INVESTIGATING EXECUTIVE TRAITS

AND CORPORATE ACTIONS

by

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ABSTRACT

This dissertation includes three essays on executive traits and various corporate consequences. In the first essay, we document a unique type of CEOs who are not always selfish, that is, altruistic CEOs. Specifically, we find evidence that when faced with weak corporate governance, altruistic CEOs are less likely to initiate value-destroying acquisitions, where we construct altruistic CEOs using their personal donation records to charities. Furthermore, this difference between altruistic CEOs and their peers are stronger when corporate governance is weaker, indicating that not all CEOs are always self-interested. In addition to corporate takeovers, we show that altruistic CEOs are less likely to engage in corporate wrongful activities, resulting in fewer lawsuits against the firm, fewer earnings manipulations, and lower insider trading profits. We contribute to the standard agency theory by showing that managers are not universally self-interested and identify a possible measure to spot more selfless managers by using charitable donations.

In the second essay, we find that firms managed by CEOs who make regular charitable donations have significantly higher CSR performance than those managed by CEOs who occasionally donate or never donate. To identify causation, we examine changes in firms' CSR performance around exogenous CEO turnover events with a difference-in-difference approach. We find that when a non-routine-donor CEO or non-donor CEO is replaced by a routine donor CEO, the firm's CSR performance improves. Also, using natural disasters as quasi-natural experiments that increase public awareness about CSR, we find firms managed by routine donor CEOs increase their firm's CSR performance more than firms managed by non-routine-donor

CEOs after the shocks. Our results are consistent with behavioral consistency theory which predicts that a CEO's personal socially responsible behavior can predict his firm's socially responsible engagement. Overall, we provide important new evidence on why firms engage in CSR and identify a new CEO characteristic that can predict such engagements.

In the third essay, we investigate the relationship between the CEO and the CFO focusing on one of the visible cultural attributes, age. Substantial age dissimilarity between the two, giving rise to cognitive conflicts, increases the difficulty of communications and may destroy firm value. We measure this age dissimilarity using the age gap between the CEO and the CFO to investigate its correlation with the firm's financial performance. We find evidence showing that firm performance is negatively correlated with this age gap. As the high-tech industries require more efficient and timely communications, the age gap effects are stronger for those firms. Further, when human capital is of more importance, that is, for younger firms, the age gap effects are also stronger. As an alternative to age-based analysis, we also analyze the effects of a generational gap between the CEO and the CFO. We find that firm value tends to be lower when the generational gap exists between the two.

DEDICATION

This dissertation is dedicated to my parents, Xiaoyi Zhang and Xiaohong Wang, who have supported me from day one. To my mom, who has always cared for me and provided me everything I needed. Thank you for always being there. To my dad, who has kept providing me with wonderful advice. Thank you for all the encouragement throughout this long journey.

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CHAPTER ONE: CEO ALTRUISM AND CORPORATE GOVERNANCE

1.1 Introduction

According to Giving USA 2018, Americans gave over 400 billion dollars to charities in 2017 and this behavior is not considered to be consistent with traditional utility theory that individuals care only for their own consumption. One possible explanation for such donating behavior is altruism. A large literature on altruism theories argues that the consumptions of other people is also positively related to one's utility function (Becker, 1974; Andreoni, 1989; Andreoni, 1990), that is, people are not always self-interested. The observed donating behavior is consistent with models of altruism (Becker, 1974) including pure and impure altruism. As a consequence, charitable donating behavior could reflect one's selfless characteristic. In this study, we look at the selflessness of CEOs and corporate actions.

Traditional view about CEOs is based on agency theory which states managers are universally self-interested and self-seeking (Jensen and Meckling, 1976; Eisenhardt, 1989; Wang and Murnighan, 2011). As a consequence, corporate governance is needed to ensure CEOs seek less private benefits and act in shareholders' interests. However, not all CEOs are completely self-interested in the real world. For example, some CEOs care a lot about employees and their work environment. Some CEOs are concerned more about shareholders' long term returns than short term performance which is usually more related to CEO's compensation. However, research to date has been quiet about CEOs' altruistic behaviors and it remains to be investigated more. In this study, we try to fill this gap by constructing a novel measure for CEO altruism and investigating various corporate consequences for firms managed by those altruistic CEOs.

One of the dominant theories of economic organization and management is agency theory. As such, agency problems are by default assumed to exist to an extreme in finance literature. The problem occurs whenever one party (a principal) employs another (an agent) to create value (Bosse and Phillips, 2016) and because the interests of the principal and agent are often different. Both parties would want to maximize their own utilities without considering other's interest. Under this assumption, corporate governance plays a central role in alleviating this misalignment of interests between the principal and the agent, where in finance the principal means shareholders and agent being the CEO. In Masulis, Wang, and Xie's (2007) study, they show that when making acquisitions, acquirers with more antitakeover provisions tend to have a significantly lower stock return surrounding the takeover events. In other words, when corporate governance is weak because the CEO is protected by more antitakeover provisions, CEOs, motivated by self-interests, are more likely to indulge in empire-building acquisitions which destroy shareholder value. Following this paper, we investigate further on corporate governance and acquirer returns for different types of CEOs, namely, altruistic ones. We find that altruistic CEOs in general tend to make fewer acquisitions and also diversifying acquisitions. Moreover, we document a better announcement return for mergers initiated by altruistic CEOs. This is a piece of evidence that not all CEOs are always seeking private benefits like building an empire. Further, by constructing interaction terms between antitakeover provisions variables used in Masulis, Wang, and Xie (2007) and our altruistic CEO variable, we find that deals made by altruistic CEOs have higher bidder returns and moreover, when corporate governance becomes weaker and weaker, the difference in acquirer returns between altruistic CEOs and other CEOs is getting larger, indicating that when corporate governance is strong, both altruistic CEOs and theirs peers do not make value-destroying mergers. When corporate governance is weak, only

non-altruistic CEOs start to make value-destroying mergers but not altruistic CEOs. This is an interesting result which tells us the it is possible that some managers do not need much monitoring as others. Our results on CEