CEO are incentivised to report higher cash

flow from operations to attract higher compensation by delaying pension contributions. Given that firm pension contributions are treated for accounting purposes as a simple transfer of cash flow that has no impact on reported earnings, I examine the impact of CEO narcissism on the management of DB plan deficit when cash flow is used as a metric of CEO compensation. I find the speed of adjusting DB funding status to the fully funded level is slower for narcissist CEO-managed firms when cash flow is a metric of executive compensation such that it takes a narcissist CEO-managed firm an additional one year and nine months on average to revert to the fully funded DB plan level. This implies that narcissistic CEOs are significantly more likely to delay the adjustment of DB plan to the fully funded level in order to personally benefit from higher compensation through reporting higher annual cash flow from operations. Specifically, narcissistic CEOs are more likely to use the benefits of internal cash flow through delaying DB plan funding rather than the costly external financing.

Changes in tax policies regarding the deductibility of pension contributions provide another setting in which I can explore the effects of CEO narcissism on DB funding. Gaertner et al. (2020) report that the Tax Cut Job Acts (TCJA) of 2017 incentivises firms to increase their DB pension funding status by increasing contributions in 2017 in order to take advantage of a higher tax deduction rate. In line with this, I test whether firms run by narcissist CEOs take advantage of this window to increase their funding level and thereby enjoy greater tax deductions than those of non-narcissistic CEOs. Following the announcement of the reduction in the corporate tax rate, I find narcissist CEOs taking more advantage of the change to increase their employee DB funding compared to other CEOs. More importantly, I find narcissists increasing the adjustment speed of their employee DB funding status higher than the rate at which they reduced it in years where there was no change in the tax rate. The results confirm the main findings that the speed of adjustment of DB pension

funding status is influenced by CEO narcissism and therefore narcissist CEOs manage their DB plans differently from other CEOs.

A firm's governance structure appears to influence the activities of narcissistic CEOs (Boamah, 2022). Li and Tang (2010) finds a positive relationship between CEO hubris and risk-taking, especially when the CEO has greater managerial discretion. Consistent with this research, I find the delay in the adjustment speed by narcissist CEOs more pronounced in poorly governed firms.

Finally, I conduct a battery of robustness tests to check the validity of this results. First, I rerun the baseline analysis using alternative measures of CEO narcissism. Second, I use different levels (90% and 80%) as the target funding status rather than the 100% used in the baseline analysis. Further, I control for CEO overconfidence and conservatism which can affect the narcissism measure. All these supplementary tests yield qualitatively similar findings to the ones I tabulate in the paper.

This study provides strong evidence that CEO narcissism reduces the speed at which firms adjust DB plan contributions to the fully funded level. By doing so, this paper contributes to at least three streams of literature. First, the study contributes to the literature on DB pension plans. Although there have been several research on employees' DB pensions, the introduction of the speed of adjustment in DB pension funding is novel. Second, this study adds to the behavioural finance literature. There has been a growing body of research on the importance of CEO biases, such as narcissism, on corporate decisions (Cragun et al., 2020; Hambrick and Mason, 1984; Ham et al., 2018; Aktas et al., 2016; Olsen and Stekelberg, 2016; Campbell et al., 2011; Deshmukh et al., 2013; Humphery-Jenner et al., 2016). In particular, this study complements the existing literature by introducing an additional motive for the underfunding of DB pension plans: *CEO narcissism*. Finally, the paper makes some indirect

contributions to the corporate governance literature. I find support for the Li and Tang (2010) study that finds that poor governance escalates the impact of CEO discretion in firms. I demonstrate this by showing that the delay in DB pension plan funding by narcissist CEOs is greater in poorly governed firms.

The results of this study have important implications for policymakers and managers. As firm CEOs are key decision-makers, their psychological traits (narcissism) are essential for the firm's decisions. Although research has associated CEO narcissism with authority, self-reliance and supremacy that can foster leadership effectiveness, promote company performance, and be attractive to loyal employees (Hogan and Kaiser, 2005; Maccoby, 2000). However, I find that narcissistic CEOs are likely to act more than non-narcissistic ones in a self-centred manner by underfunding the employees' DB pension plans. Thus, when companies are recruiting CEOs and are considering their psychological traits and capabilities, they might also take into account whether these might play a negative role in the firm's DB pension funding strategies.

The rest of the paper is organised as follows. Section 4.2 discusses the related literature on CEO traits and DB pension plan and develops the hypotheses. Section 4.3 describes how the data are collected, the definition of key variables, and the sample construction procedures followed. Section 4.4 presents empirical analysis and the baseline results of the study. Section 4.5 presents some additional analysis and 4.6 concludes the study.

3.2 CEO Traits, Measurement and Hypotheses

3.2.1 The influence of Firm Executives

Bertrand and Schoar (2003) reports that firm executives influence the decisions of organisations. The type of executives in the organisation influences the strategic choice and performance of an organisation. Theoretically, the influence of firm executives' inherent characteristics on the strategic choices and performance of a firm is rooted in the upper echelon theory. Accordingly, Hambrick and Mason (1984) suggests that executives' perceptions, values, and cognitions reflect in the decisions they make for and on behalf of the organisations they lead.

Hambrick and Mason (1984) find that executives of a firm make decisions based on their personal interpretation of a situation. They base on their experiences, personalities and values to make decisions for the firm. Executives understand information using their subjective perceptions, vision and personal interpretations. The upper-echelon theory builds on the foundation of bounded rationality, implying that executives make decisions based on available information, time and a limited cognitive mind. The upper echelon theory explains that executives are human beings and are prone to mistakes. Carpenter et al. (2004) reports that top executives of a firm make decisions based on their past experiences, present and future aspirations. Executives focus not only on their self-interest but also on their ambitions, confidence, narcissism, pride, arrogance, and overestimated abilities (Hayward and Hambrick, 1997). In line with this, executives are likely to make irrational decisions based on their inherent characteristics. Hence, the personal attributes of executives affect both the rational and irrational choices of a firm.

3.2.2 CEO Narcissism

Narcissism is defined by the American Psychiatric Association's Diagnostic and Statistical Manual for Mental Disorders as a personality trait that combines attention seeking, grandiosity, the need for reinforcement of self-view through self-regulation, unrealistic inflated self-image and a lack of empathy and regard for others (APA, 2013). *Attention seeking* implies that an individual ensures that he/she becomes the focus of attention. *Grandiosity* is the belief that the individual is better than others. *Self-regulation* is the strategies an individual use to manage and shape their self-image. *Unrealistic inflates self-view* is the overinflated, distorted and biased picture of one's self. Finally, a general lack of regard for others refers to a *lack of empathy* toward others and a tendency to exploit situations and persons for personal gain.

The influence of the executive's personality on firm decisions has heightened researchers' interest in the personality of CEOs and how this can affect the fortunes of a firm (Chatterjee and Hambrick, 2007, 2011). Early research by Kernberg (1967) finds narcissists to exhibit characteristics like grandiose imaginations, self-importance, over-dependence, cleverness, egoism, dominance, ambition, lack of empathy and constant need for supremacy.

CEOs are considered incredibly special in an organisation because of the position they hold. Such a position gives them a sense of power and influence which inflate their self-esteem. Considering the status of a CEO in a firm, they are likely to score higher on a narcissism scale compared to an average individual (Chatterjee and Hambrick, 2007).

Other personality traits such as overconfidence have been shown to be related to narcissism (Aktas et al., 2016). Campbell et al. (2011) find a positive correlation between narcissism and overconfidence. Despite some overlapping characteristics between narcissism and overconfidence, overconfidence is a cog-

nitive bias that only relates to a perception of reality, whilst narcissism includes both cognitive bias and behavioural personality trait (Aktas et al., 2016). According to Ham et al. (2018), the constant quest for respect and devotion and the sense of power and willingness to emphasise one's self-interest is the main difference between narcissism and other psychological traits. Empirical support by Bosson et al. (2008) using a betting setting, finds that the poor performance of narcissist individuals is not because of their overconfidence alone but the strong propensity to take more risk.

3.2.3 Measuring CEO Narcissism

Raskin and Hall (1979) developed the Narcissistic Personality Inventory (NPI), which is a psychometric scale for measuring narcissism in individuals. The authors construct a 220-item instrument for measuring narcissism. Using Raskin and Hall (1979) 220-item NPI construct as a base, researchers in the field through the years have reviewed it and eventually reduced it to NPI 16 (Raskin and Terry, 1988). CEO narcissism is measured when a CEO takes an NPI narcissism assessment which is rarely used due to the difficulty to get the CEO to complete a personality test. The NPI is considered the most accurate and direct choice of narcissism measurement in a perfect world. Except for Reina et al. (2014) and Zhang et al. (2017), previous research has indicated that it is challenging to get CEOs to complete the narcissism personality inventory (NPI) since firm executives are likely to be reluctant to take the kinds of personality tests that would ordinarily be used in clinical settings by psychiatrists to determine someone's personality type. However, an unobtrusive measure has been developed to capture an individual's narcissism traits.

Early studies by Chatterjee and Hambrick (2007, 2011) developed a composite measure of CEO narcissism using several indicators. The composite index originally included five components: (1) CEO relative cash pay to the

next-highest paid executive, (2) CEO non-cash pay to the next-highest paid executive, (3) the size of the CEO's picture in the firm annual report, (4) the number of CEO mentions in company press releases, and (5) the number of first-person singular pronouns used by the CEO during interviews (Chatterjee and Hambrick, 2007). This measure has well been used as a measure of narcissism in the accounting and finance literature[5]. After the passage of the Sarbanes-Oxley Act of 2002, CEOs are careful in their speech and may not exhibit narcissist traits. Accordingly, Chatterjee and Hambrick (2011) found the number of first-person singular pronouns used by the CEO during interviews as an indicator was not a reliable measure of narcissism and hence dropped from the composite measure.

Notwithstanding the common use of the composite index as a measure of CEO narcissism, it faces some limitations. First, several indicators in the composite index are beyond the control of the CEO and can be influenced by other factors. For example, CEO compensation is influenced by other factors like performance and firm size. Second, Brown (2016) argues that Chatterjee and Hambrick (2007) narcissism index has limited empirical validation and may not be directly linked to CEO narcissism. Also, the index may measure other personality traits different from narcissism. More specifically, the number of first-person singular pronouns used by the CEO during interviews may be measuring CEO overconfidence (Ataullah et al., 2018). Finally, some researchers have resorted to using three of the indicators in the composite index (Schrand and Zechman, 2012; Ingersoll et al., 2019) and some using only the compensation indicator (Bianchi, 2014) as a measure of CEO narcissism because of data availability. Rijsenbilt and Commandeur (2013) provides an alternative composite measure of narcissism using 15 indicators. These increased indicators could improve the measurement accuracy of CEO narcissism but have not

[5]See Chatterjee and Hambrick (2007); Chatterjee and Pollock (2017); Judd et al. (2017); Engelen et al. (2016); Olsen and Stekelberg (2016); Buchholz et al. (2018); Patel and Cooper (2014); Rijsenbilt and Commandeur (2013); Buyl et al. (2019)

been widely used because of data availability.

Raskin and Shaw (1988) find a correlation between the ratio of first-person singular pronouns to first-person plural pronouns usage with the NPI scores. This is robust after controlling for some traits like extraversion, neuroticism, and locus of control. This measure draws on the speech style of CEOs and is calculated as a ratio of singular pronouns to plural pronouns usage. Except for Aktas et al. (2016); Capalbo et al. (2018), this measure is rarely used as a stand-alone measure of CEO narcissism. This measure has also been criticised to be measuring other personality traits (Carey et al., 2015). Also, after the passage of the Sarbanes-Oxley Act of 2002, CEOs are careful in their speech and may not exhibit their narcissist traits (Chatterjee and Hambrick, 2011).

Ham et al. (2018) and Ham et al. (2017) report that the area per character signature size measure of narcissism correlates with the Narcissistic Personality Inventory (NPI) scores. The authors demonstrate the robustness of this in many ways, even after controlling for overconfidence. This is theoretically grounded in the psychology and personality literature (Zweigenhaft, 1970; Zweigenhaft and Marlowe, 1973; Zweigenhaft, 1977; Jorgenson, 1977; Dillon, 1988). Also, the signature of CEOs is readily available and can be measured. Further, this measure captures a behaviour under the direct control of the CEO.

3.2.4 CEO Narcissism and Firm Outcome

Research has examined the overall impact of CEO narcissism on firm performance but these have provided mixed results. Early studies by Chatterjee and Hambrick (2007) find CEO narcissism engendering the extremes and fluctuations in firm performance. Their results indicate that narcissist-managed firms are no better or worse than other firm returns. Likewise, Olsen et al.

(2014) report that narcissist CEOs have higher earnings per share compared to other non-narcissist CEOs. Specifically, they examine the mechanism driving the observed results and find narcissist CEOs are more likely to increase reported EPS through real and operational activities rather than accrual-based manipulations. However, Ham et al. (2018) find firms led by narcissist CEOs experience lower financial productivity in the form of profitability and operating cash flows.

Exploring the relationship between CEO narcissism and innovation, Kashmiri et al. (2017) argue that narcissist-managed firms are more likely to introduce new products and a greater proportion of radical innovations in their new product portfolios. Also, Zhang et al. (2017) finds humble narcissist CEOs likely to cultivate an innovative culture and deliver better innovative performance. Ham et al. (2018) argue that CEO narcissism is associated with over-investment through research and development cost and mergers and acquisition expenditure.

Understanding the risk-taking activities of narcissist CEOs, Buyl et al. (2019) finds narcissist CEOs to be associated with risky bank policies, especially when compensation is tied to risk-taking. Similarly, Chatterjee and Hambrick (2011) argues that narcissist CEOs take risky firm decisions for recognition. Further, narcissist CEOs increase the financial leverage of their firms to improve performance (Capalbo et al., 2018; Buyl et al., 2019).

Narcissist CEOs take bold decisions to obtain frequent attention and praise. In pursuit of this, narcissist CEOs are likely to engage in fraudulent activities Rijsenbilt and Commandeur (2013). Likewise, Boamah (2022) find narcissistic CEOs to be associated with announcing share repurchase and targeting a larger dollar amount but fail to follow through to repurchasing what they announce. Also, CEO narcissism is associated with a low probability of completing acquisition deals that they announce (Aktas et al., 2016).

3.2.5 Defined Benefit Pension Plan

Firms that have a DB plan for their employees commit to paying specific amounts of future benefits to their employees upon retirement. This is a form of deferred monthly compensation throughout the remainder of their lives while on retirement. The amount of monthly payment to retirees is based on the number of years worked and other factors. It is the legal responsibility of the employer to ensure that there are adequate funds to pay the employee on retirement. While the employer is required to contribute to the DB plan annually, they have discretion on where and how to invest them. If the present value of the future obligation is greater than the pension asset, the plan is said to be underfunded; otherwise it is overfunded.

The DB pension plan is a separate legal entity under the control of trustees distinct from the sponsor firm. However, current legislation allows the integration of the DB pension plan in the balance sheet of the sponsor firm. This is because any benefit or loss of the DB pension plan in the form of appreciation or depreciation in the value of pension assets is enjoyed by the sponsor and its shareholders in the form of reduced or increased contributions into the fund (Shivdasani and Stefanescu, 2010).

In order to try to ensure employees are paid what they are due on retirement, the US Congress enacted the Employee Retirement Income Security Act (ERISA) in 1974. ERISA among other provisions enacted the Pension Benefit Guarantee Corporation (PBGC) that partially insures employee pension against loss due to employer bankruptcy. This insurance is dependent on the PBGC remaining solvent. To reduce the liability of the PBGC, employers are required by law to hold at least 90% of their estimated future pension obligation in the pension fund. Also, firms are required by law to make mandatory annual contributions to their employees' pension funds when funding level falls below 90% to minimise the possibility of there being a shortfall (Ananthara-

man and Lee, 2014). However, any contribution above the 90% funding level by the PBGC is optional (Rauh, 2006).

Considering the nature of the DB pension plan, it can be classified as a liability of a firm, given that a fall in the asset relative to the obligation today must be made up when they fall due (Bergstresser and Philippon, 2006). This gives the sponsoring firm the sole power to determine whether to contribute or delay payments that make up the difference in plan assets and liabilities when the plan is above the 90% funding level. By delaying the funding of a DB pension plan, firms are trading off the future benefits of employees against current business operations and investments (Rauh, 2006). This in effect allows CEOs to borrow from employees to fund the firm's current investments or the CEO's personal compensation at no cost (Anantharaman and Lee, 2014).

The underfunding of DB pensions can be a source of internal finance rather than seeking external funding that comes with conditions. The preference for internal funding will cause a firm to delay the transfer of cash flow to the DB pension plan. Considering the relationship between the CEO and the firm's other employees, this can be viewed as a way for the CEO to a transfer risk to the employee. A potential cost of the underfunding of pensions may be to decrease the zeal and motivation of employees. However, to the extent that the resultant pension risk lays in the distant future, the CEO might calculate that it will have little affect on the current performance of the firm. Prior research finds evidence to suggest that there exists a conflict of interest between CEOs and employees over the funding level of the DB pension plan. Rauh (2006) finds that annual pension contribution reduces cash flow available to undertake other investment activities of the firm. Also, Anantharaman and Lee (2014) find risk shifting through pension underfunding to be stronger with CEO compensation structures that create high wealth risk sensitivity and weak with high wealth-price sensitivity. This indicates that CEOs might well be tempted to use pension funding to pursue their personal goals by transferring their risk to

employees.

3.2.6 Hypotheses Development

Narcissist individuals have an inflated sense of themselves and engage in activities that reinforce their self-view (Campbell et al., 2011). The excessive desire for self-admiration and aggrandizement is referred to as the "narcissist supply" (Wallace and Baumeister, 2002). The narcissist supply is a function of attention, self-interest, admiration, and the affirmation of own superiority. Wallace and Baumeister (2002) suggests that narcissist individuals exhibit boldness, as well as impulsive and colourful behaviours that affect their decision-making. Indeed, the nature of narcissist CEOs and the inherent subjectivity of DB pension liability estimates for accounting purposes give such CEOs much latitude to decide when and how to fund their DB pension plan annually. This creates a fertile area for narcissist CEOs to exhibit their traits because of the power they hold as CEOs.

Accordingly, I predict that narcissist CEOs are less likely to increase the level of the DB pension plan when they are underfunded, that is, they reduce the rate at which their DB pension plan is adjusted to the fully funded level (100%) compared to non-narcissistic CEOs. More formally:

H1: *CEO narcissism reduces the adjustment of DB plan funding to the fully funded level.*

Research has shown the importance of firm performance in attracting, retaining and compensating CEOs[6]. Despite the continuing use of earnings and stock returns as a measure of CEO performance, recent studies have indicated the growing use of operating cash flows as a way of measuring the performance of CEOs. Extant finance literature has emphasized the importance of operat-

[6]See: Core et al. (1999); Matsunaga and Park (2001); Nwaeze et al. (2006); Balafas and Florackis (2014); Gao and Li (2015)

ing cash flow (DeFond and Hung, 2003; Edmonds et al., 2011; Givoly et al., 2009), the impact of missing the cash flow forecast of analysts (McInnis and Collins, 2011) and the impact of cash flow on CEO compensation (Nwaeze et al., 2006). Therefore, CEOs are incentivized to report higher cash flow from operations to attract higher compensation and beat analysts' forecasts. In practice, operating cash flow is commonly explicitly incorporated in CEO compensation contracts as a metric for annual performance (Nwaeze et al., 2006). The growing importance of operating cash flow as a metric of performance is likely to motivate narcissist CEOs to delay the adjustment of the DB pension plans to a fully funded level. Considering the accounting requirement for the DB pension plan which is a simple transfer of cash from the balance sheet to the DB plan asset that has no effect on the reported profit for the year, I hypothesize narcissist CEOs are more likely to delay the adjustment of DB plan to the fully funded level in order to personally benefit from higher compensation by reporting higher annual cash flow from operations. More formally:

H2: *The negative relationship between CEO narcissism and the speed of adjustment of DB plan funding to the fully funded level is stronger when cash flow is a metric of CEO performance.*

There is a substantial body of literature that explores the effects of taxes on business decisions. Likewise, prior research that examines the effect of a tax rate change on income shifting finds firms to be shifting income in response to changes in the tax rate. Specifically, Scholes et al. (1992) find that in response to the Tax Reform Act of 1986 that reduced the corporate tax rate from 46 to 34 percent, firms shift income. In line with this, extant literature that examines the relations between pension funding and tax incentives find tax paying firms to make more pension contribution (Thomas, 1988). Gaertner et al. (2020) report that the Tax Cut Job Acts (TCJA) of 2017 incentivizes firms to increase their DB pension funding status by increasing contributions in 2017 and taking

advantage of a higher tax deduction rate. The TCJA was passed into law on December 22, 2017, and is effective for tax years beginning on or after January 1 2018. The TCJA was aimed at reducing the tax burden, encouraging domestic investment and increasing employment in US corporations[7].

The TCJA cut corporate tax from the graduated 35% to 21%. This is classified as the highest tax cut since Reagan Tax Reforms in 1981 and 1986. In line with this, a reduction in tax rate policy provides a good premise for firms to benefit from tax-deductible that come from pension contributions before the new tax rate takes effect.[8]

Unlike other expenditures like research and development costs that reduce a firm's annual income, improving pension funding through contribution is less costly since it does not reduce the annual income reported but rather reduces tax costs. This provides a good setting to understand the speed of adjustment by a narcissist and non-narcissist CEO. Also, this setting incentivizes CEOs to act before the new tax rate took effect in January 2018. Contributing a dollar to improve pension funding status in 2017 saves a firm \$0.215 compared to making the same contribution in the 2018 tax year or beyond. [\$1.00*(0.79/0.65)]. I predict that this tax-deductible incentive will lead narcissist-managed firms to make more pension contributions by increasing the speed of adjusting the firm DB pension plan to the fully funded level in 2017 than other rational CEOs. More formally:

H3: *Narcissist CEOs increase the adjustment of DB plan funding to the fully funded level in 2017 compared to other rational CEOs.*

[7]For more details of 2017 Tax Cut and Job Act - https://www.whitehouse.gov/briefings-statements/president-donald-j-trump-achieved-biggest-tax-cuts-reforms-american-history/

[8]Under the IRC Section 404, firms are allowed to deduct any cash contribution made to employee DB pension plan to the sum of allows firms to deduct cash contributions made to defined benefit pension plans equal to the sum of: 1) the funding target for the plan year, 2) the target normal cost for the plan year, and 3) the cushion amount for the plan year. Pension contributions during the sample period are deductible up to the point where the pension is 150 percent funded (Campbell et al., 2012).

I turn next to the possible moderating effects of a firm's corporate governance arrangements on CEO behaviour regarding DB pensions. Eaton et al. (2014) find that institutional ownership is negatively associated with an underfunded DB pension and that this is more pronounced when institutional ownership is concentrated. Cragun et al. (2020) argue that good firm governance may reduce the negative impact of the behavioural traits of narcissist CEOs on a firm's decisions. I predict the negative effect of narcissism on the adjustment of the DB pension plan will be reduced when there is strong governance. More formally:

H4: *The negative relationship between CEO narcissism and the adjustment of DB plan funding to the fully funded level is reduced when there is strong corporate governance.*

3.3 Data and Methodology

3.3.1 Sample Selection

The study uses a panel dataset drawn from SP500+ companies over the years 2000 to 2018 to test the relationship between CEO narcissism and employee DB pension funding adjustment. I start from 2000 because some of my data come from Boardex which does not report the data prior to 2000. I delete financial (SIC codes 6000-6999) and utility (SIC code 4900-499) firms due to their unique regulatory environments. Further, I deleted firms where I could not collect information on the CEO's narcissism (Annual report), pension (Compustat), and financial data (Compustat). The final panel dataset consists of 5,029 firm-year observations for 408 unique firms and 852 unique CEOs.

3.3.2 Measuring CEO Narcissism

Previous research has indicated that it is challenging to get CEOs to complete the narcissism personality inventory (NPI) since firm executives are likely to be reluctant to take the kinds of personality tests that would ordinarily be used in clinical settings by psychiatrists to determine someone's personality type. However, an unobtrusive measure has been developed to capture an individual's narcissism traits.

First, Chatterjee and Hambrick (2007) used archival data to develop a CEO narcissism measure using five indicator variables. These five indicators are standardized and averaged to form a narcissism measure. Several scholars have adopted this measure of narcissism. (Gerstner et al., 2013; Patel and Cooper, 2014). Second, Aktas et al. (2016) use the first-person pronoun usage to capture CEO narcissism. Before that, Raskin and Terry (1988) show a correlation between the first-person singular pronouns to first-person plural

pronouns usage with the Narcissistic Personality Inventory (NPI) scores. In recent years, Ham et al. (2018) report that the area per character signature size measure of narcissism correlates with the NPI scores.

In this study, CEO narcissism is an indicator variable based on the three most commonly used measures of CEO narcissism: Chatterjee and Hambrick (2007) composite measure [9], Aktas et al. (2016) pronoun usage and Ham et al. (2018) signature size measure. I measure CEO narcissism for each of these three narcissism measures discussed above as an indicator variable equal to one if the CEO narcissism score is above the median narcissism score and zero otherwise. After classifying each of the sample CEOs as either a narcissist or a non-narcissist using each of the three measures, I then sum the narcissism indicators for all three narcissism measures. A CEO with a total score above one is classified as a narcissist and otherwise classified as a non-narcissist.

3.3.3 The DB Pension Plan Adjustment Model

The Estimation of Defined Benefit (DB) Pension funding status speed of adjustment is structurally like the partial adjustment methodology used by Byoun (2008) in the capital structure literature. Bates et al. (2018) and Jiang and Lie (2016) also used this methodology in understanding the speed at which the level of a firm's cash holding changes over time. Unlike the capital structure and cash holding literature, this study sets the target funding status equal to one[10], which indicates a fully funded employee Defined Benefit plan where the value of the pension assets is equal to the value of the pension Liabilities. The study then calculates a partial adjustment model of the firm's rebalancing decision in the presence of a Narcissist CEO. I use this method because

[9] like Schrand and Zechman (2012) and Ingersoll et al. (2019), I measure CEO narcissism based on Chatterjee and Hambrick (2007) measure using three of the five indicators: (1) the CEO's use of first-person singular pronouns in interviews; (2) the CEO's cash compensation divided by that of the second-highest paid executive in the firm; and (3) the CEO's non-cash compensation divided by that of the second highest-paid executive in the firm.

[10] In a robustness test, I use 90% and 80% funding status as the target level.

it helps estimate the speed of adjusting a DB pension funding status in the presence of interaction effects and to estimate the differential adjustment for CEOs in firms with excess DB funding. With this model, I can estimate the speed of adjustment by CEOs with overfunded DB plans. In estimating the partial adjustment of the employee Define Benefit pension to a fully funded level, I use the equation below.

$$\Delta FS = \alpha + \delta DevFS_{i,t-1} + \varepsilon_{i,t} \tag{3.1}$$

Where ΔFS represents the change in employee DB Pension funding status between the current and previous year ($FS_{i,t} - FS_{i,t-1}$) ; $DevFS_{i,t-1}$ is equal to $1 - FS_{i,t-1}$. I estimate the employee DB pension funding status changes in a year against the deviation from the fully funded level at the beginning of the year from the above equation. The coefficient estimate δ is the average annual speed of adjustment to the fully funded level, ranging from 0 to 1, and this measures the portion of the funding gap closed each year by a firm.

To ensure that the speed of adjustment is symmetric between firms with surplus employee DB funding (Pension Asset above Liabilities; overfunded pensions) and those with funding deficits (Pension Asset below Liabilities), I introduce a dummy variable (Surplus) equal to one if the firm's employee DB pension asset is above liabilities in a fiscal year and zero otherwise. The equation then becomes:

$$\Delta FS = \alpha + \delta DevFS_{i,t-1} + \gamma DevFS_{i,t-1} * Surplus_{i,t} + \varepsilon_{i,t} \tag{3.2}$$

From the above equation, the speed of adjustment to the fully funded status is represented by the coefficient δ when the funding status is below one (underfunded) and ($|\delta + \gamma|$) when the employee DB pension funding level is above one (overfunded).

3.3.4 Narcissism and the Speed of Adjustment of DB Pension

To understand the influence of narcissist CEOs on the speed of DB pension adjustment, I interact the narcissism dummy variable with the employee DB pension deviation variable as indicated in the equation below.

$$\Delta FS = \alpha + \beta_1 DevFS_{i,t-1} + \beta_2 CEONas_{i,t} + \beta_3 DevFS_{i,t-1} * CEONas_{i,t} + \varepsilon_{i,t} \tag{3.3}$$

CEONas is an indicator variable equal to one when the CEO is a narcissist and zero otherwise. All other variables in the equation are defined in the appendix. The main coefficient of interest in the above equation is β_3. The sign of this coefficient will indicate whether firms with narcissist CEOs increase (decrease) the speed of adjusting their employee DB pension funding status to the fully funded level. For a non-narcissist CEO, the speed of adjusting the pension funding status is β_1 and that of a narcissist CEO is $\delta = (\beta_1 + \beta_3)$. We further estimate equation 4 to understand the difference in speed for narcissist CEOs with surplus funding status (above 1) and those below the fully funded level.

$$\begin{aligned}\Delta FS = \alpha + \beta_1 DevFS_{i,t-1} + \beta_2 CEONas_{i,t} + \beta_3 Surplus_{i,t} + \beta_4 DevFS_{i,t-1} * CEONas_{i,t} + \\ \beta_5 DevFS_{i,t-1} * Surplus_{i,t} + \beta_6 Surplus_{i,t} * CEONas_{i,t} \\ + \beta_7 DevFS_{i,t-1} * CEONas_{i,t} * Surplus_{i,t} + \varepsilon_{i,t}\end{aligned} \tag{3.4}$$

From the above equation, the main coefficient of interest is β_7 which is the coefficient of the interaction of $DevFS_{i,t-1}$, $CEONas_{i,t}$ and $Surplus_{i,t}$. A positive (negative) coefficient will indicate an increase (decrease) in the speed

of adjustment of funding status when the employee DB pension is overfunded.

3.4 Empirical Analysis

3.4.1 Summary Statistics

The summary statistics of the main variables used in the study are presented in Table 3.1 below. The mean and median of the full sample are shown in the first two columns. The next four columns present summary statistics for firm-year observations with a narcissist and non-narcissist CEO. From Table 3.1, firms with non-narcissist CEOs (80%) on average have a funding status above the narcissist (78%) on average. Also, firm-year observations with narcissist CEOs manage a higher pension plan size compared to other observations. I find no significant difference between the actual return and pension discount rate for firm-year observations with or without narcissist CEO.

Considering CEO-related characteristics in Panel B of Table 3.1, narcissist CEOs have a shorter tenure as CEO on average than other firm-year observations with non-narcissist CEOs. The short tenure of narcissist CEOs may be attributed to the poor performance of narcissist CEOs documented by Ham et al. (2018). Further, narcissist CEOs own fewer company shares, are younger, and entitle to high compensation on average than non-narcissist CEOs. The sample analysis does not find any difference between the dual role of a CEO as chair for narcissist and non-narcissist CEOs.

Panel C of Table 3.1 shows that firm-year observations with narcissist CEOs manage larger firms than other firm-year observations. Also, narcissist CEOs perform poorly compared to non-narcissist CEO. The sample documents that firm-year observations with narcissist CEOs on average have a low book to market and more institutional owners compared to non-narcissist CEO-managed firms. Figure 1 shows the graph of the deficit in employees' DB pension funding over the period of the study. I find the highest deficit in funding to be 30% which is in 2009 and the lowest deficit of 10% in the year

2000. Table 3.2 presents the correlation between all variables used in the study.

INSERT TABLE 3.1,, 3.2 & FIGURE 3.1 HERE

3.4.2 The Speed of Adjustment of DB Funding status

I begin my analysis by understanding the relationship between employees' DB funding status and firm and CEO-related characteristics. Using different measures of narcissism, I report the results in Table 3.3. Columns 1&2 are regression models with an indicator narcissism variable. Column 2 is a regression model with a dummy signature size measure of narcissism which takes the value of one if the CEO signature size is above the mean of the sample signature size and zero otherwise.

From Table 3.3, I find a negative relationship between CEO narcissism and the DB funding status but this is only significant at 10% for the signature size dummy measure of narcissism. This is not surprising considering the selfish nature of narcissist CEOs which is likely to influence their decision not to transfer cash to employees at the expense of the firms they manage. I also find a negative relationship between Leverage, Research and Development cost, CEO compensation and the funding status of the DB plan. However, I find a positive relationship between firm size, firm age, and the funding status of the DB plan.

In Table 3.4, I report the DB pension funding status speed's regression results based on equations 1 & 2 above with the same control variables used in Table 3.3. Column 1(2) is estimated using equation 1(2). From column 1, the $DevFS_{i,t-1}$ coefficient of 0.192 indicates an adjustment speed of 19.2% to the fully funded level. This implies that firms close their funding gap between the actual and fully funded level by 19.2% annually. In dollar terms, the firm closes its funding gap with approximately \$700million. In column 2 of Table 3.4, I

estimate the asymmetry in the speed of adjustment by augmenting equation 1 with an interaction term -Surplus, as indicated in equation 2. The coefficient of the deviation variable of 0.23 suggests that firms with deficit funding status (funding level below 1) of their DB pension increase the speed of adjusting their funding status to the expected level by 23%. The coefficient of the interaction term of 0.146 implies that firms with a funding surplus (funding level above 1) increase the speed of adjustment by 37.6% (0.23+0.146). The above results indicate that firms with a surplus increase the speed of adjustment faster than firms with deficit funding.

INSERT TABLE 3.3 & 3.4 HERE

3.4.3 The Effect of CEO Narcissism on the speed of Adjustment of DB Funding

In Table 3.5, I discuss CEO narcissism's effect on the speed of adjusting the DB pension funding status to the fully funded level. Columns 1&2 are regression models with my main indicator narcissism variable. Columns 3&4 are regression models with dummy signature size measures of narcissism. Columns 1&3 are estimated using equation 4.3, and columns 2&4 are estimated using equation 4.4.

From Table 3.5, I find the interaction between CEO narcissism and $DevFS_{i,t-1}$ to be negative and significant across both measures of narcissism. Focusing on the narcissism indicator variable in columns 1&2, the coefficient of the interaction between CEO narcissism and $DevFS_{i,t-1}$ is -0.057 for column 1, which is significant at 1%. This indicates that narcissist CEOs reduce the speed of adjusting their funding status to the fully funded level by 26.1% (—-0.057/0.218) which is equivalent to $950million reduction in employee DB funding. Comparing the speed of adjustment between narcissist and non-narcissist CEOs,

it will take a narcissist CEO-managed firm about 1.6 years (approximately 19 months) longer to adjust the funding status of their pension to the fully funded level. From column 2 of Table 3.5, I do not find any significant relationship between CEO narcissism and the adjustment speed for firms with surplus DB funding status. However, the interaction between CEO narcissism and $DevFS_{i,t-1}$ remains significant, with a coefficient of -0.056. This indicates that the decrease in the adjustment speed by narcissist CEOs is not driven by firms with surplus DB pension funding.

From Table 3.5 columns 3&4, where the signature size dummy narcissism measure is used, I find a significant negative coefficient of -0.060 from column 3. I do not find any significant relationship between CEO narcissism and the adjustment speed for firms with surplus DB funding status. Further, the interaction between CEO narcissism (signature size dummy) and $DevFS_{i,t-1}$ remains significant with a coefficient of -0.07. This confirms the indicator variable's initial finding that firms with surplus funding do not drive my results.

Using both measures of narcissism, the above finding indicates that CEO narcissism plays a significant role in decreasing the speed at which firms move towards a fully funded level of their employees' DB pension plan. Narcissist CEOs are more likely to shift risk to employees by underfunding their DB plan and using such cash flow to their personal benefit through increasing their compensation and overinvestment.

INSERT TABLE 3.5 HERE

3.4.4 Propensity Score Matching

From the above analysis, a firm with narcissist CEOs may differ from those with non-narcissist CEOs, as indicated in Table 3.1. Despite the numerous control variables used in this analysis, the results may pick up some non-linear

effects of the variables used, and hence this analysis may suffer from bias.

To ensure that the study results do not suffer from bias, I examine a matched sample of firms with similar characteristics where one firm has a narcissist CEO, and the other does not. In doing this, I control for the observed differences in the firm and CEO characteristics between narcissist CEO-managed firms and non-narcissist CEO-managed firms. The propensity score is estimated using a logit model. The dependent variable is the narcissism dummy variable. For each firm-year observation with a narcissist CEO, I match it with non-narcissist CEO in the same year and industry from a different firm with the closest propensity score. Firms with similar characteristics are likely to have an equal probability of appointing a narcissist CEO.

From Table 3.6, I present the matched sample summary statistics. Unlike Table 3.1, where I find a significant difference in funding status, plan size, CEO tenure, firm size, research and development, book to market, operating cash flow, and leverage. There is no significant difference between a narcissist and a non-narcissist CEO after the propensity score matching.

I then run the main regression to understand the effect of narcissism on the speed of pension funding status adjustment to the fully funded level. From Table 3.7 columns 1&2, I find results that are quantitatively and statistically similar to the baseline analysis.

The nearest neighbour propensity score matching either matches or discards units which may lead to data loss. To address this concern, I adopt the Hainmueller and Xu (2013) entropy balancing method of matching. This method creates a balanced sample between the treated and control groups. This involves a reweighting scheme that directly integrates covariate balance into the weight function that is applied to the sample units. This re-calibration help correct for systematic and random differences.

I match narcissist and non-narcissist-managed firms based on the mean of size and all control variables used in the baseline analysis and report results in columns 3&4 of Table 3.7. Like columns 1&2 of Table 3.7, I find qualitatively similar results to the baseline analysis. This further confirms that CEO narcissism plays an essential role in the speed of pension funding status adjustment. More specifically, I find narcissistic CEOs reducing the adjustment speed of DB plan to the expected level by approximately 25% and this is not driven by firms with a surplus DB plan.

INSERT TABLE 3.6 & 3.7 HERE

3.4.5 Firm Fixed Effects Analysis

From the baseline analysis, I include industry and year-fixed effects to control for trends in time and industry groups. However, one key challenge in estimating the relationship between CEO narcissism and the speed of adjusting employee DB funding status to the fully funded level is the possibility of omitted variable bias. Therefore, controlling for firm fixed effects will alleviate any concern of unobserved heterogeneity.

It is important to note that CEO narcissism is a stable trait and hence a CEO fixed effect. In line with this, using a firm fixed effect will only be possible for firms where there is a change in narcissism over the period of the study (within firm narcissism variations). Hence, using a firm fixed effect is likely to affect the power of the test since there are not many firms with CEO narcissism variations.

After controlling for firm fixed effects in Table 3.8, I observe qualitatively similar results as those reported in the baseline analysis. As discussed above, this is statistically significant at 10%. The results from Table 3.8 support the baseline results that narcissist CEOs reduce the speed at which they adjust

their employee DB funding to the fully funded level.

INSERT TABLE 3.8 HERE

3.4.6 Using Alternative Fully Funded Levels

To test the robustness of my results, I set different fully funded levels for the employees' DB pension plans to understand how narcissists manage their employees' DB pension plans differently from other rational CEOs. I set the fully funded level to 90% and 80%. Thus, I now define $DevFS_{i,t-1}$ as $0.9 - FS_{i,t-1}$ and $0.8 - FS_{i,t-1}$. Using equation 4.3, I re-run regressions with the different employee DB funding levels and report the results in Table 3.9. Columns 1&2(3&4) are regressions with 90%(80%) as the fully funded level.

From all columns of Table 3.9, I do not find any significant coefficient for the interaction between CEO narcissism and $DevFS_{i,t-1}$. This remains insignificant even after controlling for employees' DB pension plan with a surplus funding level. This is not surprising because the PBGC by law requires employers to hold at least 90% of their estimated future pension obligation in the pension fund and any shortfall requires a mandatory contribution to the pension fund. Since all firms are required to make mandatory contributions when they fall short of the 90%, there is no difference between how narcissist and non-narcissist-managed firms adjust their employees' DB pension plan when the optimal level is 90% or 80%, hence the insignificant results. The results in Table 3.9 support the baseline results that narcissist CEOs managed firms manage their employees' DB pension plans differently from other CEOs.

INSERT TABLE 3.9 HERE

3.4.7 Using Alternative Measures of CEO Narcissism

I further test the robustness of my results using continuous variable measures of CEO narcissism. Thus, I use the area per character signature size measure of CEO narcissism (Ham et al., 2018) and a standardised average of CEO's signature size, pronoun usage (Aktas et al., 2016), CEO relative cash and non-cash compensation.

From Table 3.10, I report the regression results of the two alternative measures of narcissism stated above. Columns 1&2 are regression results of the area per character signature measure of narcissism while 3&4 are regression results of the standardised average measure of narcissism. Using both continuous measures of narcissism, I find a significant coefficient for the interaction between CEO narcissism and $DevFS_{i,t-1}$. This further confirms the baseline results that narcissist CEO reduce the speed of adjusting their employees' DB pension plan to the fully funded level. Economically, a 1% increase in the signature size of a CEO will take him 4.5 years longer to adjust their employees' DB pension plan to the fully funded level. (see column 2 of Table 3.10)

INSERT TABLE 3.10 HERE

3.4.8 Controlling for Other CEO Traits

Duong et al. (2021) assert that the style of a CEO's signature reflects some conservative or liberal traits. They argue that a CEO with full name or first and last name signature is liberal while those with only first or last name or abbreviations are conservative. In line with this, the signature size proxy of narcissism may be picking some conservative or liberal traits of the CEO. To control for this, I follow Duong et al. (2021) and classify CEOs into liberal and conservative based on their signature style and control for that in the baseline model and report the results in Table 3.11.

Another potential concern of this study is that prior research has indicated some similarities between CEO narcissism and overconfidence[11]. It is important to establish that the reduction in the speed of adjusting employee DB funding to the fully funded level is beyond the overconfidence of the CEO. In doing so, I follow Malmendier and Tate (2005); Banerjee et al. (2018) and construct a CEO overconfidence measure and control for that in the baseline analysis.

After controlling for CEO overconfidence and Conservatism (liberal) in Table 3.11, I observe qualitatively similar results as those reported in the baseline analysis. The results from Table 3.11 support the baseline results that narcissist CEOs reduce the speed at which they adjust their employee DB funding to the fully funded level. Therefore, reductions in adjustment speed by narcissistic CEOs are beyond their overconfidence and are not driven by their conservatism (liberalism).

INSERT TABLE 3.11 HERE

[11]For literature on Overconfidence, see: (Banerjee et al., 2018; Malmendier and Tate, 2005; Campbell et al., 2011; Deshmukh et al., 2013; Goel and Thakor, 2008; Ho et al., 2016)

3.5 Additional Analysis

3.5.1 The Effect of CEO Compensation

Extant finance literature has emphasised the importance of operating cash flow (DeFond and Hung, 2003; Edmonds et al., 2011; Givoly et al., 2009), the impact of missing the cash flow forecast of analysts (McInnis and Collins, 2011) and the impact of cash flow on CEO compensation (Nwaeze et al., 2006). Likewise, shareholders and investors are likely to incentivise CEOs to increase reported cash flow from operations at the end of the year to attract higher compensation and further maintain their job as CEO of the firm. Considering the accounting requirement for the DB plan which is a simple transfer of cash from the balance sheet to the DB plan asset that has no effect on the reported net income for the year, narcissist CEOs are more likely to delay the adjustment of the DB plan to the fully funded level to personally benefit from higher compensation by reporting higher annual cash flow from operations.

Since the delay in adjusting the DB plan to the fully funded level by narcissist CEOs is influenced by the importance of cash flow from operation to their compensation, I employ the following criteria. First, I search firm annual proxy statements to identify firms that explicitly state operating cash flow as a determinant of CEO compensation. From the sample, I find 2318 firm-year observations with annual proxy explicitly indicating operating cash flow as an integral part of CEO compensation and 1534 firm-year observations with other determinants. Secondly, to identify the importance of operating cash flow as a determinant of CEO compensation, I follow Cheng and Swenson (2018) and regress the change in CEO compensation from $Year_{t-1}$ to $Year_t$ on the contemporaneous change in operating cash flow and operating income for each firm. A positive operating cash flow coefficient indicates that CEO compensation is sensitive to the firm operating cash flow. Observations with a

positive coefficient are classified as being sensitive to CEO compensation and coded as one (2289) and zero otherwise (1563).

Using the above data classifications, I run subsample regressions using equations 4.3 and 4.4 and further report the results in Table 3.12. Panel A(B) represent regression results where the main indicator measure of narcissism (signature size dummy) is used as a proxy for CEO narcissism. Columns 1, 2, 3 & 4 and 5, 6, 7 & 8 represent regression results for CEO compensation contract and cashflow sensitivity subsample analysis respectively. Columns 1&2 (3&4) report regression results for firm-year observations where operating cash flow is explicitly stated as a determinant for CEO compensation (others). Columns 5&6 (7&8) report regression results for firm-year observations where CEO compensation is sensitive to operating cash flow.

From Table 3.12, the main variable of interest is the coefficient of the interaction term between CEO narcissism and the $DevFS_{i,t-1}$. From column 1 of Panel A, I find a significant negative speed of adjusting employees' DB pension funding status to the fully funded level for firms that explicitly indicate operating cash flow as a determinant of narcissist CEO compensation. Economically, firms with operating cash flow as a criterion to calculate CEO compensation reduce the adjustment speed of their DB plan to the fully funded level by approximately 29% (-0.071/0.241). One important concern of this result is the fact that it could be influenced by firms with surplus funding. Therefore, I control for firms with surplus funding in a triple interaction in column 2. The results remain significant even after controlling for the surplus DB-funded firms (27% reduction). However, I do not find any significant relationship between the DB plan adjustment speed of narcissist CEOs for firms that do not consider operating cash flow as a metric of CEO performance.

Using the sensitivity of compensation to operating cash flow as another measure of the importance of cash flow to the narcissist CEO, I find a sig-

nificant negative coefficient for the interaction between CEO narcissism and the $DevFS_{i,t-1}$. Economically, I find a 30% (-0.076/0.252) annual reduction in the speed of adjusting DB plan to the optimal level by narcissist CEOs with their compensation more sensitive to operating cash flow. Controlling for surplus funded DB firms in the observation does not affect the results. I find similar results using the signature size dummy measure of narcissism in panel B of Table 3.12. The above analysis indicates that narcissist CEOs are self-centered and will never trade their current increase in compensation for the retirement benefit of their employees. More specially, the results re-emphasize the self-seeking nature of narcissist CEOs, hence, will never sacrifice for the benefit of others.

INSERT TABLE 3.12 HERE

3.5.2 The Effect of Change in Tax Policy

A reduction in tax rate policy provides a good premise for firms to benefit from tax-deductible that come from pension contribution before the new tax rate take effect. Gaertner et al. (2020) report that the Tax Cut & Job Acts (TCJA) of 2017 incentivizes firms to increase their employees' DB pension funding status by increasing contributions in 2017 and taking advantage of a higher tax deduction rate. In line with this, I test whether narcissist CEOs take advantage of this window period and increase their funding level through contributions to their employees' DB pension plan and also enjoy tax deductions before the TCJA takes effect on or after January 2018. I test the speed of adjustment by a narcissist and other rational CEOs with the equation below:

$$\Delta FS = \alpha + \beta_1 DevFS_{i,t-1} + \beta_2 CEONas_{i,t} + \beta_3 TCJA_i + \beta_4 DevFS_{i,t-1} * CEONas_{i,t} + \beta_5 DevFS_{i,t-1} * TCJA_i + \beta_6 TCJA_i * CEONas_{i,t} + \beta_7 DevFS_{i,t-1} * CEONas_{i,t} * TCJA_i + \varepsilon_{i,t} \tag{3.5}$$

From the above equation, $TCJA_i$ takes the value one if the firm year is 2017 and zero otherwise. The main coefficient of interest from equation 4.5 is β_7 which is the coefficient of the interaction of $DevFS_{i,t-1}$, $CEONas_{i,t}$ and $TCJA_i$. A positive (negative) coefficient will indicate an increase (decrease) in the speed of adjustment of funding status during the window period before the reduction in the tax rate.

The results of the above equations are reported in Table 3.13. Columns 1&3 results are based on the equation above. In columns 2&4, I introduce an interacting term -Surplus- to understand how narcissists manage firms with surplus funding change due to the new tax policy. From column 1&3, the variable of interest is the coefficient of the interaction $DevFS_{i,t-1} * CEONas_{i,t} * TCJA_i$ (β_7). This represents the policy change's incremental impact on the adjustment speed by narcissist CEOs. From column 1, I find the coefficient β_7 to be 0.147 and statistically significant. This indicates a change in the negative adjustment speed behaviour of narcissist CEOs. The results imply that narcissist CEOs take advantage of the tax cut to increase their adjustment speed by 64.4% (0.147/0.225) and receive tax deductions from pension contributions. In dollar terms, narcissist CEOs increase their employee DB pension by approximately \$2.3billion in 2017 and enjoy tax deductions of about \$500million. From the results, narcissist CEOs increase the speed of adjustment more than the speed at which they reduce, which shows the opportunistic nature of the narcissist trait.

From column 2 of Table 3.13, the variable of interest is $DevFS_{i,t-1} * CEONas_{i,t} * TCJA_i * Surplus_{i,t}$. The significant negative coefficient (-0.473) implies that following the exogenous change in the tax rate, narcissist CEO with surplus funding decrease the speed of adjusting their pension funding level by approximately 170% (-0.473/0.267). This is not surprising because any increase in funding status above the fully funded level is not economical. Hence, even a rational CEO will be unwilling to increase funding status. I find similar results using the Signature size dummy measure of narcissism.

Following the policy change, I find narcissist CEO increasing their adjustment speed to take advantage of tax-deductible that comes with pension contributions. They also reduce the adjustment speed when there is a funding surplus since there is no benefit in increasing funding when it is already in the surplus. The results confirm the main findings that the speed of adjustment of DB pension funding status is influenced by CEO narcissism and therefore narcissist CEOs manage their employees' DB pension plans differently from other rational CEOs.

INSERT TABLE 3.13 HERE

3.5.3 The Effect of Corporate Governance

Another critical factor that may affect the speed of a narcissist CEO's adjustment of employees' DB pension funding status to the fully funded level is the corporate governance level in the firm they manage. To estimate how governance influences the speed of adjustment of a narcissist CEO, I measure governance in two ways: the number of Institutional owners (Block Ownership) and CEO tenure.

To examine these two governance measures' impacts on the adjustment speed of employees' DB pension funding level by narcissist CEOs, I run a

subsample regression. The results of these regressions are reported in Table 3.14. Panel A(B) represent regression results where the main indicator measure of narcissism (signature size dummy) is used as a proxy for CEO narcissism. Columns 1, 2, 3 & 4 and 5, 6, 7 & 8 represent regression results for Block Ownership and CEO tenure respectively. Columns 1&2 (3&4) report regression results for firm-year observations where the number of institutional owners is below (above) the median of all firm-year observations. Columns 5&6 (7&8) report regression results for sub-sample firm-year observations where the CEO's time in the company is above (below) the median of the entire sample.

The main variable of interest is the coefficient of the interaction term between CEO narcissism and the $DevFS_{i,t-1}$. I find a significant negative speed of adjusting DB pension funding status to the fully funded level for a firm with fewer institutional owners from the institutional ownership regression results. Economically, narcissist-managed firms with lower institutional owners reduce the speed of adjusting their pension to the fully funded level by approximately 26% (-0.067/0.254). This remains significant (-0.077) even after controlling for firms with surplus funding. Like Eaton et al. (2014), this results indicate that firms with a lower number of institutional owners are less monitored. This allows the narcissist CEO to exhibit their narcissistic traits and reduce the funding level of their employee DB pension plan.

From the CEO tenure regression in columns 5, 6, 7 & 8, I find a significant negative coefficient for the interaction between CEO narcissism and the $DevFS_{i,t-1}$ for high-tenure CEOs. (Columns 7&8). From column 7, the narcissist CEO decrease the speed of adjusting the DB pension by approximately 34% (-0.075/0.222). Comparing this to the baseline results where narcissists decrease the speed of adjustment by 26% in the entire sample, narcissist CEOs who have spent more years in the firm decrease the speed by a further 8%. From column 8, I do not find any significant relationship between CEO narcissism, $DevFS_{i,t-1}$ and surplus. However, this variable of interest remains

negative and significant. This indicates that firms with surplus funding do not drive my results. The results indicate that firms, where CEOs have spent more years, have more power and can exhibit their narcissist traits and hence reduce the adjustment speed of their DB funding status.

The analysis indicates that the governance structure plays a key role in how narcissist CEO exhibits their traits in the firm. Narcissist CEOs in poorly governed firms reduce the speed of adjusting their pension funding to the fully funded level, and this is not driven by surplus funding.

INSERT TABLE 3.14 HERE

3.6 Conclusion

The key finding of this study is that CEO narcissism plays an important role in the funding of the employees' DB pension plan. More importantly, CEO narcissism affects the speed of adjusting employees' DB plan funding status to the fully funded level. I find that narcissist CEOs reduce the speed of adjusting the DB funding to the fully funded level: Narcissist-managed firms on average spend one year and six months longer to adjust the DB plan to the fully funded level compared to other rational CEOs. This findings provide support for the self-centred attitude of narcissist CEOs. Also, I find the speed of adjusting DB funding status to the fully funded level is slower for firms with narcissist CEOs who have cash flow as a metric of compensation. Economically, it will take a narcissist CEO with a cash flow as a metric of compensation an additional one year and nine months to revert to the fully funded DB plan level. That is, narcissist CEOs are more likely to delay the adjustment of DB plan to the fully funded level in order to personally benefit from higher compensation by reporting higher annual cash flow from operations. Further, I find narcissist CEOs managed firms to increase the adjustment speed of their employee DB pension plan to the fully funded level in the window period before the TCJA (reduction in corporate tax rate) takes effect. Finally, I find the delay in the adjustment speed by narcissist CEOs to be more pronounced in poorly governed firms.

We address endogeneity concerns using two methods. First, I use matching methods to match firm-year observations with narcissist CEOs and firm-year observations with other CEOs. Second, I control for unobserved heterogeneity with firm fixed effects and find qualitatively similar results.

To test the robustness of my results, I use alternative measures of CEO narcissism, different fully funded level criteria and control for some CEO traits that are likely to affect the narcissism of the CEO. All these robustness checks

provide qualitatively similar results which confirm my baseline analysis. Overall, this study highlights the effect of CEO narcissism on the adjustment speed of employees' DB pension plan to the fully funded level. This results suggest the incentive of narcissist CEO-managed firms to borrow from employees to fund business operations and personal compensation at no cost. Narcissist CEOs are more likely to prefer no commitments and the lower cost of using internal cash flow through delaying DB plan funding rather than the costly external finance. Further, considering the accounting requirement for the DB pension plan which is a simple transfer of cash from the balance sheet to the DB plan asset that has no effect on the reported profit for the year, narcissist CEOs delay the adjustment of the DB plan to the fully funded level in order to personally benefit from higher compensation by reporting higher annual cash flow from operations.

The results of this study have important implications for policymakers and managers. As firm CEOs are key decision-makers, their psychological traits (narcissism) are essential for the firm's decisions. Although research has associated CEO narcissism with authority, self-reliance and supremacy that can foster leadership effectiveness, promote company performance, and be attractive to loyal employees (Hogan and Kaiser 2005; Maccoby 2000). Narcissistic CEOs are likely to act on their self-centred interest to underfund their employees' DB pension plan for their benefit. Thus, when companies are recruiting CEOs, they should consider their psychological traits and capabilities, which may also influence the firms' path for employees' DB pension plan funding.

3.7 Appendices and Tables

A Description of Variables

Pension Related	**Description**	**Source**
Funding Status	PPLAO/PBPRO i.e., DB Asset/DB Obligation	Compustat
Pension Plan Size	The ratio of Pension Obligation (PBPRO) to Total Asset (AT)	Compustat
Actual Plan Return	The ratio of Pension Actual Return on Plan Assets (PBARAT) to Plan Asset (PPLAO)	Compustat
Plan Expected Return	Longterm expected rate of return on plan asset (PPROR)	Compustat
Plan Discount Rate	Pension plan obligation discount rate (PBARR)	Compustat
Plan Contribution	Annual pension contribution (PBECE)	Compustat

CEO Related	**Description**	**Source**
CEO Narcissism	Dummy variable equal to one if CEO is a narcissist and zero otherwise.	
CEO Age	Age of a CEO in a fiscal year	Execucomp
CEO Gender	Equal to one if the CEO is male and zero otherwise.	Execucomp
CEO Duality	Equal to one when the CEO is also the chairperson of the board and zero otherwise	Execucomp
CEO Tenure	The number of years that the CEO has held the role at the end of every fiscal year	Execucomp
CEO Compensation	The natural logarithm of CEO total compensation at the end of every fiscal year	Execucomp
CEO Ownership	Measured as the percentage of company shares owned by the CEO	Execucomp

Firm Related	**Description**	**Source**
Firm size	Natural logarithm of the book value of total assets.	Compustat
Operating Cashflow	The ratio of Net Operating Cashflow (OANCF) to Total Asset (AT)	Compustat
Book to Market	The ratio of Book Equity (CEQ) to Market Equity ($\text{PRCC}_F * CSHO$).	Compustat

Research and Dev.	The ratio of research and development cost to total asset	Compustat
Return on Asset	Operating income before depreciation scaled by book value of totals assets	Compustat
Firm Leverage	Ratio of Total debt (DLC+DLTT) to Total debt plus Market value of Equity (DLC+DLTT+(CSHO*PRCC$_F$)	Compustat
Change in Employees	The percentage change in the number of employees at the end of the fiscal year	Compustat
Industry Cashflow Volatility	Industry Standard deviation of annual operating cashflow (OIBDP) scaled by total assets over the previous 3 years.	Compustat
Firm Age	The number of years a firm has been in compustat at the end of the fiscal year	Compustat
Number of Institutional Holders	Number of blockholder at the end of the fiscal year	Factset
Capital Expenditure	It is measured as capital expenditures (CAPX) over total assets (AT).	Compustat

Table 3.1: Summary Statistics

The table presents descriptive statistics for firm and CEO related variables used in the study for the period 2000 to 2018. Mean and Median denote the Mean and Median of each variable used, respectively. Detailed description of these variables are explained in Appendix

	Full Sample		**Narcissist**		**Non-Narcissist**	
	Mean	Median	Mean	Median	Mean	Median
Panel A: Pension Related						
Funding Status	0.79	0.80	0.78	0.80	0.80**	0.81
Plan Size	0.19	0.13	0.19	0.13	0.18*	0.13
Actual Return on Asset	0.05	0.08	0.05	0.08	0.05	0.08
Pension Discount Rate	4.97	5.20	4.96	5.15	4.98	5.20
Panel B: CEO Related						
CEO Duality	0.72	1.00	0.73	1.00	0.71	1.00
CEO Age	56.74	57.00	56.58	57.00	56.89**	57.00**
CEO Tenure	5.86	5.00	5.61	4.00	6.10***	5.00*
CEO Share Ownership	0.63	0.08	0.43	0.08	0.82***	0.08
CEO Gender	0.96	1.00	0.96	1.00	0.96	1.00
CEO Compensation	8.92	8.98	8.95	9.00	8.89**	8.97**
Panel C: Firm Related						
Firm Size	9.17	9.07	9.21	9.12	9.13**	9.01**
Return on Asset	0.15	0.14	0.14	0.14	0.15*	0.14
Research and Development	0.02	0.01	0.02	0.01	0.02	0.01***
Capital Expenditure	0.05	0.03	0.04	0.03	0.05	0.04
Book to Market	0.43	0.35	0.42	0.35	0.44**	0.36*
Operating Cashflow	0.11	0.10	0.10	0.10	0.11***	0.11***
Leverage	0.22	0.18	0.22	0.19	0.22	0.18**
Industry Cashflow Volatility	0.02	0.02	0.02	0.02	0.02	0.02**
Institutional Shareholders	6.03	6.08	6.08	6.12	6.00***	6.04***
Change in number of Employees	0.01	0.00	0.00	0.00	0.01	0.00*
Firm Age	3.53	3.85	3.52	3.85	3.53	3.83

Table 3.2: Correlation Matrix

The table presents a correlation matrix between all variables used in the analysis. Detailed descriptions of these variables are explained in Appendix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) CEO Narcissism Dummy	1						
(2) Plan Asset	0.03*	1					
(3) CEOChairman	0.02	0.10***	1				
(4) CEO Age	-0.03*	0.01	0.18***	1			
(5) CEO Tenure	-0.05***	-0.15***	0.19***	0.46***	1		
(6) CEO Share Ownership	-0.08***	-0.07***	0.09***	0.23***	0.36***	1	
(7) CEO Gender	0.01	-0.09***	0.04**	0.03**	0.07***	0.04***	1
(8) Actual Return on Asset	0.01	0.05***	-0.01	0.04***	0.02	0.00	-0.01
(9) Pension Discount Rate	-0.01	0.10***	0.21***	-0.07***	-0.04***	-0.02	0.04***
(10) Firm Size	0.03**	0.02	0.13***	0.08***	0.01	-0.04***	-0.09***
(11) Return on Asset	-0.02*	-0.05***	0.07***	0.02	0.02	-0.03**	0.02
(12) Research and Dev.	0.01	0.05***	-0.05***	-0.06***	-0.08***	-0.09***	0.05***
(13) Capital Expenditure	-0.01	-0.12***	0.05***	0.01	0.07***	0.04***	0.04***
(14) Book to Market	-0.04**	-0.11***	-0.03**	-0.02	0.01	0.07***	0.01
(15) Operation Cashflow	-0.04***	-0.10***	0.04***	0.03**	0.04***	-0.01	0.03**
(16) Leverage	0.02	0.03**	-0.01	-0.04***	-0.03*	-0.01	-0.05***
(17) Industry Cashflow Vol.	0.01	-0.11***	0.01	0.02	0.05***	0.04**	0.04***
(18) CEO Compensation	0.04**	0.03**	0.10***	0.04***	-0.02	-0.26***	-0.05***
(19) Institutional Shareholders	0.06***	0.00	0.09***	0.06***	0.01	-0.12***	-0.07***
(20) Change Employee Number	-0.01	-0.09***	0.02	0.02	0.05***	0.02	0.01
(21) Firm Age	-0.01	0.25***	0.15***	0.07***	0.05***	0.02	-0.03**

Correlation Matrix Cont..

The table presents a correlation matrix between all variables used in the analysis. Detailed descriptions of these variables are explained in Appendix

	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(8) Actual Return on Asset	1						
(9) Pension Discount Rate	-0.18***	1					
(10) Firm Size	0.05***	-0.07***	1				
(11) Return on Asset	-0.04**	0.03**	-0.11***	1			
(12) Research and Dev.	-0.04***	-0.15***	-0.07***	0.12***	1		
(13) Capital Expenditure	-0.06***	0.08***	0.05***	0.22***	-0.13***	1	
(14) Book to Market	-0.14***	0.07***	0.02	-0.44***	-0.21***	0.11***	1
(15) Operation Cashflow	-0.03**	0.01	-0.09***	0.78***	0.16***	0.29***	-0.32***
(16) Leverage	-0.11***	0.04***	0.17***	-0.46***	-0.29***	0.05***	0.45***
(17) Industry Cashflow Vol.	-0.01	0.01	0.09***	-0.10***	-0.05***	0.27***	0.19***
(18) CEO Compensation	0.03**	-0.13***	0.55***	0.11***	0.08***	-0.01	-0.16***
(19) Institutional Shareholders	0.04**	-0.09***	0.59***	0.18***	0.14***	0.05***	-0.23***
(20) Change Employee Number	0.05***	-0.02	-0.03**	0.17***	-0.03**	0.08***	-0.13***
(21) Firm Age	0.04***	0.02*	0.18***	-0.07***	-0.11***	-0.01	0.02

Correlation Matrix Cont..

The table presents a correlation matrix between all variables used in the analysis. Detailed descriptions of these variables are explained in Appendix

	(15)	(16)	(17)	(18)	(19)	(20)	(21)
(15) Operation Cashflow	1						
(16) Leverage	-0.45***	1					
(17) Industry Cashflow Vol.	0.00	0.04***	1				
(18) CEO Compensation	0.08***	-0.05***	0.04***	1			
(19) Institutional Shareholders	0.18***	-0.16***	0.04**	0.45***	1		
(20) Change Employee Number	0.11***	-0.13***	-0.03*	0.03**	0.02	1	
(21) Firm Age	-0.08***	0.04***	-0.01	0.09***	0.14***	-0.09***	1

Table 3.3: CEO Narcissism and Funding Status

The table presents the regressions of CEO Narcissism's impact on employees DB Pension funding status. The dependent variable is Funding status. Standard errors are clustered by firm. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively with t-statistics in parentheses. All Control variables are defined in Appendix.

Dependent Var.: **Funding Status**	All Narcissism Dummy	Signature Dummy
	(1)	(2)
CEO Narcissism	-0.014	-0.024*
	(-1.09)	(-1.79)
Plan Size	0.077*	0.086*
	(1.71)	(1.83)
CEO Duality	0.005	0.005
	(0.35)	(0.36)
CEO Age	-0.001	-0.001
	(-0.39)	(-0.56)
CEO Tenure	-0.001	-0.001
	(-0.72)	(-0.35)
CEO Gender	0.048*	0.052*
	(1.96)	(1.95)
Actual Return on Asset	0.419***	0.433***
	(17.58)	(17.38)
Pension Discount Rate	0.021***	0.024***
	(4.47)	(4.88)
Firm Size	0.013*	0.010
	(1.67)	(1.26)
Return on Asset	0.074	0.089
	(0.71)	(0.78)
Research and Development	-0.745**	-0.609
	(-2.09)	(-1.62)
Capital Expenditure	-0.187	-0.129
	(-0.67)	(-0.41)
Book to Market	0.012	0.021
	(0.73)	(1.12)
Operating Cashflow	0.162	0.206
	(1.30)	(1.61)
Leverage	-0.097*	-0.078
	(-1.76)	(-1.34)
Industry Cashflow Volatility	0.483	0.588*
	(1.64)	(1.70)
CEO Compensation	-0.015*	-0.012
	(-1.79)	(-1.35)
Change in number of Employees	-0.044	-0.031
	(-0.84)	(-0.56)
Firm Age	0.038***	0.035***
	(3.19)	(2.75)
Cons	0.882***	0.857***
	(7.98)	(7.10)
N	3852	3416
R-sq	0.344	0.369

Table 3.4: DB Pension Speed of Adjustment (SOA)

The Table report the speed of adjusting DB finding status to the fully funded level. Column 1 reports the regressions for the estimation of DB Pension status adjustment speed based on Equation 3.1. Column 2 reports the regressions for the impact of Surplus on the adjustment speed of DB funding status based on Equation 3.2. Surplus is a dummy variable that equals one if the DB Funding status is above one (Over-funded) and zero otherwise. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively with t-statistics in parentheses. All Control variables are defined in Appendix.

Dependent Variable	$Funding_{i,t} - Funding_{i,t-1}$	$Funding_{i,t} - Funding_{i,t-1}$
	(1)	(2)
$DevFS_{i,t-1}$	0.192***	0.230***
	(11.84)	(10.62)
Surplus		0.084***
		(12.11)
$DevFS_{i,t-1}$*Surplus		0.146***
		(4.22)
Controls	Yes	Yes
Year Fixed Effects	Yes	Yes
Industry Fixed Effects	Yes	Yes
Observation	3852	3852
R-square	0.643	0.726

Table 3.5: The Effect of CEO Narcissism on the SOA of DB Funding Status

The Table presents the regressions of CEO Narcissism's impact on the speed of adjustment of employees DB Pension funding to the fully funded level. The dependent variable is the annual change in Funding status. Column 2&4 reports the regressions for the impact of Surplus on the adjustment speed of DB funding status by narcissist CEOs. Surplus is a dummy variable that equals one if the DB Funding status is above one and zero otherwise. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively with t-statistics in parentheses. All Control variables are defined in Appendix.

	Narcissism Indicator		**Signature Size Dummy**	
	(1)	**(2)**	**(3)**	**(4)**
$DevFS_{i,t-1}$	0.218***	0.257***	0.221***	0.268***
	(10.98)	(9.18)	(10.24)	(8.37)
CEO Narcissism	0.009**	0.012**	0.010**	0.015**
	(2.28)	(1.99)	(2.26)	(2.28)
CEO Narcissism*$DevFS_{i,t-1}$	-0.057***	-0.056*	-0.060**	-0.071**
	(-2.66)	(-1.82)	(-2.55)	(-2.01)
Surplus		0.094***		0.093***
		(10.12)		(9.29)
Surplus*$DevFS_{i,t-1}$		0.151***		0.124***
		(3.63)		(3.03)
CEO Narcissism*Surplus		-0.026**		-0.031***
		(-2.48)		(-2.76)
CEO Narcissism* Surplus*$DevFS_{i,t-1}$		-0.060		-0.051
		(-1.11)		(-0.95)
CEO Overconfidence	0.06	0.010*	0.03	0.01
	(1.01)	(1.89)	(0.45)	(1.33)
Controls	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes
N	3852	3852	3416	3416
R-sq	0.697	0.729	0.708	0.736

Table 3.6: Matched Sample Statistics

The Table presents the matched sample summary statistics of firm and CEO related characteristics of narcissist CEOs and non-narcissist CEOs subsamples based on propensity score matching. A detailed description of the variables is explained in the Appendix. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

	Full Sample		**Narcissist**		**Non-Narcissist**	
	Mean	Median	Mean	Median	Mean	Median
Panel A: Pension Related						
$DevFS_{i,t-1}$	0.18	0.18	0.18	0.19	0.00	0.13
Plan Size	0.20	0.14	0.20	0.15	0.01	0.84
Actual Return on Asset	0.05	0.08	0.05	0.08	0.00	-0.52
Pension Discount Rate	5.04	5.12	5.07	5.20	0.03	0.56
Panel B: CEO Related						
CEO Duality	0.73	1.00	0.73	1.00	0.00	0.16
CEO Age	56.75	57.00	56.71	57.00	-0.04	-0.19
CEO Tenure	5.75	5.00	5.58	4.00	-0.17	-1.00
CEO Share Ownership	0.41	0.09	0.48	0.07	0.07	1.13
CEO Gender	0.97	1.00	0.97	1.00	0.00	0.53
CEO Compensation	8.96	9.01	8.95	9.00	-0.01	-0.51
Panel C: Firm Related						
Firm Size	9.21	9.10	9.23	9.10	0.03	0.57
Return on Asset	0.15	0.15	0.15	0.15	0.00	-0.05
Research and Development	0.02	0.01	0.02	0.01	0.00	-0.18
Capital Expenditure	0.05	0.03	0.04	0.04	0.00	-0.68
Book to Market	0.40	0.34	0.40	0.34	0.00	-0.14
Operation Cashflow	0.11	0.11	0.11	0.11	0.00	-0.55
Leverage	0.21	0.18	0.21	0.17	0.00	-0.07
Industry Cashflow Volatility	0.02	0.02	0.02	0.02	0.00	-0.12
Institutional Shareholders	6.06	6.10	6.09	6.10	0.03	1.01
Change in number of Employees	0.01	0.00	0.01	0.00	0.00	-0.51
Firm Age	3.61	3.89	3.61	3.91	0.01	0.23

Table 3.7: Matched Sample Analysis

The Table presents the matched sample regressions of CEO Narcissism's impact on the speed of adjustment of employees DB Pension to the fully funded level. The dependent variable is the annual change in Funding status. Column 1& 2 are regressions using Propensity score matching sample while columns 3 & 4 are regressions with Entropy balancing matching sample. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively, with t-statistics in parentheses and standard errors clustered by firm..

	Propensity Score		**Entropy Balancing**	
	(1)	**(2)**	**(3)**	**(4)**
$DevFS_{i,t-1}$	0.204***	0.259***	0.220***	0.276***
	(9.09)	(7.99)	(10.69)	(11.26)
CEO Narcissism	0.009*	0.014**	0.008**	0.014***
	(1.83)	(2.05)	(1.65)	(2.71)
CEO Narcissism*$DevFS_{i,t-1}$	-0.052**	-0.066*	-0.052***	-0.071***
	(-2.25)	(-1.89)	(-2.71)	(-3.01)
Surplus		0.096***		0.097***
		(9.28)		(11.35)
Surplus*$DevFS_{i,t-1}$		0.111**		0.120***
		(2.20)		(2.68)
CEO Narcissism*Surplus		-0.029**		-0.028***
		(-2.54)		(-2.87)
CEO Narcissism* Surplus*$DevFS_{i,t-1}$		-0.028		-0.021
		(-0.45)		(-0.40)
Controls	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes
N	3290	3290	3852	3852
R-sq	0.693	0.723	0.723	0.752

Table 3.8: Panel Fixed Effects Analysis

The Table reports the Panel Fixed Effects regressions for the estimation of the effect of CEO Narcissism on employees DB Pension status adjustment speed. Column 2&4 reports the regressions for the impact of Surplus on the adjustment speed of DB funding status. Surplus is a dummy variable that equals one if the DB Funding status is above one and zero otherwise. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively with t-statistics in parentheses. All Control variables are defined in Appendix.

	Narcissism Indicator		**Signature Size Dummy**	
	(1)	**(2)**	**(3)**	**(4)**
	(1)	(2)	(3)	(4)
$DevFS_{i,t-1}$	0.369***	0.449***	0.361***	0.467***
	(12.75)	(17.31)	(12.10)	(17.56)
CEO Narcissism	0.006	0.006	0.003	0.012
	(1.04)	(0.72)	(0.43)	(1.45)
CEO Narcissism*$DevFS_{i,t-1}$	-0.038*	-0.042*	-0.030	-0.041*
	(-1.70)	(-1.69)	(-1.22)	(-1.69)
Surplus		0.079***		0.083***
		(11.70)		(11.25)
Surplus*$DevFS_{i,t-1}$		0.045		0.004
		(1.18)		(0.10)
CEO Narcissism*Surplus		-0.004		-0.015
		(-0.43)		(-1.60)
CEO Narcissism*$DevFS_{i,t-1}$*Surplus		-0.037		0.004
		(-0.87)		(0.09)
Controls	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes
N	3852	3852	3416	3416
R-sq	0.742	0.794	0.756	0.800

Table 3.9: Using 90% and 80% Optimal Funding Status

The Table presents the regressions of CEO Narcissism's impact on the speed of adjustment of DB Pension funding status using 90% and 80% as the fully funded level. The dependent variable is the annual change in Funding status. $DevFS_{i,t-1}$ is the difference between target DB Funding status and actual DB Funding status. Control variables are defined in Appendix. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively, with t-statistics in parentheses and standard errors clustered by firm..

	90% Funding Status		**80% Funding Status**	
	(1)	(2)	(1)	(2)
$DevFS_{i,t-1}$	0.183***	0.231***	0.183***	0.231***
	(8.80)	(8.30)	(8.80)	(8.30)
CEO Narcissism	0.001	0.003	-0.002	-0.001
	(0.34)	(1.00)	(-0.94)	(-0.23)
CEO Narcissism*$DevFS_{i,t-1}$	-0.032	-0.039	-0.032	-0.039
	(-1.41)	(-1.26)	(-1.41)	(-1.26)
Surplus		0.103***		0.120***
		(9.07)		(7.76)
Suplus*$DevFS_{i,t-1}$		0.175***		0.175***
		(3.00)		(3.00)
CEO Narcissism*Surplus		-0.019		-0.023
		(-1.50)		(-1.28)
CEO Narcissism*Surplus*$DevFS_{i,t-1}$		-0.037		-0.037
		(-0.51)		(-0.51)
Controls	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes
N	3560	3560	3560	3560
R-sq	0.705	0.732	0.705	0.732

Table 3.10: Using Other Measures of CEO Narcissism

The Table presents regression results of the effect of CEO narcissism on the adjustment speed of employees DB pension plan to the fully funded level using continuous measures of CEO narcissism. The dependent variable is the annual change in Funding status. $DevFS_{i,t-1}$ is the difference between target DB Funding status and actual DB Funding status. Control variables are defined in Appendix. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively, with t-statistics in parentheses and standard errors clustered by firm..

	Signature Size		**Standardised Average**	
	(1)	(2)	(1)	(2)
$DevFS_{i,t-1}$	0.253***	0.317***	0.264***	0.299***
	(9.15)	(7.97)	(7.19)	(6.56)
CEO Narcissism	0.025***	0.042***	0.030	0.046*
	(2.60)	(3.16)	(1.47)	(1.85)
CEO Narcissism*$DevFS_{i,t-1}$	-0.134***	-0.183***	-0.198**	-0.187*
	(-3.00)	(-2.68)	(-2.22)	(-1.69)
Surplus		0.106***		0.122***
		(8.30)		(6.17)
Suplus*$DevFS_{i,t-1}$		0.097		0.225*
		(1.60)		(1.76)
CEO Narcissism*Surplus		-0.059***		-0.106**
		(-2.84)		(-2.23)
CEO Narcissism*Surplus*$DevFS_{i,t-1}$		0.037		-0.254
		(0.33)		(-0.75)
Controls	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes
N	3416	3416	3852	3852
R-sq	0.708	0.736	0.696	0.728

Table 3.11: Controlling for other CEO Traits

The Table reports the baseline regression of the effect of CEO narcissism on SOA DB pension after controlling for CEO Conservatism and Overconfidence The dependent variable is the annual change in the Funding status of DB funding status. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively with t-statistics in parentheses. All Control variables are defined in Appendix.

	Narcissism Indicator		**Signature Size Dummy**	
	(1)	**(2)**	**(3)**	**(4)**
$DevFS_{i,t-1}$	0.223***	0.323***	0.222***	0.336***
	(10.46)	(13.13)	(10.13)	(12.82)
CEO Narcissism	0.010**	0.016*	0.009**	0.020**
	(2.29)	(1.84)	(2.07)	(2.27)
CEO Narcissism*$DevFS_{i,t-1}$	-0.060***	-0.059*	-0.060**	-0.076**
	(-2.61)	(-1.67)	(-2.54)	(-2.12)
CEO Conservatism	0.001	0.001	-0.001	0.000
	(0.20)	(0.39)	(-0.22)	(0.06)
CEO Overconfidence	0.003	0.004	0.002	0.004
	(0.59)	(0.77)	(0.38)	(0.72)
Surplus		0.074***		0.078***
		(11.14)		(10.90)
Surplus*$DevFS_{i,t-1}$		0.079**		0.058*
		(2.28)		(1.76)
CEO Narcissism*Surplus		-0.013		-0.019*
		(-1.35)		(-1.83)
CEO Narcissism*$DevFS_{i,t-1}$*Surplus		0.009		0.030
		(0.19)		(0.62)
Controls	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes
N	3564	3564	3388	3388
R-sq	0.704	0.768	0.709	0.770

Table 3.12: The moderating Effect of Cashflow in CEO Compensation Contract on the DB Pension SOA

The Table presents a regression of the moderating effect Of Cashflow in CEO compensation contract on funding status adjustment speed by a Narcissist CEO. The Regression includes controls, year and industry fixed effects. All variables are defined in Appendix. The dependent variable is the annual change in Funding status. Columns 1, 2, 3 4 and 5, 6, 7 8 are regressions for cashflow in compensation contract and cashflow sensitivity respectively. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively, with t-statistics in parentheses and standard errors clustered by firm.

Panel A: Using Narcissism Dummy

	Cash flow in Compensation Contract				**Cash flow Sensitive to Compensation**			
	Yes	**Yes**	**No**	**No**	**Yes**	**Yes**	**No**	**No**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$DevFS_{i,t-1}$	0.241***	0.276***	0.179***	0.229***	0.252***	0.293***	0.161***	0.202***
	(8.93)	(6.59)	(9.93)	(9.74)	(10.02)	(7.63)	(8.48)	(8.30)
CEO Narcissism	0.017***	0.021**	-0.003	-0.004	0.019***	0.025***	-0.004	-0.007
	(3.16)	(2.49)	(-0.55)	(-0.55)	(3.31)	(2.90)	(-0.78)	(-0.97)
CEO Narcissism*$DevFS_{i,t-1}$	-0.071***	-0.074*	-0.011	-0.000	-0.076***	-0.086**	-0.009	0.007
	(-2.60)	(-1.73)	(-0.42)	(-0.01)	(-2.76)	(-2.06)	(-0.35)	(0.23)
Surplus		0.107***		0.077***		0.111***		0.069***
		(7.67)		(8.02)		(8.15)		(7.43)
Surplus*$DevFS_{i,t-1}$		0.156***		0.110**		0.146***		0.124***
		(2.79)		(2.36)		(2.69)		(2.76)
CEO Narcissism* Surplus		-0.045***		0.007		-0.047***		0.011
		(-3.11)		(0.50)		(-3.16)		(0.89)
CEO Narcissism* Surplus*$DevFS_{i,t-1}$		-0.090		-0.002		-0.075		0.001
		(-1.28)		(-0.03)		(-1.07)		(0.03)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	2318	2318	1534	1534	2289	2289	1563	1563
R-sq	0.706	0.740	0.710	0.738	0.704	0.739	0.711	0.737

The Table presents a regression of the moderating effect Of Cashflow in CEO compensation contract on funding status adjustment speed by a Narcissist CEO. The Regression includes controls, year and industry fixed effects. All variables are defined in Appendix. The dependent variable is the annual change in Funding status. Columns 1, 2, 3 4 and 5, 6, 7 8 are regressions for cashflow in compensation contract and cashflow sensitivity respectively. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively, with t-statistics in parentheses and standard errors clustered by firm.

Panel B: Using Signature Size Dummy

	Cash flow in Compensation Contract				**Cash flow Sensitive to Compensation**			
	Yes	**Yes**	**No**	**No**	**Yes**	**Yes**	**No**	**No**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$DevFS_{i,t-1}$	0.234***	0.278***	0.198***	0.252***	0.249***	0.299***	0.175***	0.223***
	(7.77)	(5.66)	(9.90)	(9.77)	(8.74)	(6.62)	(8.67)	(8.67)
CEO Narcissism	0.015***	0.021**	0.001	0.005	0.016***	0.024**	-0.000	0.002
	(2.74)	(2.19)	(0.20)	(0.63)	(2.81)	(2.60)	(-0.00)	(0.26)
CEO Narcissism*$DevFS_{i,t-1}$	-0.064**	-0.075*	-0.031	-0.034	-0.073**	-0.090*	-0.024	-0.026
	(-2.07)	(-1.68)	(-1.06)	(-0.96)	(-2.34)	(-1.84)	(-0.88)	(-0.75)
Surplus		0.099***		0.084***		0.106***		0.073***
		(6.54)		(7.58)		(7.25)		(7.20)
Surplus*$DevFS_{i,t-1}$		0.123**		0.104**		0.115**		0.107**
		(2.10)		(2.19)		(2.10)		(2.40)
CEO Narcissism* Surplus		-0.039**		-0.011		-0.047***		0.003
		(-2.54)		(-0.71)		(-3.14)		(0.22)
CEO Narcissism* Surplus*$DevFS_{i,t-1}$		-0.056		-0.052		-0.060		0.001
		(-0.75)		(-0.91)		(-0.86)		(0.01)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	2045	2045	1371	1371	2015	2015	1401	1401
R-sq	0.719	0.747	0.717	0.743	0.719	0.749	0.714	0.738[

Table 3.13: The Effect of Tax Policy on the SOA of DB Funding Status

The Table reports the analysis of the effect of Change in corporate tax policy on the speed of adjusting DB Pension by narcissist CEOs. The dependent variable is the annual change in the Funding status of DB funding status. TCJA is a dummy variable equal to one if firm year is 2017 and zero otherwise. Standard errors are clustered by firm and t-statistics in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively with t-statistics in parentheses. All Control variables are defined in Appendix.

	Narcissism Indicator		**Signature Size Dummy**	
	(1)	**(2)**	**(3)**	**(4)**
CEO Narcissism	0.009**	0.013**	0.010**	0.016**
	(2.35)	(2.19)	(2.30)	(2.40)
$DevFS_{i,t-1}$	0.225***	0.267***	0.227***	0.277***
	(11.39)	(9.37)	(10.56)	(8.55)
CEO Narcissism*$DevFS_{i,t-1}$	-0.062***	-0.064**	-0.065***	-0.077**
	(-2.93)	(-2.07)	(-2.83)	(-2.23)
TCJA	0.037**	0.062***	0.036**	0.063***
	(2.44)	(3.68)	(2.26)	(3.53)
TCJA*$DevFS_{i,t-1}$	-0.174***	-0.183***	-0.183***	-0.197***
	(-4.84)	(-4.29)	(-4.44)	(-4.09)
CEO Narcissism*TCJA	-0.026	-0.033	-0.027	-0.032
	(-1.51)	(-1.58)	(-1.50)	(-1.48)
CEO Narcissism*TCJA*$DevFS_{i,t-1}$	0.147*	0.156*	0.177**	0.182**
	(1.90)	(1.84)	(2.21)	(2.07)
CEO Overconfidence	0.006	0.009*	0.004	0.008
	(1.06)	(1.88)	(0.58)	(1.42)
Surplus		0.097***		0.095***
		(10.10)		(9.33)
Surplus*$DevFS_{i,t-1}$		0.144***		0.118***
		(3.43)		(2.88)
CEO Narcissism* Surplus*$DevFS_{i,t-1}$*TCJA		-0.473*		-0.357
		(-1.75)		(-1.12)
Controls	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
N	3852	3852	3416	3416
R-sq	0.698	0.730	0.710	0.738

Table 3.14: The moderating Effect of Corporate Governance on the DB Pension SOA

The Table presents a regression of the moderating effect of Corporate Governance on funding status adjustment speed by a Narcissist CEO. The Regression includes controls, year and industry fixed effects. All variables are defined in Appendix. The dependent variable is the annual change in Funding status. Columns 1, 2, 3 & 4 and 5, 6, 7 & 8 are regressions for Institutional Ownership, CEO Tenure respectively. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively, with t-statistics in parentheses and standard errors clustered by firm.

Panel A: Using Narcissism Dummy

	Block Ownership				**CEO Tenure**			
	Low	**Low**	**High**	**High**	**Low**	**Low**	**High**	**High**
$DevFS_{i,t-1}$	0.254***	0.299***	0.183***	0.229***	0.223***	0.222***	0.213***	0.290***
	(10.39)	(9.09)	(5.46)	(4.96)	(6.62)	(9.86)	(5.91)	(5.70)
CEO Narcissism	0.009*	0.014*	0.008	0.011	0.006	0.001	0.011*	0.022**
	(1.72)	(1.81)	(1.25)	(1.15)	(0.84)	(0.12)	(1.66)	(2.17)
CEO Narcissism*$DevFS_{i,t-1}$	-0.067**	-0.077**	-0.039	-0.040	-0.034	0.005	-0.075**	-0.113**
	(-2.54)	(-2.10)	(-1.17)	(-0.84)	(-0.98)	(0.19)	(-2.25)	(-2.28)
Surplus		0.104***		0.089***		0.086***		0.096***
		(7.87)		(6.57)		(9.66)		(7.44)
Surplus*$DevFS_{i,t-1}$		0.124***		0.178**		0.210***		0.071
		(2.76)		(2.00)		(3.93)		(1.19)
CEO Narcissism* Surplus		-0.025		-0.024*		-0.013		-0.030**
		(-1.49)		(-1.69)		(-1.12)		(-2.10)
CEO Narcissism* Surplus*$DevFS_{i,t-1}$		-0.049		-0.055		-0.111		0.036
		(-0.73)		(-0.56)		(-1.43)		(0.51)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	1854	1854	1998	1998	1904	1904	1948	1948
R-sq	0.721	0.753	0.682	0.715	0.717	0.752	0.694	0.722

The Table presents a regression of the moderating effect of Corporate Governance on funding status adjustment speed by a Narcissist CEO. The Regression includes controls, year and industry fixed effects. All variables are defined in Appendix. The dependent variable is the annual change in Funding status. Columns 1, 2, 3 & 4 and 5, 6, 7 & 8 are regressions for Institutional Ownership, CEO Tenure respectively. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively, with t-statistics in parentheses and standard errors clustered by firm.

Panel B: Using Signature Size Dummy

	Block Ownership				**CEO Tenure**			
	Low	**Low**	**High**	**High**	**Low**	**Low**	**High**	**High**
$DevFS_{i,t-1}$	0.269***	0.326***	0.175***	0.223***	0.230***	0.243***	0.213***	0.286***
	(10.29)	(9.35)	(4.96)	(4.30)	(6.30)	(10.48)	(5.52)	(5.22)
CEO Narcissism	0.009	0.019**	0.009	0.011	0.007	0.006	0.011*	0.023**
	(1.56)	(2.30)	(1.39)	(1.12)	(0.95)	(0.98)	(1.69)	(2.14)
CEO Narcissism*$DevFS_{i,t-1}$	-0.072**	-0.096**	-0.037	-0.041	-0.039	-0.017	-0.076**	-0.116**
	(-2.49)	(-2.38)	(-1.03)	(-0.76)	(-1.05)	(-0.57)	(-2.13)	(-2.15)
Surplus		0.110***		0.077***		0.089***		0.093***
		(7.68)		(6.28)		(9.43)		(6.85)
Surplus*$DevFS_{i,t-1}$		0.105**		0.120*		0.169***		0.073
		(2.28)		(1.93)		(3.21)		(1.17)
CEO Narcissism* Surplus		-0.045***		-0.016		-0.026**		-0.030*
		(-2.71)		(-1.21)		(-2.36)		(-1.90)
CEO Narcissism* Surplus*$DevFS_{i,t-1}$		-0.068		-0.031		-0.108		0.029
		(-1.05)		(-0.40)		(-1.44)		(0.39)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	1597	1597	1819	1819	1649	1649	1767	1767
R-sq	0.731	0.764	0.698	0.722	0.730	0.759	0.705	0.731

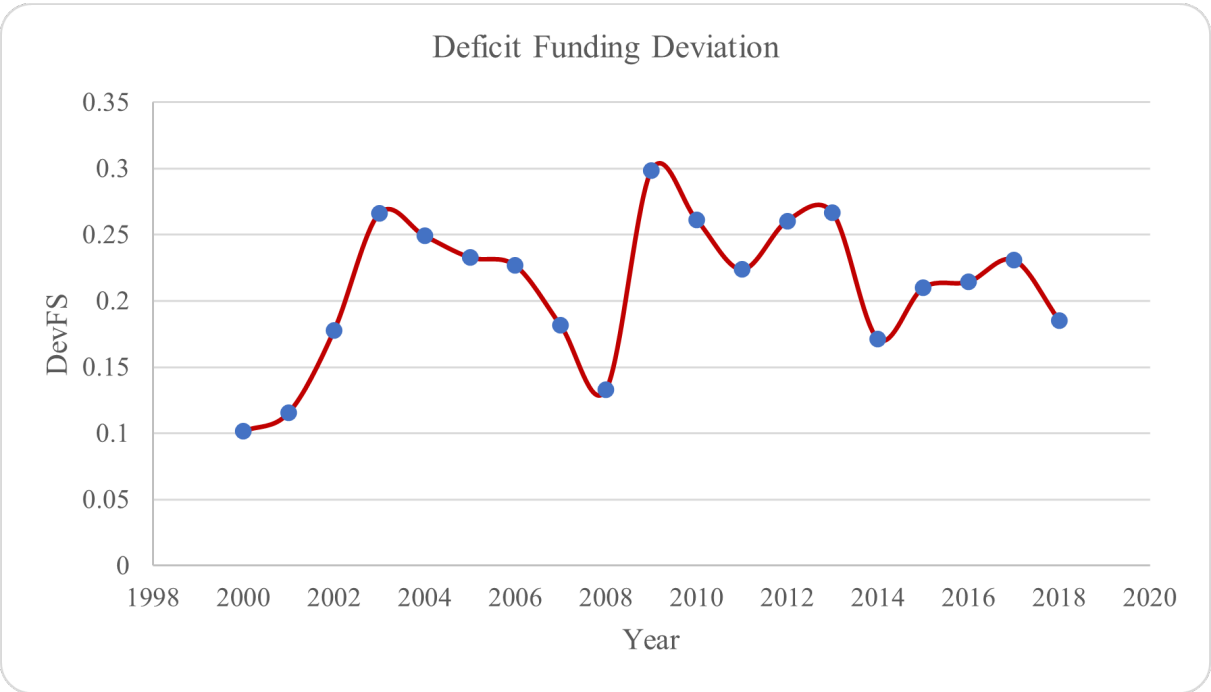

Figure 3.1: *Trend of DB Funding Deviation for 2000 to 2018*

Chapter 4

CEO Narcissism and Corporate Lobbying

4.1 Introduction

For corporate bodies to translate their opinions into the legislative process, there is a need for the corporation to develop a relationship with key policy actors. This relationship develops into networks that control policy-making. Building on this insight, lobbying is one of the critical ways of building and maintaining these networks to influence policymaking. Relative to other ways of influencing policy-making, lobbying is the most popular method employed by corporations (Chen et al., 2015).

Milbrath (1963) define lobbying as "*the stimulation and transmission of a communication, by which someone other than a citizen acting on his behalf, directed to a governmental decision-maker, with the hope of influencing his decision*". The above definition indicates how communication plays a crucial role in corporate lobbying. Lobbying the U.S. Congress has long been used to gain political influence by American corporations. In 1792, the American

Revolution veterans were lobbying Congress to make their interests known. Hence, lobbying can be classified as one of the government's oldest professions.

Corporate lobbying is a strategic process where firms employ the services of professional advocates to influence members of Congress and government officials on issues that interest them. In 2021, firms spent approximately $3.8 billion on lobbying expenditure, higher than the $3.5 billion spent in 2020[1]. Additionally, corporate lobbying dominates all corporate political spending (Richter et al., 2009). Unlike political donations to politicians, which are limited to $5,000 per election cycle, lobbying expenditure has no limit, hence making it a channel where a firm can spend to effect changes in regulations that do not support their operations[2]. Further, corporate firms are not legally allowed to make direct contributions to political campaigns in the US from the treasury of the form. However, they can form Political action committees that individual directors and employees can donate to support their candidate for election.

Prior research finds corporate lobbying to influence financial performance positively (Chen et al., 2015); approval for Troubled Asset Relief Program (TARP) funds (Duchin and Sosyura, 2012) and receiving stimulus funds (Adelino and Dinc, 2014). Also, firm size (Hill et al., 2013) and firm financial health (Adelino and Dinc, 2014) influence a firm's decision to engage in lobbying. Firm executives play a key role in the lobbying activities of a firm. Except for Unsal et al. (2016), who finds Republican-leaning CEOs lobby more bills and spend a larger dollar amount, little is known about how the psychological trait of the CEO influence a firm's lobbying activity. This paper focuses on an important question that the literature has left unanswered. *Specifically, this study ask whether CEO narcissism influences a firm's lobbying decision.*

Narcissism is defined by the American Psychiatric Association (APA) as "a

[1]See: https://www.opensecrets.org/federal-lobbying
[2]See: http://www.fec.gov/pages/brochures/contriblimits.shtml

multifaceted personality trait that combines grandiosity, attention seeking, an unrealistically inflated self-view, a need for that self-view to be continuously reinforced through self-regulation, and a general lack of regard for others" (American Psychiatric Association et al., 2013). Growing research in finance finds CEO narcissism to be associated with adverse firm outcomes: accrual-based earnings management (Buchholz et al., 2020), opportunistic accounting (Abdel-Meguid et al., 2021), corporate tax sheltering (Olsen and Stekelberg, 2016), firm lawsuits and litigation (O'Reilly III et al., 2018), overinvestment (Ham et al., 2018) and risk-taking (Buyl et al., 2019).

Narcissist CEOs feel more entitled and lack empathy for others. Such CEOs are less likely to take no for an answer. Narcissist CEOs are more likely to push for what they want and refuse to accept any alternative view. These tendencies can influence them to engage in criminal activities (Buchholz et al., 2020; O'Reilly III et al., 2018). In line with this, I hypothesize that CEO narcissism is likely to affect the corporate lobbying activities of a firm. I argue that narcissist CEOs are likely to use corporate lobbying as a channel to influence members of congress and government officials on issues that are of interest to them.

To empirically examine the relationship between CEO narcissism and corporate lobbying, I follow existing literature (Chou et al., 2021; Church et al., 2020; Ham et al., 2018) to create a narcissism score for each CEO based on their area per character signature size. CEOs are likelier to have a higher narcissism score than the average employee. This is because most of the traits required for advancement in the workplace in inherent in the narcissism personality trait. While CEOs may have a degree of narcissism, not every CEO meets the narcissistic personality disorder criteria. In line with this, I measure CEO narcissism as an indicator variable that takes the value one if the CEO's area per character signature size is above the average of the sample CEOs and zeroes otherwise.

Using a sample of 8,637 firms-years observations between 2000–2020 for 1,192 unique CEOs, I find keen involvement of narcissist-managed firms in corporate lobbying activities compared to other firms. Economically, there is a 7% marginal likelihood of corporate lobbying in narcissist-managed firms compared to other firms. Also, narcissist CEOs managed firms spend more significant dollar amounts on corporate lobbying than other firms. A potential concern of this study is that the lobbying activities of the narcissist CEOs may be driven by their overconfidence, and the signature size measure of CEO narcissism may be measuring CEO conservatism (Duong et al., 2021). In the baseline analysis, I control for the Duong et al. (2021), and Malmendier and Tate (2005) measures of CEO conservatism and overconfidence, respectively. I find that narcissist CEOs' presence and intensity of corporate lobbying are beyond their overconfidence and conservatism.

A potential concern of this study is that the appointment of CEOs may be endogenous. The study addresses endogeneity concerns in two ways. First, Since narcissism is a stable personality trait (Raskin and Terry, 1988), one key concern in analyzing the effect of CEO narcissism on corporate lobbying is to identify an exogenous shock that can change the level of narcissism in the CEO. I adopt a similar approach used by Shang (2021) to address this concern by focusing on CEO exogenous turnover. Using Two-way Fixed Effects (TWFE) in a staggered DiD setting, I find firms replacing non-narcissist outgoing CEOs with narcissist ones tend to experience a higher presence and intensity of corporate lobbying after the turnover event. Baker et al. (2022) and Goodman-Bacon (2021) argue that the TWFE is problematic because the TWFE estimation compares treated firm-year observations to firm-year observations that are treated in prior years. Therefore, I follow Callaway and Sant'Anna (2021) and Sun and Abraham (2021) and estimate the causal effect that allows for arbitrary effect heterogeneity and post-treatment dynamics. I find a significant positive causal relationship between CEO narcissism

and corporate lobbying. More specifically, firms that experience an exogenous change from a non-narcissist CEO to a narcissist CEO experience an increase in corporate lobbying presence. Second, for each firm-year observation with a narcissistic CEO, I match it with another CEO in the same year from a different firm, with the closest propensity score calculated based on firm and CEO-related characteristics. Firms with similar characteristics are likely to have an equal probability of appointing a narcissistic CEO. The results remain qualitatively similar when using the matched sample. This assures me that the CEO narcissism effect is not explained by firm and CEO observable difference between narcissistic managed firms versus others.

To better understand the lobbying activities of narcissist CEOs, I further test the empirical relation between CEO narcissism and lobbying outcomes. Since decisions on corporate lobbying are made by the top-level managers of the firm, such activities are expected to serve the interest of shareholders and increase firm value. I find a significant positive relationship between narcissist CEO lobbying and firm value. This results indicate that narcissist CEO lobbying activities increase corporate gains and firm value. Also, narcissist CEOs promote lobbying issues that serve the interest of shareholders.

Based on the above findings, it is essential to investigate how narcissist CEOs increase firm value through lobbying activities. Specifically, I test whether narcissist corporate lobbying increases the allocation of government procurement contracts. I find a significant positive relationship between narcissist CEOs' lobbying activities and the likelihood of being awarded government contracts compared to other CEOs. These findings indicate that political strategies like lobbying by narcissist CEOs significantly impact the allocation of government contracts.

Finally, I estimate the relationship between CEO narcissism and the types of issues they lobby. More specifically, I investigate whether narcissist CEO

lobby more for environmental-related issues and to what extent narcissist CEOs promote environmentally friendly activities in their business. Lobbying for environmental-related issues appears to further some environmental and social good. This allows the narcissistic CEO to receive media attention and praise. I find a significant positive relationship between CEO narcissism and environmental-related lobbying. These results suggest that narcissist CEOs use environmental lobbying as a channel to generate narcissism supply. Specifically, narcissist CEOs use environmental-related lobbying to attract the outside world's attention in the form of praise. I cannot test whether narcissist CEOs lobby for or against environmental-related issues. In line with this, I examine the impact of CEO narcissism on the corporate environmental scores of a firm. Firms that lobby for environmental issues are more likely to have good environmental scores than other firms. I find an insignificant positive relationship between CEO narcissism and the firm environmental scores. This indicates that narcissistic CEOs' increasing environmental lobbying activities are not in line with their firm's environmental activities.

These results have important implications. First, this suggests that the growing lobbying activities by firms are not only driven by CEO political orientation (Unsal et al., 2016), economic policy uncertainties (Shang et al., 2021) and corporate distress (Adelino and Dinc, 2014), but rather CEO narcissism. Specifically, narcissist CEOs allocate corporate funds toward political lobbying. Next, unlike existing literature that finds CEO narcissism to be associated with adverse firm outcomes, I find CEO narcissist lobbying activities to be associated with increased firm value through the allocation of a government contract.

The rest of the chapter is organised as follows. Section 4.2 discusses how data is collected, the definition of key variables, and the sample construction. Section 4.3 presents empirical analysis and the baseline results of the study.Section 4.4 concludes the study.

4.2 Data and Methodology

4.2.1 Sample

To construct the sample for this study, I focus on the CEOs of the SP500+ companies over the period 2000 to 2020[3]. Zweigenhaft (1977) reports that culture could influence personality; hence, I restrict my sample to only US firms. I extract CEO and board data from Execucomp and Boardex databases and collect accounting data from the Compustat database. I exclude financial (SIC codes 6000-6999) and utility (SIC codes 4900-4999) firms from my sample since such firms are subject to regulations and also have different accounting reporting principles. I searched firms' financial reports and filled proxy statements on the SEC's website to collect information on CEO's handwritten signatures.

I collect data on firm lobbying expenditure from the Center for Responsive Politics (www.opensecrets.org/lobby). Lobbying data on the CRP website is obtained from the Senate Office of Public Records, including lobbying companies' submissions. The CRP dataset started in 1999 and was filled on a semi-annual basis until the Honest Leadership and Open Governance Act was implemented in 2007. The Act requires firms to file lobbying expenses quarterly after 2008. I hand-match lobbying data with Execucomp by firm name and further merge that with CEO signature and accounting data from Compustat to obtain 8637 firm-year observations with 646 unique firms and 1192 unique CEOs. I mitigate outliers' influence by winsorizing all continuous variables at 1% and 99%.

[3]I start from 2000 because I collect some data from Boardex, which does not have data before 2000. Also, company-scanned documents are available on the SEC website only after 2002. Prior to 2002, these files were text with no signatures.

4.2.2 CEO Narcissism

Previous research has indicated that it is challenging to get CEOs to complete the Narcissistic Personality Inventory (NPI) since firm executives are reluctant to take a personality test. Hence, an unobtrusive measure such as signature size is used to capture the narcissism traits. Ham et al. (2018) report that the area per character signature size measure of narcissism correlates with the NPI scores.

The authors demonstrate robustness, even after controlling for overconfidence. In addition to the novel nature of the measure, the study chooses to use it to capture CEO narcissism because it is theoretically grounded in psychology and personality literature (Zweigenhaft, 1970; Zweigenhaft and Marlowe, 1973; Zweigenhaft, 1977; Jorgenson, 1977; Dillon, 1988). I use the area-per-character measure of narcissism in this study for two reasons: First, the signature of CEOs is readily available and can be measured. On 27th June 2002, the SEC ordered all CEOs and CFOs of firms with revenue over $1.2 billion to provide handwritten signatures to attest to the reliability of their financial statement. Before this order, some firms already used to provide their handwritten signatures. For example, Jerald G. Fishman of Analog Device Inc. has provided handwritten signatures since 1999[4]. In cases where the CEO's signature is not present in the annual report or proxy statement, I search online sources for the CEO's signature. For example, I find the signature of Warren Buffet, CEO of Berkshire Hathaway, who provides certification through the online EDGAR system instead of a handwritten signature from an online report he shared[5]. Second, using an unobtrusive measure such as signature size reduces the reactivity, researcher expectation and demand characteristics that can weaken the measure's validity (Chatterjee and Hambrick, 2007). I draw a rectangle that

[4]See: https://www.annualreports.com/HostedData/AnnualReportArchive/a/NYSE_ADI_1999.pdf
[5]See: https://www.worthpoint.com/worthopedia/warren-buffett-signed-autograph-405315686

touches the CEO signature's edges to measure the area per character signature size. I measure the area by multiplying the length and width of the rectangle. I measure CEO narcissism by dividing the area by the number of characters in the signed name.

I then construct an indicator variable for CEO narcissism that takes the value of one if the CEO's area per character signature size is greater than the sample's mean and zero otherwise. I exclude CEOs whose signatures are not legible (signs and symbols) and signatures that are entirely different from the name of the CEO. Since narcissism is a stable personality trait (Raskin and Terry, 1988), I trace CEOs' signatures over the years of their employment to ensure no change in signature. In cases where there is a change in signature, I use the recent signature of the CEO. For example, Frank Matire of Fidelity National Information Service had different signatures in 2009[6] and 2013[7].

Aside from the area-per-character signature size narcissism measure, there are other unobtrusive measures of narcissism. More commonly, Chatterjee and Hambrick (2007, 2011) developed a narcissism index which consists of a composite measure of different narcissism indicators. This measurement has been frequently used in research (Bianchi, 2014; Buchholz et al., 2018; Buyl et al., 2019; Engelen et al., 2016; Gerstner et al., 2013; Ingersoll et al., 2019; Judd et al., 2017; Kashmiri et al., 2017; Marquez-Illescas et al., 2019; Oesterle et al., 2016; Olsen and Stekelberg, 2016; Patel and Cooper, 2014). The index includes five components (Chatterjee and Hambrick, 2007): (1) the relative cash pay of the CEO to the next-highest paid executive, (2) the relative non-cash pay of the CEO to the next-highest paid executive, (3) the size of the CEO's picture in the annual report, (4) the number of CEO mentions in company press releases, and (5) the number of first-person singular pronouns used by the CEO during interviews. Notwithstanding the use of the narcissism index

[6]See page 6 of 2009 Fidelity National Information Service Annual report
[7]See page 5 of 2013 Fidelity National Information Service Annual report

in numerous research, I fail to use it because of two limitations. First, Brown (2016) argues that the narcissism index has limited empirical validation and may not be directly linked to CEO narcissism. Further, the index may measure other personality traits different from narcissism. More specifically, the number of first-person singular pronouns used by the CEO during interviews may be measuring CEO overconfidence (Ataullah et al., 2018). Second, several items in the index could be influenced by factors beyond the control of the CEO (Cragun et al., 2020). For example, the size of the CEO's picture in the annual report may be influenced by the editorial board of the firm. They may resize a picture to make it more presentable in the annual report. Also, the two compensation components of the index may be influenced by firm size (Tosi et al., 2000).

Aktas et al. (2016) and Capalbo et al. (2018) use personal pronoun usage as a stand-alone measure of CEO narcissism. This measure uses the speech style of a CEO in interviews and conference calls to measure narcissism. They calculate the narcissism score as the ratio of singular pronouns (e.g., me, myself, I, mine) to plural pronouns (e.g., we, us, ours). This measure has also been criticized for measuring other personality traits (Carey et al., 2015). Also, after the passage of the Sarbanes-Oxley Act of 2002, CEOs have been careful in their speech and may not exhibit their narcissist traits (Chatterjee and Hambrick, 2011).

4.2.3 Corporate Lobbying and control variables

Corporate lobbying is a strategic process where firms employ the services of professional advocates to influence members of Congress and government officials on issues that are of interest to them. In 2021, firms spent approximately $3.8 billion dollars on lobbying expenditure, higher than the $3.5 billion spent

in 2020[8] . Additionally, ccorporate lobbying dominates all corporate political spending (Richter et al., 2009). Unlike political donations to politicians, which are limited to $5,000 per election cycle, lobbying expenditure has no limit, hence making it a channel where a firm can spend to effect changes in regulations that do not support their operations[9]. Further, corporate firms are not legally allowed to make direct contributions to political campaigns in the US from the treasury of the form. However, they can form Political action committees that individual directors and employees can donate to support their candidate for election.

De Figueiredo and Richter (2014) report that the prime aim of lobbying is to modify legislative proposals and gain favour from the political system. Therefore, corporate lobbying has the potential of influencing legislative acts that can affect firm revenue, taxes, investments and trade policy. A growing literature in finance and accounting examines the resulting outcomes of corporate lobbying on firms. Specifically, Richter et al. (2009) finds that firms that spend more dollars on lobbying in a year pay lower taxes in the subsequent years. Additionally, Alexander et al. (2009) report that firms gain a tax saving of $220 per dollar of loddying expenditure for firms that lobbied that tax repatriation section of the 2004 America Jobs Creation Act. Corporate lobbying activities influence corporate fraud detection. Yu and Yu (2011) finds lobbying firms have lower hazard rate of being sued for fraud. Specifically, lobbying firms takes 117 days longer for regulators to detect their fraudulent activities.

Adelino and Dinc (2014) find a positive and significant relationship between lobbying expenditure and likelihood of receiving stimulus funds and this is lobbying activities in pronounced in firms with weaker financial heath. Likewise, Duchin and Sosyura (2012) find a positive relationship between corporate lobbying expenditure and the likelihood of gaining approval for Troubled Asset

[8]See: https://www.opensecrets.org/federal-lobbying
[9]See: http://www.fec.gov/pages/brochures/contriblimits.shtml

Relief Program (TARP) funds.

The critical issue for a firm involvement in corporate lobbying activities is whether firm actually benefits from such lobbying expenditure. The prime motive for lobbying is to receive some favors from the political system. However, empirical evidence on the effect of corporate lobbying on firm performance or shareholder value has been inconclusive. Chen et al. (2015) finds on average, corporate lobbying is positively related to accounting and market measures of financial performance. Firm that lobby generate better return than their competitor that do not engage in lobbying activities. Similarly, Alexander et al. (2009) report that firms that lobbied for the American Job Creation Act of 2004 generated $220 for every dollar spent on lobbying. However, Cao et al. (2018) assert that, corporate lobbying have a negative effect on firm financial performance and this is largely driven by firms with complex operations. Using game theory, Hadani and Schuler (2013) finds firms political expenditure to be negatively associated with market performance. Notwithstanding the prevailing evidence of corporate lobbying on firm decisions, there are entry barriers to lobbying. Kerr et al. (2014) argue that barriers to entry into the lobbying process induce persistence in lobbying.

Considering this inconclusive empirical evidence on the benefits of corporate lobbying, a vital issue of interest is whether firm executives, more importantly CEOs engage in corporate lobbying for private benefits at the expense of the firm. While the stewardship theory suggest that firm managers are required to act on behalf of shareholders by maximizing firm profitability, the agency theory suggest that managerial incentives may promote activities that are in the interest of managers but at the expense of shareholders. If such interest are increased through corporate lobbying, CEOs will engage in lobbying for their own benefit at the expense of the firm.

In light of these competing theories, another area on lobbying gaining

attention is the influence of CEO ideology on corporate lobbying. Using CEO-level campaign donation, Unsal et al. (2016) find firms with Republican-leaning CEOs to be more likely to engage in corporate lobbying, lobby a more bills and spend larger dollar amount. Additionally, they find the impact of corporate lobbying on firm performance to vary across firms with different CEO political orientation. Specifically, the benefit of lobbying by Republican leaning CEOs are less than the lobbying cost. This study is similar to Unsal et al. (2016), but we add to the literature by empirically analysing the influence of CEO narcissism on the corporate lobbying activities and the value relevance of such lobbying.

Following Cao et al. (2018), I measure corporate lobbying in two ways: Lobbying Presence and Lobbying Intensity. Lobby presence is denoted by a Lobbying Indicator, which takes the value of one if a firm makes any lobbying expenditure in a year and zero otherwise. Lobbying intensity is measured as the natural logarithm of the total dollars spent by a firm on lobbying in a year. The lobbying amount in my analysis denotes this.

I employ a set of control variables used in prior literature to be associated with corporate lobbying. Firm size is the natural logarithm of the total asset in a year. Return on asset is earnings before interest and taxes scaled by the total asset. Herfindahl index is the industry concentration by summing the square market share of the firms in the industry. Leverage is the ratio of total debt to total assets. Firm age is the natural logarithm of the firm's age. Busy boards is a dummy variable that takes the value of one if at least one board member holds three seats outside the firm and zero otherwise. CEO-Chairman is a dummy variable that takes the value of one if the CEO is also the board's chairman and zero otherwise. CEO age is the natural logarithm of the CEO's age each year. CEO tenure is the natural logarithm of the years a CEO has been in office. CEO gender is a dummy variable that takes the value of one if a CEO is a male and zeroes otherwise.

4.2.4 Empirical Analysis

To examine the empirical relationship between CEO narcissism and corporate lobbying in a multivariate setting, I estimate the ordinary least square (OLS) model below:

$$Lobbying_{i,t} = \alpha + \beta_1 CEONarcissism_{i,t} + \beta^{'} X_{i,t} + \Theta^{'} Z_{i,t} + \sum Year_t * Industry_j + \varepsilon_{i,t} \tag{4.1}$$

The dependent variable $Lobbying_{i,t}$ is the presence (Dummy variable) and intensity (Amount) of corporate lobbying. $CEONarcissism_{i,t}$ is the CEO narcissism dummy variable derived from the area per character signature size measure of narcissism. $X_{i,t}$ is a vector of firm-level control variables. The vector $Z_{i,t}$ includes CEO-related control variables. $\sum Year_t * Industry_j$ is the year times industry fixed effects that I include to mitigate the possibility that the CEO Narcissism variable may pick other factors that affect all firms in a given year or industry. Finally, I cluster standard errors at the firm level.

4.3 Empirical Results

4.3.1 Descriptive Statistics and Univariate test

Table 4.1 presents the yearly observation of my sample. For the sample period (2000-2020), I find the total amount spent by firms on lobbying to be above $13 billion. The average lobbying expenditure over the period is $625 million, with 56% of sample firms engaging in lobbying. The lowest lobbying expenditure was $190 million in 2000, and the highest expenditure was $810 million in 2009. I observe that the percentage of firms lobbying varies over the sample period and the average amount spent on lobbying. This indicates that lobbying increased the year after the crisis. Considering the annual percentage of firms engaging in lobbying, 65% of the sample firms lobbied in 2020, the highest yearly number of lobbying firms.

Table 4.2 exhibits the sample firms' industry distribution of lobbying expenditure. I classify firms into Fama-French 10 Industry classification system. The business equipment industry has the highest total lobbying expenditure of $2.4 billion, with a proportion of 75%. For proportion, the Other industry group has the highest percentage of lobbying firms with a proportion of 87% and an expenditure of $2 billion. However, the Consumer durable industry group has the lowest proportion of lobbying firms (71%) and lobbying expenditure ($409 million).

INSERT TABLE 4.1 & 4.2 HERE

Table 4.3 presents the summary statistics of the full, narcissist and non-narcissist sample. 49% of the sample firms have CEOs who are a narcissist. On average, 56% of the sample engage in lobbying activities, and the average lobbying expenditure is approximately $2.7 million. On average, firms have a return on asset of 14.8% and 59% book leverage.

In Table 4.3, I also compare the mean and median scores of the two groups. The main motive of this paper is to examine the impact of CEO narcissism on the likelihood f corporate lobbying. Therefore, I split the sample firm-year observations into two groups: narcissist CEOs and non-narcissist CEOs firm-year observations. The univariate analysis of firm-related characteristics indicates that narcissist CEOs manage large firms but perform lower than others (Ham et al., 2018). In addition, they have high book leverage and are more likely to get government contracts. Secondly, I examine the CEO and board-related characteristics by comparing the means and medians of the subgroups. First, I find narcissistic CEO-leaning firms to be more overconfident and less conservative. Secondly, narcissist learning firms have their CEOs acting as the board's Chairman, have short CEO tenure, and are younger. Finally, I compare the means and medians of the subgroups' presence and intensity of corporate lobbying. Table 4.3 indicates a significant difference between the narcissist and non-narcissist CEO-managed firms lobbying presence and intensity. I find that narcissist-managed firms are more likely to lobby and spend more substantial dollar amounts to impact legislation that will likely affect their firms.

INSERT TABLE 4.3 HERE

I present a Pearson correlation matrix between CEO narcissism and the primary dependent and independent variables in Table 4.4. CEO narcissism correlated positively and significantly with the presence (Lobbing Indicator) and corporate lobbying intensity (dollar amount). Also, before using the area per character signature size proxy of narcissism to examine the relationship between CEO narcissism and corporate lobbying, I perform a tests of the correlation between CEO narcissism and some CEO demographic and firm-related characteristics. I find CEO narcissism correlating negatively with CEO age, tenure, and firm performance. However, CEO narcissism correlates positively with firm size.

Finally, the area per character signature size measure of narcissism may reflect CEO conservatism. Duong et al. (2021) report that the style and nature of a CEO's handwritten signature capture the conservative traits of the CEO. They classify managers signing their full names as liberal and other variations such as only first name or abbreviation signatures as conservative. Following Duong et al. (2021), I classify the sample CEOs into conservative and liberal. I find a negative and significant correlation between the CEO's narcissism and conservatism proxy. The correlation coefficient (-0.19) between narcissism and conservatism suggests they do not capture the same trait.

Further, research has indicated some similarities between narcissism and overconfidence, which are well-studied in the finance literature (Campbell et al., 2004). Considering this, a potential concern of this study is that the narcissism measure used might capture a CEO's overconfidence. I construct an overconfidence measure using the CEO's options holdings (Malmendier and Tate, 2005; Banerjee et al., 2018). I find a positive correlation between CEO narcissism and the overconfidence proxy. The coefficient is relatively small (0.02), suggesting that a narcissistic CEO may have some level of overconfidence. However, the narcissism and overconfidence proxy do not capture the same personality trait. Thus, being a narcissist does not necessarily mean you are overconfident or vice versa. The narcissism proxy applies to all CEOs, but the overconfidence proxy applies to only firms granting CEOs stock options.

INSERT TABLE 4.4 HERE

4.3.2 CEO Narcissism and Corporate Lobbying

I test for the effect of CEO narcissism on corporate lobbying using equation one above. Following Unsal et al. (2016), I control for firm size, return on asset, leverage, firm age and Herfindahl index. I also control for some governance

(CEO duality and busy board) and CEO-related characteristics (CEO Age, gender and tenure). All variables are defined in the appendix. Table 4.5 reports the results. From Panel A, the first (last) two columns test the presence (intensity) of corporate lobbying with a probit (Tobit) regression. Columns 1&3 do not include governance and CEO-related control variables. Columns 2&4 include all control variables.

Based on the regression results from column 2, I find those narcissist CEOs are more likely to lobby than other CEOs. Economically, there is a 7% marginal likelihood of corporate lobbying in narcissist-managed firms compared to non-narcissist firms. Since I predict that narcissist CEOs influence corporate lobbying, these results confirm the keen involvement of narcissist CEOs in corporate lobbying activities. Like Cao et al. (2018) and Unsal et al. (2016), I find large firms and firms with high leverage lobbying more.

In columns 3&4 of Table 4.5 Panel A, I test the influence of CEO narcissism on the intensity of lobbying measured as the dollar amount spent on lobbying in a tobit regression with a lower bound of zero. The dependent variable is the natural logarithm of the dollar amount spent on lobbying. I find evidence that narcissist CEOs spend significant dollars lobbying than other CEOs. Firm and CEO-related control variables are similar to that in column 2 regression. Overall, the results from panel A of Table 4.5 are consistent with the hypothesis and univariate analysis.

Existing research has indicated some similarities between narcissism and overconfidence, well studied in the finance literature (Campbell et al., 2004). Considering this, a potential concern of this study is that the lobbying activities of the narcissist CEO may be driven by their overconfidence. Notwithstanding the relatively small positive correlation coefficient between narcissism and overconfidence, it is essential to control for this in the analysis. This will help examine the effect of CEO narcissism traits (beyond their overconfidence) on

the presence and intensity of lobbying.

Similarly, the area per character signature size measure of narcissism may reflect managerial conservatism. The style of a CEO's signature may capture some conservative traits (Duong et al., 2021). According to Duong et al. (2021), managers with complete name signatures are non-conservative, while those with first names and abbreviations are conservatives. Managers with a small area per character signature size may be conservative rather than a narcissist. I include Duong et al. (2021) measure of CEO conservatism in the baseline model to test this. Finally, to account for the impact of the CEO demographic and other traits on the narcissism trait, I create another CEO narcissism proxy: *Residual Narcissism*, which is the residual from OLS regression of CEO narcissism on CEO demographics and other traits (overconfidence and conservatism).

The results remain robust after including CEO overconfidence and conservatism in the baseline model and using the residual narcissism proxy. As reported in Panel B of Table 4.5, there is a greater economic magnitude than the baseline results. Therefore, the presence and intensity of corporate lobbying by narcissistic CEOs are beyond their overconfidence, demographics and conservatism.

INSERT TABLE 4.5 HERE

4.3.3 Evidence from CEO Turnover

Since narcissism is a stable personality trait (Raskin and Terry, 1988), one key concern in analysing the effect of CEO narcissism on corporate lobbying is to identify an exogenous shock that can change the level of narcissism in the CEO. I adopt a similar approach used by Shang (2021) to address this concern by focusing on CEO turnover. I employ a difference-in-difference estimation

method that provides a more robust identification of the relationship between CEO narcissism and corporate lobbying presence and intensity. This further help eliminates the possibility of correlated omitted variables that may drive the baseline results. The rationale behind this identification is that if CEO narcissism influences firms' involvement in lobbying, then a change in CEO narcissism as a result of the replacement of the CEO should be associated with a change in the firm's participation in corporate lobbying.

It is important to note that the turnover of a CEO can be endogenous. Firms are not required to report the reason behind a CEO departing from the company, and they are most unlikely to do so when the CEO is forced to leave or fired (Schwartz-Ziv and Weisbach, 2013). Using information from board minutes, the timing of turnover and post-turnover events, existing literature has been able to distinguish between different reasons for CEO turnover Jenter and Lewellen (2021). A CEO may be forced to leave a firm because of performance, managerial style, competition and personal scandals (Warner et al., 1988; Denis and Denis, 1995; Parrino, 1997). Firms may appoint a new CEO to implement policies in line with that of the board. In this case, the change in corporate lobby presence or intensity after turnover may not be directly influenced by the narcissism of the new CEO but rather by the factors that caused the change in the CEO. Given this, this study focuses on only exogenous CEO turnover.

Following Shang (2021) and Pan et al. (2018, 2015), I compile a sample of CEO exogenous turnover events. I classify CEO turnover as exogenous if CEOs depart due to death, health issues and natural retirement. Like Jenter and Kanaan (2015), I categorise a turnover as a natural retirement if the departure reason in ExecuComp is "retired" and the CEO age is 60 years or older at the turnover year. To ensure that the departing and new CEOs have ample time to influence corporate policy, I require CEOs used in this analysis to stay with the firm for at least 3-years. I also exclude observation in the

turnover year. In addition, to facilitate the exogenous turnover analysis, firms in the turnover sample must lobby before or after the turnover. I employ the Difference in Difference specification below to examine the effect of change in CEO narcissism caused by turnover on corporate lobbying with the model below.

$$Lobbying_{i,t} = \alpha + \beta_1 Nas_C hange_{i,t} * After_t + \beta_2 Nas_C hange_{i,t} + \beta_3 After_t + \beta^{'} X_{i,t} + \Theta^{'} Z_{i,t} + \sum Year_t + \sum Industry_j + \varepsilon_{i,t} \tag{4.2}$$

$Nas_C hange_{i,t}$ takes on two variables: $Nas_C oming_{i,t}$ and $Nas_G oing_{i,t}$. $Nas_C oming_{i,t}$ ($Nas_G oing_{i,t}$) is a dummy variable equal to one for firm-year observations where a narcissist CEO (non-narcissist CEO) is replacing a non-narcissist (narcissist CEO) and zero otherwise. After is a dummy variable equal to one for firm-year observations post-turnover and zero pre-turnover. Note, the $Nas_C hange_{i,t}$ and After dummies are absorbed in the equation above. While the $Nas_C hange_{i,t}$ is collinear with the firm fixed effects, the After dummy is collinear with the year fixed effects. However, the variable of interest in this analysis is $Nas_C hange_{i,t} * After_t$ and the coefficient β_1 captures the impact of CEO narcissism on the presence and intensity of corporate lobbying. $X_{i,t}$ is a vector of firm-level control variables. The vector $Z_{i,t}$ includes CEO-related control variables. I also control for industry and firm fixed effects. Standard errors are clustered at the firm level.

The results of the DiD analysis are reported in Table 4.6 Columns 1&2 (3&4) have lobby presence (lobby intensity) as the dependent variable. Columns 1&3 (2&4) are the $Nas_C oming_{i,t}$ ($Nas_G oing_{i,t}$) regressions. The $Nas_C oming_{i,t}$* $After_t$ coefficient is positive and significant for both lobby presence and inten-

sity regressions, while $Nas_Going_{i,t} * After_t$ remains insignificant. This suggests that firms replacing non-narcissist outgoing CEOs with narcissist ones tend to experience a higher presence and intensity of corporate lobbying after the turnover event. This setting further supports the positive relationship between CEO narcissism and corporate lobbying.

INSERT TABLE 4.6 HERE

In recent years, the economics literature has questioned using the Two-way Fixed Effects (TWFE) in a staggered DiD setting. Estimating β_1 from equation 4.2 above is problematic according to Baker et al. (2022) and Goodman-Bacon (2021). This is because the TWFE estimation compares treated firm-year observations to those treated in prior years. More specifically, an exogenous change in narcissism in prior years could be used as a control in subsequent years in a TWFE estimation. These previous exogenous changes in narcissism are not valid controls for subsequent years because such firm-year observations contain part of the treatment effect. Therefore, using the TWFE can bias the β_1 coefficient depending on the heterogeneity of the post-treatment dynamics and treatment effect (Cookson et al., 2022).

Following Callaway and Sant'Anna (2021) and Sun and Abraham (2021), I estimate the causal effect coefficient β_1 that allows for arbitrary effect heterogeneity and post-treatment dynamics. This setup alleviates the issue by estimating group time treatment effects based on treated versus control and before versus after comparisons. This provides weighted aggregate averages of group-time effects. Panel B of Table 4.7 reports the overall average treatment effect using Callaway and Sant'Anna (2021) estimation method. Columns 1&2 (3&4) present average treatment effect for Nas_Coming (Nas_Going) treatment group. Columns 1&3 (2&4) use lobbying indicator (lobbying amount) as the dependent variable for the estimation.

From column 1 of Table 4.7, I find a significant positive causal relationship

between narcissism and corporate lobbying. More specifically, firms that experience an exogenous change from a non-narcissist CEO to a narcissist CEO experience an increase in corporate lobbying presence. Like Mouilso and Calhoun (2016), narcissist CEO has a feeling of entitlement and are more likely to accept no for an answer. They are likely to push for what they want through lobbying and make sure their interest is fulfilled. Considering the parallel trend assumption, I find no significant difference between the treated and control cohort prior to the Nas_Coming exogenous change for the presence of corporate lobbying. However, I do not find any significant difference in lobbying amount before and after the Nas_Coming exogenous change. Also, I do not find any causal difference in lobbying presence and amount before and after a change in CEO from a narcissist to a non-narcissist (Nas_Going).

INSERT TABLE 4.7 HERE

4.3.4 Propensity score-matched sample analysis

If narcissist CEO-managed firms differ from other firms, the firm and CEO-related control variables included in the baseline analysis may be inadequate. The baseline results could be biased and may be picking some non-linear effects. From this assumption, the narcissism of a CEO may be endogenous to some firm and CEO-related characteristics. To overcome this concern, I use propensity score matching as a robustness test because it mitigates endogeneity (Shipman et al., 2017). I consider narcissist CEO-managed firms as a treated group and firms managed by non-narcissist CEOs as the control group.

I estimate the probability (propensity scores) of the likelihood of a narcissist CEO appointment. To obtain the propensity scores, I run a logistic regression with CEO narcissism as the dependent variable with all control variables used in the baseline regression as independent variables. The results

(Pre-match) are reported in Table 4.8. The Pre-match results indicate that poorly performing firms are more likely to appoint narcissistic CEOs.

Following Drucker and Puri (2005), I match the treated group (narcissist-managed firms) with the control group (other firms) using the nearest neighbour matching method. To ensure that the treated and control groups have similar characteristics in all control variables, year and industry, the maximum gap between the treated and control should not exceed 0.01 in absolute value. I conduct a diagnostic test to ensure that the treated and control forms are similar. I run a logistic test with CEO narcissism as a dependent variable, as I did for the pre-matched sample. The results in column 2 of Table 4.8 show no significant relationship between CEO narcissism and firm and CEO-related variables. Also, the Post-matched sample has a smaller Pseudo R-square, which indicate that the propensity score matching has removed all observable difference except the effect of CEO narcissism. This indicates that there is no difference between the treated and control groups. Secondly, I test the difference in means of the observable characteristics between the treated and control group (unreported for brevity). All observable characteristics are comparable for the matched sample, except firm size and return on asset, which has a significant mean difference at a 10% level. Using the matched sample, I re-estimate the OLS baseline regression and report results in Table 4.9. The results are qualitatively similar to the baseline analysis.

INSERT TABLE 4.8 & 4.9 HERE

4.3.5 Alternative measure of CEO Narcissism

To check the robustness of the results in this study, I use an alternative measure of narcissism. Following Aktas et al. (2016) and Capalbo et al. (2018), I compute the ratio of first-person singular (I, me, my, mine, myself) to total

first-person pronouns (I, me, my, mine, myself, we, us, our, ours, ourselves) used by CEOs in the quarterly conference call transcripts. Although the criticism of this measure by Carey et al. (2015), Aktas et al. (2016) assert that this measure correlates with NPI scores. It is robust after controlling for traits like extraversion, neuroticism, and locus of control. Using machine learning software (R-studios), I focus on the question and answers section of the quarterly conference call transcripts since the presentation section made by the CEO can be scripted and less likely for a narcissist to exhibit their traits. I search for the number of times first-person pronouns are used in the transcript and tabulate the results to calculate a narcissism score.

$$NarcissismScore = \frac{\sum(I, me, my, mine, myself)}{\sum(I, me, my, mine, myself, we, us, our, ours, ourselves)} \tag{4.3}$$

Using the pronoun usage narcissism score as the primary independent variable in equation 4.6, I run the baseline regression and report the results in Table 4.10. Columns 1&2 (3&4) have the lobby presence dummy (lobby intensity) as the dependent variable. Columns 1&3 (2&4) exclude (include) CEO-related control variables. I find a positive significant coefficient of the pronoun usage narcissism measure in all columns. These results support the baseline analysis that narcissist CEOs are likely to engage in corporate lobbying and lobby with a larger dollar amount.

INSERT TABLE 4.10 HERE

4.3.6 Value Relevance of Narcissist CEO Lobbying Activities

I test the empirical relation between CEO narcissism and lobbying outcomes. Since decisions on corporate lobbying are made by the top-level managers of the firm, such activities are expected to serve the interest of shareholders and increase firm value. In 1995, the Lobbying Disclosure Act expressly indicated that corporations must disclose the dollar amount they spend on lobbying and file that accordingly. The nature of lobbying makes it difficult for shareholders to monitor and systematically measure its outcome (Unsal et al., 2016). Hence, the impact of narcissist CEO lobbying activities on firm performance is important and needs to be tested. To allow the effects of the controls to vary across narcissist and non-narcissist-managed firms, I follow Aretz et al. (2019) and use the model below:

$$\begin{aligned} FirmValue_{i,t+1} = \alpha + \beta_1 CEONarcissism_{i,t} * Lobbying_{i,t} + \beta_2 CEONarcissism_{i,t} \\ + \beta_3 Lobbying_{i,t} + \beta' CEONarcissism_{i,t} \otimes Controls_{i,t} \\ + \sum Year_t * Industry_j + \varepsilon_{i,t} \end{aligned} \tag{4.4}$$

Where $FirmValue_{i,t+1}$ is firm i's firm value measured by Tobin-Q and Total-Q in year t+1(one year following the lobbying). CEO Narcissism = [1, Narcissist], $Lobbying_{i,t}$ is the presence and intensity of lobbying by firm i in year t, and $Controls_{i,t}$ is a vector of control variables. $\otimes$ is the Kronecker product. $\sum Year_t * Industry_j$ is the year times industry fixed effects and $\varepsilon_{i,t}$ is the residual. I cluster standard errors at the firm level, and all variables are defined in the appendix. I can interpret β_1 as the effect of corporate lobbying on firm value for narcissist firms. I report the results in Table 4.11.

Columns 1,2,5&6 (3,4,7&8) use Tobin-Q (Total-Q) one year after lobbying

as the dependent variable. Columns 1,2,3&4 (5,6,7&8) are the presence (intensity) of regressions. I expect to find a different outcome for the lobbying activities of narcissist CEOs since the baseline results find them to engage more in lobbying and spend a larger dollar amount compared to other CEOs. Table 4.11 shows a significant positive relationship between narcissist CEO lobbying and firm value. I find the increase in firm value to be statistically significant for Narcissist CEOs and no significant relationship for other CEOs. The results indicate that narcissist CEO lobbying activities increase corporate gains and firm value. Also, the results show that narcissist CEOs lobby to promote issues that serve the interest of shareholders. Considering the poor performance of narcissist CEOs reported by Ham et al. (2018), corporate lobbying can be a mechanism by which narcissist CEOs can improve performance.

INSERT TABLE 4.11 HERE

Based on the above findings, it is essential to understand how narcissist CEOs increase firm value through lobbying activities. Specifically, I test whether narcissist corporate lobbying increases the allocation of government procurement contracts. Unsal et al. (2016) find democratic-leaning CEOs more likely to receive government contracts because of their optimal lobbying activities. Also, Kim (2008) finds politically connected managers more likely to be awarded lucrative government contracts. Using the model below, I examine the effect of political strategies such as corporate lobbying by narcissist CEOs on the likelihood of receiving government contracts.

$$Gov'tContract_{i,t+1} = \alpha + \beta_1 CEONarcissism_{i,t} * Lobbying_{i,t} + \beta_2 CEONarcissism_{i,t} + \beta_3 Lobbying_{i,t} + \beta' CEONarcissism_{i,t} \otimes Controls_{i,t} + \sum Year_t * Industry_j + \varepsilon_{i,t} \quad (4.5)$$

Where $Gov'tContract_{i,t+1}$ is firm i's government contract which takes the value one if the firm is awarded a government contract in year t+1(one year following the lobbying) and zero otherwise. All other variables are defined as above. The results are reported in Table 4.12.

Columns 1&2 (3&4) are lobbying presence (lobbying intensity) regressions. Table 9 shows a significant positive relationship between narcissist CEOs' lobbying activities and the likelihood of being awarded government contracts compared to other CEOs. My findings indicate that political strategies like lobbying by narcissist CEOs significantly impact the allocation of government contracts.

INSERT TABLE 4.12 HERE

4.3.7 Narcissist CEO and Environmental-related Lobbying Issues

Lobbying by companies on environmental-related issues refers to efforts of corporations to directly or indirectly influence environmental policy decision-making by political or bureaucratic actors. Narcissist CEOs are more likely to seek attention and praise from the outside world. They constantly seek the attention of their followers and reinforce their positive self-view (Campbell et al., 2004; Chatterjee and Hambrick, 2007, 2011). Corporate lobbying on environmental-related issues is topical and attracts the attention of the outside world to the firm and the CEO in the form of praise and criticism. As such, lobbying on environmental issues is likely to affect the image of the CEO directly. Therefore, narcissist CEOs are likely to see lobbying environmental-related issues as a domain to generate narcissism supply. Firms are not required to disclose whether they lobby for or against environmental policies. However, lobbying for environmental-related issues appears to further some environmen-

tal and social good. This gives the narcissist CEO an opportunity to receive some media attention and praise. Formally, I predict that narcissist CEOs are more likely to lobby for environmental-related issues than other CEOs. I test this using the model below.

$$ENV.Lobbying_{i,t} = \alpha + \beta_1 CEONarcissism_{i,t} + \beta' X_{i,t} + \Theta' Z_{i,t} + \sum Year_t * Industry_j + \varepsilon_{i,t} \tag{4.6}$$

The dependent variable $ENV.Lobbying_{i,t}$ is a dummy variable that takes the value one if the firms lobby an environmental issue in a year and zero otherwise. $CEONarcissism_{i,t}$ is the CEO narcissism dummy variable derived from the area per character signature size measure of narcissism. $X_{i,t}$ is a vector of firm-level control variables. The vector $Z_{i,t}$ includes CEO-related control variables. $\sum Year_t * Industry_j$ is the year times industry fixed effects that I include to mitigate the possibility that the CEO Narcissism variable may pick other factors that affect all firms in a given year or industry. Finally, standard errors are clustered at the firm level.

I report regression results for the effect of CEO narcissism on environmental-related lobbying issues in Table 4.13. Column 1 (2) includes only firm (firm and CEO) related control variables. From Table 4.13, I find a significant positive relationship between CEO narcissism and environmental-related lobbying. The results suggest that narcissist CEOs use environmental lobbying as a channel to generate narcissism supply. Specifically, narcissist CEOs use environmental-related lobbying to attract the attention of the outside world in the form of praise.

INSERT TABLE 4.13 HERE

The above results indicate that narcissist CEOs are more likely to lobby for

environmental-related issues compared to other CEOs. However, I am unable to know whether narcissist CEOs lobby for or against environmental-related issues. In order to test this, I examine the impact of CEO narcissism on corporate environmental scores. This is because firms that lobby for environmental issues are more likely to have good environmental scores than other firms. I collect environmental score data from the ASSET4 database and examine the relation between CEO narcissism and environmental score using equation 4.6 by replacing the dependent variable with environmental scores.

From Table 4.14, find a positive relationship between CEO narcissism and the firm environmental score, but this is insignificant. The above results indicate that the increasing environmental-related lobbying activities of narcissist CEOs are not in line with their firm environmental activities.

4.4 Conclusion

In this paper, I contribute to the existing literature on managerial characteristics and their impact on corporate decisions by examining the influence of CEO narcissism on a firm's political lobbying decision. The existing literature has focused on how CEO narcissism affects performance, earnings management, repurchase announcement and CEOs' risk-taking activities. This paper aims to extend the literature by examining how the narcissism of a CEO affects their lobbying activities.

To empirically examine the relationship between CEO narcissism and corporate lobbying, I follow existing literature (Chou et al., 2021; Church et al., 2020; Ham et al., 2018) to create a narcissism score for each CEO based on their area per character signature size. While CEOs may have a degree of narcissism, not every CEO meet the criteria for narcissistic personality disorder. In line with this, I measure CEO narcissism as an indicator variable that takes the value one if the CEO's area per character signature size is above the average of the sample CEOs and zeroes otherwise.

Using a sample of 8,637 firms-years observations between 2000–2020 for 1,192 unique CEOs, I find keen involvement of narcissist-managed firms in corporate lobbying activities compared to other firms. I control for Duong et al. (2021) and Malmendier and Tate (2005) measures of CEO conservatism and overconfidence respectively in the baseline analysis. This suggests that the presence and intensity of corporate lobbying in narcissist CEOs managed firms are beyond their overconfidence and conservatism. The study addresses endogeneity concerns in two ways. I adopt a similar approach used by Shang (2021) to address this concern by focusing on CEO exogenous turnover. Using Two-way Fixed Effects (TWFE) in a staggered DiD setting, I find firms replacing non-narcissist outgoing CEOs with narcissist ones tend to experience a higher presence and intensity of corporate lobbying after the turnover event. I

also follow Callaway and Sant'Anna (2021) and Sun and Abraham (2021) and estimate the causal effect that allows for arbitrary effect heterogeneity and post-treatment dynamics and find a significant positive causal relationship between CEO narcissism and corporate lobbying. Second, for each firm-year observation with a narcissist CEO, I match it with another CEO in the same year from a different firm with the closest propensity score calculated based on firm and CEO-related characteristics and find qualitatively similar results. This assures us that the CEO narcissism effect is not explained by firm and CEO observable difference between narcissistic managed firms versus others.

I further test the empirical relation between CEO narcissism and lobbying outcomes. I find a significant positive relationship between narcissist CEO-managed firm lobbying activities and firm value. The results indicate that narcissist CEO lobbying activities serve the interest of shareholders. It is essential to investigate how narcissistic CEOs increase firm value through lobbying activities. I find a significant positive relationship between narcissist CEOs' lobbying activities and the likelihood of being awarded government contracts compared to other CEOs. This indicates that political strategies like lobbying by narcissist CEOs have a significant impact on the allocation of government contracts. Finally, I find a significant positive relationship between CEO narcissism and environmental-related lobbying. However, I find an insignificant positive relationship between CEO narcissism and the firm environmental scores. This indicates that the increasing environmental-related lobbying activities of narcissistic CEOs are not in line with their firm's environmental activities but a medium to build political connections and receive government contracts.

My results have important implications. First, the results suggest that the growing lobbying activities by firms are not only driven by CEO political orientation (Unsal et al., 2016), economic policy uncertainties (Shang et al., 2021) and corporate distress (Adelino and Dinc, 2014), but rather CEO narcissism.

Specifically, narcissist CEOs allocate corporate funds toward political lobbying. Next, unlike existing literature that finds CEO narcissism to be associated with negative firm outcomes, I find CEO narcissist lobbying activities to be associated with increased firm value through the allocation of a government contract.

Appendices

A Description of Variables

Pension Related	**Description**	**Source**
Return on Asset	Operating income before depreciation scaled by the book value of totals assets	Compustat
Firm size	Natural logarithm of the book value of total assets.	Compustat
Book leverage	Long-term debt plus current debt, scaled by the book value of asset.	Compustat
Firm age	Natural logarithm of the number of firm years	Compustat
Herfindahl index (HHI)	The sum of squared market shares of the firms in the industry.	Compustat
Tobin-Q	Market value of assets scaled by the book value of assets	Compustat
Total-Q	Peters & Taylor (2017) measure of Total-Q	WRDS
Government contract	Dummy variable and equal to one, if the firm is awarded a government procurement contract, zero otherwise	FPD
Lobbying Presence	Dummy one if firm lobby in a year and zero otherwise	CRP
Environmental Score	The natural logarithm of a firm environmental score at the end of the fiscal year	ASSET4
Lobbying Intensity	The natural logarithm of the dollar amount spent by a firm on lobbying	CRP
Environmental Lobbying	dummy variable that takes the value one if the firms lobby an environmental issue in a year and zero otherwise.	CRP

CEO Related	**Description**	**Source**
CEO Narcissism	Dummy variable that takes the value one if the area per-character signature size of the CEO is above the mean of the sample and zero otherwise.	
CEO Age	Natural logarithm of the Age of a CEO in a year	Execucomp
CEO Gender	Equal to one if the CEO is male and zero otherwise.	Execucomp
CEO Chairman	Equal to one when the CEO is also the chairperson of the board and zero otherwise	Execucomp

CEO Tenure	Natural logarithm of the number of years that the CEO has been the CEO of the company in a year	Execucomp
Busy Board	Dummy variable and equal to one if at least one board member holds 3 seats on other boards outside the firm (Unsal et al., 2016)	Execucomp
CEO Conservatism	Dummy one if the CEO signs only first name or abbreviation as their signature and zero otherwise (Duong et al., 2021)	
CEO Overconfidence	CEO's options holdings (Malmendier and Tate, 2005; Banerjee et al., 2018)	

Table 4.1: Yearly Distribution of Lobbying

Table 1 presents lobbying firms' yearly and industry distribution and the dollar amount spent annually for the sample period (2000 – 2020). Panel A reports the yearly distribution and Panel B presents the lobbying distribution by Fama-French 10 industry classification. Panel A reports the yearly distribution of the sample. Column 2 reports the number of firms in the sample, column 3 reports the number of lobbying firms and column 4 reports the percentage of firms that lobby in a year. Finally, column 4 presents the total dollar amount spent by lobbying firms in a year.

Year	Number Firms	Number Firms Lobbying	Percentage of Firms Lobbying	Lobbying Amount ($)
2000	273	125	46%	192,901,664
2001	310	148	48%	236,703,552
2002	333	166	50%	315,786,752
2003	363	190	52%	375,253,984
2004	386	203	53%	409,747,456
2005	407	218	54%	450,769,664
2006	419	230	55%	537,520,768
2007	450	243	54%	656,480,512
2008	450	241	54%	755,250,624
2009	454	251	55%	810,877,760
2010	457	250	55%	786,130,624
2011	452	250	55%	780,294,656
2012	450	240	53%	730,950,336
2013	455	251	55%	780,410,944
2014	452	256	57%	748,406,528
2015	434	257	59%	766,737,856
2016	436	251	58%	755,845,120
2017	434	263	61%	793,082,112
2018	428	273	64%	779,764,736
2019	416	268	64%	781,053,696
2020	378	245	65%	682,184,384
2000 - 2020	8637	4819	56%	13,126,153,728
Average		230	56%	625,054,939

Table 4.2: Industry Distribution of Lobbying

Panel B reports the Fama-French 10 industry classification distribution of the sample. Column 2 reports the distribution of the sample firms by Industry, column 3 reports the number of unique firms in the sample by industry. Column 4 presents the number of firm-year observations that lobby, column 5 reports the number of unique firms that lobby, and column 6 reports the percentage of unique firms lobbying. Finally, column 7 reports the total dollar amount spent on lobbying by industry.

Fama-French 10 Industry	No. Observation	No. Firms	No. Lobbying Observation	No. Lobbying Firms	% Lobbying Firms	Lobbying Amount ($)
Consumer NonDurables	720	55	399	44	80%	884,427,712
Consumer Durables	295	24	164	17	71%	409,598,976
Manufacturing	1,606	122	1,002	88	72%	2,129,631,360
Oil, Gas, Coal	674	48	392	38	79%	1,165,593,088
Business Equipment	1,998	154	1,011	115	75%	2,426,086,400
Telephone and Television	259	24	166	20	83%	1,374,747,136
Wholesale and Retail	1,099	78	428	45	58%	604,537,664
Healthcare	835	64	559	49	77%	2,125,942,528
Other	1,151	77	698	67	87%	2,005,588,864
All Firms	**8637**	**646**	**4819**	**483**		13,126,153,728

Table 4.3: Univariate Analysis Summary Statistics

The table presents the descriptive statistics of the variables used in this study. All variables are defined in appendix A02. Columns 1&2 report the descriptive statistics for the full sample. Columns 3&4 (5&6) report descriptive statistics for the narcissist (non-narcissist) managed firm-year observation. Finally, columns 7&8 report the mean and median difference between the narcissist and non-narcissist firm-year observations. *, ** and *** denote significance at 10%, 5% and 1% levels, respectively.

	Full Sample (8637)		**Narcissist (4211)**		**Non-Narcissist (4426)**	
	Mean	Median	Mean	Median	Mean	Median
Firm Related						
Firm Size	8.901	8.825	8.982	8.918	8.824***	8.758***
Return on Asset	0.148	0.142	0.143	0.138	0.152***	0.146***
Firm Leverage	0.592	0.581	0.598	0.587	0.587***	0.576**
Firm Age	3.314	3.466	3.314	3.497	3.313	3.466
HHI	0.131	0.112	0.13	0.112	0.131	0.112
Tobin-Q	2.250	1.822	2.220	1.353	2.275*	1.358
Total-Q	1.500	0.605	1.515	0.600	1.484	0.616
Government Contract	0.04	0.000	0.06	0.000	0.01***	0.000
CEO Related						
CEO Overconfidence	0.021	0.001	0.023	0.001	0.019**	0.001
CEO Conservatism	0.496	0.00	0.400	0.00	0.590***	1.000***
CEO-Chairman	0.649	1.000	0.662	1.000	0.636**	1.000
Busy Board	0.72	1.000	0.727	1.000	0.712	1.000
CEO Tenure	1.684	1.609	1.668	1.609	1.699*	1.792*
CEO Age	4.040	4.043	4.038	4.043	4.042*	4.043
CEO Gender	0.967	1.000	0.965	1.000	0.968	1.000
Lobbying Related						
Lobbying Indicator	0.558	1.000	0.592	1.000	0.526***	1.000
Lobbying Amount	7.49	10.60	8.02	11.65	6.98***	9.62***

Table 4.4: Correlation Matrix

The table reports the Pearson correlations for the variables of interest. *, ** and *** denote significance at 10%, 5% and 1% levels, respectively.

	1	2	3	4	5	6	7	8
1. CEO Narcissism	1							
2. Lobbying Indicator	0.07***	1						
3. Lobbying Amount	0.08***	0.98***	1					
4. Tobin-Q	-0.02*	-0.03***	-0.03***	1				
5. Total-Q	0.01	-0.05***	-0.05***	0.85***	1			
6. Government Contract	0.14***	0.04***	0.04***	0.01	0.03**	1		
7. Firm Size	0.06***	0.37***	0.46***	-0.21***	-0.15***	0.00	1	
8. Return on Asset	-0.05***	-0.02	-0.01	0.47***	0.36***	0.01	-0.05***	1
9. Firm Leverage	0.02**	0.14***	0.15***	-0.10***	-0.22***	-0.03***	0.17***	-0.08***
10. Firm Age	0.01	0.17***	0.19***	-0.21***	-0.31***	-0.05***	0.29***	-0.03***
11. HHI	-0.01	-0.07***	-0.08***	0.07***	0.05***	-0.02	-0.104***	-0.02
12. CEO-Chairman	0.03**	0.11***	0.12***	-0.05***	-0.04***	0.03***	0.14***	0.07***
13. Busy Board	0.02	0.17***	0.19***	-0.06***	-0.09***	0.02*	0.27***	-0.04***
14. CEO Tenure	-0.02*	-0.04***	-0.05***	0.09***	0.10***	-0.02**	-0.03**	0.02**
15. CEO Age	-0.02*	0.06***	0.07***	-0.06***	-0.09***	-0.06***	0.12***	0.04***
16. CEO Gender	-0.01	-0.01	-0.01	-0.02**	0.01	-0.01	-0.05***	-0.02
17. CEO Overconfidence	0.02**	-0.02	-0.02**	-0.11***	-0.12***	-0.01	-0.06***	-0.13***
18. CEO Conservatism	-0.19***	-0.01	-0.01	-0.02*	-0.02	-0.04***	-0.07***	0.00

Correlation Matrix Cont..

	9	10	11	12	13	14	15	16	17	18
9. Firm Leverage	1									
10. Firm Age	0.16***	1								
11. HHI	0.07***	-0.11***	1							
12. CEO-Chairman	0.01	0.11***	-0.09***	1						
13. Busy Board	0.15***	0.08***	-0.07***	0.04***	1					
14. CEO Tenure	-0.11***	-0.01	0.03**	0.21***	-0.06***	1				
15. CEO Age	0.05***	0.17***	0.02	0.19***	0.00	0.39***	1			
16. CEO Gender	-0.06***	-0.04***	-0.01	0.05***	-0.02	0.07***	0.03***	1		
17. CEO Overconfidence	0.05***	-0.01	-0.01	-0.03**	-0.00	-0.02*	-0.05***	-0.0	1	
18. CEO Conservatism	-0.05***	0.01	0.03***	0.01	-0.02**	0.08***	0.04***	0.00	-0.0	1

Table 4.5: CEO Narcissism and Corporate Lobbying

The table presents the results of the baseline regressions in which the dependent variables are the Lobbying presence (indicator) and intensity (amount). Panel A reports the baseline analysis and Panel B control for CEO overconfidence and conservatism in the baseline regression. Panel A reports the baseline regression with the Lobbying indicator (columns 12) and lobbying amount (columns 34) as dependent variables. All models include firm time year fixed effects. Models 13 do not include CEO -related characteristics (Tenure, Age, Gender and CEO-Chairman). Panel B reports regression results of the baseline model after controlling for some CEO related traits and characteristics. Model 13 control for CEO overconfidence and conservatism. Column 24 uses the residual Narcissism as the independent variable of the regression analysis. All variables are defined in appendix A02. T-statistics are reported in parentheses with standard errors clustered at the firm level. *, ** and *** denote significance at 10%, 5% and 1% levels, respectively.

Panel A: Baseline Regression

	Lobbying Indicator		Lobbying Amount	
	(1)	**(2)**	**(3)**	**(4)**
CEO Narcissism	0.174**	0.170**	1.496**	1.445**
	(2.12)	(2.08)	(2.39)	(2.31)
Firm Size	0.374***	0.362***	3.363***	3.259***
	(8.73)	(8.47)	(11.90)	(11.52)
Return on Asset	0.580	0.518	5.440	4.899
	(1.24)	(1.10)	(1.45)	(1.30)
Firm Leverage	0.600***	0.576***	5.425***	5.235***
	(3.02)	(2.90)	(3.47)	(3.34)
Firm Age	0.068	0.061	0.499	0.428
	(1.05)	(0.93)	(0.96)	(0.82)
HHI	-0.267	-0.268	-1.501	-1.586
	(-0.47)	(-0.48)	(-0.34)	(-0.36)
Busy Board	0.188***	0.188***	1.689***	1.674***
	(2.60)	(2.61)	(2.81)	(2.81)
CEO-Chairman		0.172**		1.341**
		(2.16)		(2.12)
CEO Tenure		-0.095**		-0.680*
		(-1.99)		(-1.90)
CEO Age		0.190		1.117
		(0.49)		(0.36)
CEO Gender		0.114		0.632
		(0.53)		(0.39)
Cons	-3.990***	-4.742***	-32.860***	-36.905***
	(-7.72)	(-2.99)	(-8.84)	(-2.93)
Industry*Year Fixed Effects	Yes	Yes	Yes	Yes
N	7998	7998	7998	7998
R-sq.	0.1653	0.1688	0.0577	0.0587

Panel B: Controlling for Overconfidence and Conservatism

	Lobbying Indicator		Lobbying Amount	
	(1)	**(2)**	**(3)**	**(4)**
CEO Narcissism	0.203**		1.668**	
	(2.34)		(2.53)	
Residual Narcissism		0.203**		1.668**
		(2.34)		(2.53)
CEO Overconfidence	0.075	0.098	0.289	0.474
	(0.38)	(0.50)	(0.19)	(0.31)
CEO Conservatism	0.078	0.078	0.510	0.510
	(0.93)	(0.93)	(0.80)	(0.80)
Controls	Yes	Yes	Yes	Yes
Year*Industry Fixed Effects	Yes	Yes	Yes	Yes
N	7442	7442	7442	7442
R-sq	0.1578	0.1578	0.0544	0.0544

Table 4.6: Evidence from Exogenous CEO Turnover

This table reports a difference-in-difference (DiD) analysis using exogenous CEO turnover events to examine the impact of CEO narcissism on the presence and intensity of lobbying. The dependent variables are the lobbying indicator and lobbying amount. Nas_Coming (Nas_Going) is a dummy variable equal to one for firm-year observations where a narcissist CEO (non-narcissist CEO) is replacing a non-narcissist (narcissist CEO) and zero otherwise. After is a dummy variable equal to one for firm-year observations post-turnover and zero pre-turnover. All control variables are defined in appendix A02. Standard errors are clustered at the firm level. t-statistics are displayed in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

	Lobbying Indicator **(1)**	Lobbying Amount **(2)**	Lobbying Indicator **(3)**	Lobbying Amount **(4)**
Nas-Coming*After	0.138**	1.582*		
	(2.07)	(1.94)		
Nas-Going*After			0.067	0.635
			(0.93)	(0.70)
Firm Size	0.053	1.345	0.050	1.318
	(0.63)	(1.30)	(0.57)	(1.23)
Return on Asset	0.573	9.164	0.491	8.295
	(1.27)	(1.60)	(1.08)	(1.44)
Firm Leverage	0.001	0.613	0.006	0.657
	(0.01)	(0.31)	(0.04)	(0.33)
Firm Age	0.100	0.480	0.048	-0.115
	(0.36)	(0.13)	(0.17)	(-0.03)
HHI	-0.612	-8.054*	-0.644	-8.372*
	(-1.52)	(-1.79)	(-1.53)	(-1.78)
CEO-Chairman	-0.069	-1.049	-0.065	-1.010
	(-1.23)	(-1.46)	(-1.15)	(-1.41)
Busy Board	-0.047	-0.625	-0.043	-0.576
	(-1.19)	(-1.34)	(-1.07)	(-1.24)
CEO Tenure	-0.023	-0.296	-0.011	-0.165
	(-0.42)	(-0.42)	(-0.20)	(-0.23)
CEO Age	-0.842**	-10.246**	-0.884***	-10.689**
	(-2.48)	(-2.45)	(-2.63)	(-2.56)
CEO Gender	0.011	0.309	0.003	0.180
	(0.19)	(0.44)	(0.05)	(0.26)
Cons	3.425*	36.339*	3.801**	40.416*
	(1.98)	(1.72)	(2.15)	(1.87)
Firm Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
N	772	772	772	772
R-sq	0.149	0.174	0.141	0.166

Table 4.7: Evidence from Exogenous CEO Turnover - DiD with Callaway and Sant'Anna (2021)

The Panel report Difference-in-difference estimates of the effect of CEO narcissism on corporate lobbying. We use Callaway and Sant'Anna (2021) difference-in-differences estimator. The variable NasComing (NasGoing) is a treatment cohort variable equal to one for firm-year observation where there is an exogenous change in CEO Narcissism from a non-narcissist (narcissist) to a narcissist (non-narcissist) CEO and zero otherwise. Control cohort are firms that has never received any exogenous change in CEO narcissism. The interaction NasComing x post or NasGoing x post captures the average difference in the change in corporate lobbying between those receiving exogenous change in CEO Narcissism and those in the control sample after the treated firms experience an exogenous change in CEO narcissism. Standard errors clustered by firm with t-statistics in parentheses. , , and indicate statistical significance at the 10%, 5% and 1% level respectively.

	Lobbying Indicator	Lobbying Amount	Lobbying Indicator	Lobbying Amount
	(1)	(2)	(3)	(4)
NasComing*Post	0.085*	0.806		
	(1.82)	(1.52)		
NasGoing*Post			0.06	0.76
			(0.95)	(0.89)
Observation	2,655	2,655	2,523	2,523
Pretrend Test	Chi= 32.29	Chi= 87.74	Chi= 106.83	Chi= 135.84
(p-value)	0.31	0.00	0.00	0.00

Table 4.8: Matched Sample Analysis

The Panel report Propensity score regression (Pre-Match) and Diagnostic regression (Post-Match). Standard errors clustered by firm with t-statistics in parentheses. , , and indicate statistical significance at the 10%, 5% and 1% level respectively.

Panel A: Propensity score Pre-Match and Diagnostic regression (Post-Match)

	Pre-Match	Post-Match
	(1)	(2)
Firm Size	0.086	-0.025
	(1.53)	(-0.44)
Return on Asset	-1.660**	0.740
	(-2.21)	(0.95)
Firm Leverage	0.091	-0.171
	(0.31)	(-0.57)
Firm Age	-0.061	0.028
	(-0.60)	(0.28)
HHI	0.061	0.506
	(0.07)	(0.61)
Busy Board	0.180	-0.041
	(1.38)	(-0.31)
CEO-Chairman	-0.031	-0.029
	(-0.27)	(-0.26)
CEO Tenure	-0.024	-0.029
	(-0.31)	(-0.37)
CEO Age	-0.564	0.302
	(-0.86)	(0.46)
CEO Gender	-0.095	-0.027
	(-0.26)	(-0.08)
Cons	1.550	-1.399
	(0.61)	(-0.54)
Year Fixed Effect	Yes	Yes
Industry Fixed Effect	Yes	Yes
N	7998	7136
R-sq	0.0153	0.01

Table 4.9: CEO Narcissism and Corporate Lobbying - Matched Sample

The table presents the results of the matched sample regressions in which the dependent variables are the Lobbying presence (indicator) and intensity (amount). All variables are defined in appendix A02. T-statistics are reported in parentheses with standard errors clustered at the firm level. *, ** and *** denote significance at 10%, 5% and 1% levels, respectively.

	Lobbying Indicator		Lobbying Amount	
	(1)	**(2)**	**(3)**	**(4)**
CEO Narcissism	0.239*	0.241*	1.304**	1.295**
	(1.72)	(1.74)	(2.03)	(2.02)
Firm Size	0.619***	0.599***	3.382***	3.272***
	(8.23)	(7.91)	(11.62)	(11.13)
Return on Asset	1.384*	1.263	8.045**	7.348*
	(1.70)	(1.55)	(2.03)	(1.86)
Firm Leverage	0.945***	0.906***	5.256***	5.081***
	(2.79)	(2.68)	(3.22)	(3.13)
Firm Age	0.099	0.086	0.422	0.344
	(0.89)	(0.78)	(0.78)	(0.64)
HHI	-0.803	-0.826	-3.005	-3.170
	(-0.83)	(-0.86)	(-0.67)	(-0.71)
Busy Board	0.309**	0.307**	1.696***	1.676***
	(2.55)	(2.55)	(2.78)	(2.77)
CEO-Chairman		0.295**		1.388**
		(2.15)		(2.11)
CEO Tenure		-0.158*		-0.726*
		(-1.92)		(-1.95)
CEO Age		0.206		1.040
		(0.31)		(0.32)
CEO Gender		0.109		0.396
		(0.30)		(0.24)
Cons	-6.413***	-7.161***	-32.317***	-35.771***
	(-7.25)	(-2.62)	(-8.65)	(-2.76)
Industry*Year Fixed Effects	Yes	Yes	Yes	Yes
N	7130	7130	7136	7136
R-sq.	0.1551	0.1586	0.0544	0.0554

Table 4.10: Robustness: Pronoun Usage Baseline Regression

The table presents the results of the matched sample regressions in which the dependent variables are the Lobbying presence (indicator) and intensity (amount). All variables are defined in appendix. T-statistics are reported in parentheses with standard errors clustered at the firm level. *, ** and *** denote significance at 10%, 5% and 1% levels, respectively.

	Lobbying Indicator		Lobbying Amount	
	(1)	**(2)**	**(3)**	**(4)**
CEO Narcissism (Pronoun)	0.193*	0.196**	1.198*	1.187*
	(1.96)	(2.00)	(1.80)	(1.81)
Firm Size	0.422***	0.405***	3.335***	3.179***
	(8.31)	(7.98)	(11.01)	(10.56)
Return on Asset	0.565	0.469	4.248	3.540
	(1.03)	(0.85)	(1.07)	(0.89)
Firm Leverage	0.652***	0.652***	5.168***	5.165***
	(2.59)	(2.62)	(2.95)	(2.98)
Firm Age	0.095	0.083	0.695	0.570
	(1.24)	(1.07)	(1.27)	(1.04)
HHI	0.247	0.202	2.242	1.899
	(0.35)	(0.29)	(0.47)	(0.40)
Busy Board	0.192**	0.193**	1.609**	1.598***
	(2.31)	(2.36)	(2.57)	(2.60)
CEO Overconfidence		-0.103		-0.898
		(-0.42)		(-0.49)
CEO-Chairman		0.297***		2.015***
		(3.07)		(2.91)
CEO Tenure		-0.087		-0.554
		(-1.60)		(-1.51)
CEO Age		0.105		0.526
		(0.22)		(0.15)
CEO Gender		0.046		0.161
		(0.17)		(0.09)
Cons	-4.458***	-4.895**	-32.307***	-33.959**
	(-6.70)	(-2.49)	(-7.28)	(-2.42)
	0.193*	0.196**	1.198*	1.187*
Industry*Year Fixed Effects	Yes	Yes	Yes	Yes
N	5706	5706	5813	5813
R-sq.	0.1756	0.1831	0.0599	0.0618

Table 4.11: CEO Narcissism and the Value of Corporate Lobbying

The Table reports the analysis of the impact of narcissist CEO lobbying activities and firm value. The dependent variables are Tobin-Q and Total-Q one year after lobbying. Models 1,2,5&6 (3,4,7&8) use Tobin-Q (Total-Q) one year after lobbying as the dependent variable. Columns 1,2,3&4 (5,6,7&8) are presence (intensity) of regressions. All variables are defined in appendix. T-statistics are reported in parentheses with standard errors clustered at the firm level. *, ** and *** denote significance at 10%, 5% and 1% levels, respectively.

	Lobbying Indicator				Lobbying Amount			
	Tobin-Q		Total-Q		Tobin-Q		Total-Q	
	Independent Variable Interacted With							
	One	*Narcissist*	*One*	*Narcissist*	*One*	*Narcissist*	*One*	*Narcissist*
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Lobbying	0.016	0.326**	-0.019	0.304*	0.006	0.025**	0.001	0.026**
	(0.17)	(2.41)	(-0.18)	(1.87)	(0.74)	(2.42)	(0.07)	(2.10)
Firm Size	-0.185***	-0.017	-0.006	-0.111*	-0.195***	-0.031	-0.010	-0.130*
	(-3.50)	(-0.28)	(-0.11)	(-1.75)	(-3.60)	(-0.50)	(-0.17)	(-1.95)
Firm Leverage	-0.142	0.171	-1.086***	0.481	-0.152	0.159	-1.092***	0.466
	(-0.43)	(0.37)	(-2.73)	(0.78)	(-0.46)	(0.35)	(-2.74)	(0.76)
Firm Age	-0.234***	-0.061	-0.461***	-0.084	-0.236***	-0.062	-0.462***	-0.084
	(-2.73)	(-0.54)	(-4.67)	(-0.58)	(-2.75)	(-0.55)	(-4.68)	(-0.59)
HHI	-0.305	-0.265	0.037	-0.610	-0.315	-0.257	0.023	-0.579
	(-0.37)	(-0.30)	(0.04)	(-0.50)	(-0.38)	(-0.29)	(0.02)	(-0.48)
CEO-Chairman	0.037	0.069	-0.063	0.090	0.036	0.057	-0.064	0.079
	(0.38)	(0.55)	(-0.47)	(0.58)	(0.37)	(0.45)	(-0.48)	(0.50)
Busy Board	0.021	-0.004	-0.094	0.010	0.017	-0.003	-0.096	0.005
	(0.19)	(-0.03)	(-0.80)	(0.05)	(0.15)	(-0.02)	(-0.82)	(0.03)
CEO Tenure	0.099*	0.095	0.161**	0.086	0.101*	0.097	0.162**	0.088
	(1.69)	(1.07)	(2.31)	(0.78)	(1.73)	(1.10)	(2.33)	(0.79)
CEO Age	-0.369	-0.974	-0.463	-1.089	-0.381	-0.951	-0.469	-1.071
	(-0.72)	(-1.35)	(-0.77)	(-1.16)	(-0.75)	(-1.32)	(-0.78)	(-1.14)
CEO Gender	-0.003	-0.276	-0.149	0.048	-0.007	-0.266	-0.155	0.055
	(-0.01)	(-0.67)	(-0.40)	(0.10)	(-0.03)	(-0.65)	(-0.41)	(0.11)
Industry*Year Fixed Effects	Yes		Yes		Yes		Yes	
N	7356		6175		7356		6175	
R-sq	0.243		0.240		0.246		0.242	

Table 4.12: CEO Narcissism, Lobbying and Government Contract

The table reports the analysis of the impact of narcissist CEO lobbying activities and the likelihood of being awarded government contracts. The dependent variable is the Government contract which takes the value of one if a firm is awarded a government contract a year after lobbying and zero otherwise. Models 1&2 (3&4) are lobbying presence (intensity) regressions. T-statistics are reported in parentheses with standard errors clustered at the firm level. *, ** and *** denote significance at 10%, 5% and 1% levels, respectively.

	Lobbying Indicator		Lobbying Amount	
	One	*Narcissist*	*One*	*Narcissist*
	(1)	(2)	(3)	(4)
Lobbying	0.002	0.030**	0.000	0.002**
	(0.29)	(2.30)	(0.29)	(2.46)
Firm Size	0.001	-0.005	0.001	-0.007
	(0.24)	(-0.86)	(0.23)	(-1.14)
Return on Asset	0.015	0.059	0.014	0.056
	(0.50)	(0.88)	(0.48)	(0.83)
Firm Leverage	0.008	-0.031	0.008	-0.032
	(0.64)	(-1.13)	(0.62)	(-1.18)
Firm Age	0.003	-0.013	0.003	-0.014
	(0.65)	(-0.97)	(0.64)	(-0.98)
HHI	-0.029	-0.092	-0.030	-0.093
	(-0.68)	(-1.33)	(-0.70)	(-1.34)
CEO-Chairman	0.006	0.009	0.006	0.008
	(0.97)	(0.64)	(0.97)	(0.59)
Busy Board	0.006	-0.005	0.006	-0.005
	(1.37)	(-0.38)	(1.37)	(-0.39)
CEO Tenure	0.007	-0.014*	0.007	-0.014*
	(1.44)	(-1.69)	(1.46)	(-1.68)
CEO Age	-0.021	-0.070	-0.021	-0.069
	(-0.63)	(-0.90)	(-0.64)	(-0.89)
CEO Gender	-0.017	0.014	-0.017	0.014
	(-1.54)	(0.35)	(-1.53)	(0.36)
Industry*Year Fixed Effects	Yes		Yes	
N	7356		7356	
R-sq	0.072		0.073	

Table 4.13: CEO Narcissism and Environmental-related Corporate Lobbying

The table presents the regression results of the effect of CEO narcissism and environmental-related corporate lobbying. The dependent variable is the environmental lobbying indicator which takes the value one if the firm lobbies an environmental-related issue in a year and zero otherwise. All variables are defined in the appendix. T-statistics are reported in parentheses with standard errors clustered at the firm level. *, ** and *** denote significance at 10%, 5% and 1% levels, respectively.

Dependent variable is Environmental Lobbying Indicator		
CEO Narcissism	0.266***	0.264***
	(2.58)	(2.59)
Firm Size	0.487***	0.504***
	(8.42)	(8.42)
Return on Asset	-0.415	-0.496
	(-0.57)	(-0.67)
Firm Leverage	-0.379	-0.363
	(-1.35)	(-1.28)
Firm Age	0.283***	0.286***
	(2.78)	(2.84)
HHI	0.082	0.073
	(0.10)	(0.09)
Busy Board	0.036	0.040
	(0.33)	(0.37)
CEO-Chairman		-0.069
		(-0.59)
CEO Tenure		-0.112*
		(-1.81)
CEO Age		0.241
		(0.45)
CEO Gender		0.433**
		(2.01)
Cons	-5.648***	-6.914***
	(-7.96)	(-3.19)
Industry*Year FE	Yes	Yes
N	3039	3039
R-sq	0.341	0.345

Table 4.14: CEO Narcissism and Environmental Score

The table presents the regression results of the effect of CEO narcissism on a firm's environmental score. The dependent variable is the natural logarithm of the firm environmental score. All variables are defined in the appendix. T-statistics are reported in parentheses with standard errors clustered at the firm level. *, ** and *** denote significance at 10%, 5% and 1% levels, respectively.

Dependent variable is Natural Log Environmental score		
CEO Narcissism	0.134	0.120
	(1.06)	(0.96)
Firm Size	0.416***	0.405***
	(4.04)	(4.16)
Return on Asset	2.131***	2.208***
	(3.08)	(3.13)
Firm Leverage	-0.260	-0.328
	(-0.88)	(-1.15)
Firm Age	0.266***	0.247***
	(2.92)	(2.65)
HHI	-2.392**	-2.385**
	(-2.31)	(-2.38)
Busy Board	0.486***	0.489***
	(4.35)	(4.42)
CEO-Chairman		0.205
		(1.55)
CEO Tenure		-0.217***
		(-2.62)
CEO Age		0.404
		(0.64)
CEO Gender		0.011
		(0.04)
Cons	-5.924***	-7.239**
	(-5.78)	(-2.47)
Industry*Year FE	Yes	Yes
N	3760	3760
R-sq	0.351	0.343

Chapter 5

Conclusion

This thesis examines how CEO narcissism affects corporate policies including share repurchases, employee pensions and corporate lobbying. Chapter 2 is entitled "The beguiling behaviour of Narcissistic CEOs: Evidence from repurchase announcements". This Chapter investigates whether CEO narcissism drives a firm's share repurchase announcement and actual purchase activities. I show that the inflated self-view of narcissistic CEO motivates them to percieve their company shares as undervalued and hence announce more repurchase to establish their disagreement. However, narcisisist CEOs are less likely to make an actual repurchase of what they announce and even if they do, they spend less dollar amount on them. In further analysis, i find firms managed by narcissistic CEOs have insignificant negative prior CAR to the announcement of share repurchases. Also, I find lower CAR post-repurchase announcements for narcissist CEO-managed firms than other CEOs. Examining the channel through which narcissistic CEOs announce more repurchases and fail to follow through, the study finds narcissistic CEOs have more demand for liquidity and these firms have a more positive and significant cashflow sensitivity of cash.

Chapter 3 is entitled "CEO Narcissism and Employee Defined Benefit Pension Plan". This Chapter examines the effect of CEO narcissism on the adjustment speed of employees' defined benefit pension plan. Specifically, I examine how narcissistic CEOs adjust their DB pension plan to the fully funded level

(100%). I find narcissistic CEOs adjust the DB pension plan to the fully funded level slowly compared to other CEOs. Empirically, it takes narcissist CEOs eighteen months longer to adjsut to the fully funded level compared to other CEOs, which is equivalent to $950 million. Further analysis show that the speed of adjusting DB funding status to the fully funded level is more slower for narcissist CEO-managed firms where the CEO has operating cashflow as a metric of performance measurement. This suggest that narcissistic CEOs delay pension funding to report higher operating cashflow and earn higher compensation. Using the Tax Cut Job Acts (TCJA) of 2017 as change in tax policies regarding deductibility of pension contributions, I find narcissist CEOs taking more advantage of the change to increase their employee DB funding compared to other CEOs. More importantly, I find narcissists increasing the adjustment speed of their employee DB funding status higher than the rate at which they reduced it in years where there was no change in the tax rate. Finally, I find the delay in the adjustment speed by narcissist CEOs more pronounced in poorly governed firms.

Chapter 4 is entitled "CEO Narcissism and Corporate Lobbying". I examine how CEO narcissism affect the lobbying activities of firms. I find keen involvement of narcissist-managed firms in corporate lobbying activities compared to other firms. Also, narcissist CEOs managed firms spend more dollar amounts on corporate lobbying than other firms. I further test the empirical relation between CEO narcissism and lobbying outcomes and find a significant positive relationship between narcissist CEO lobbying and firm value. This suggest that narcissist lobbying activities increase corporate gains and serve the interets of shareholder. However, a question of interest is : how does narcissist CEO lobbying increase firm value? To examine this, I test whether narcissist corporate lobbying increases the allocation of government procurement contracts. I find a significant positive relationship between narcissist CEOs' lobbying activities and the likelihood of being awarded government contracts

compared to other CEOs. Finally, I investigate whether narcissist CEO lobby more for environmental-related issues and to what extent narcissist CEOs promote environmentally friendly activities in their business activities. I find a significant positive relationship between CEO narcissism and environmental-related lobbying. However, I find an insignificant positive relationship between CEO narcissism and the firm environmental scores. This indicates that narcissistic CEOs' increasing environmental lobbying activities are not in line with their firm's environmental activities.

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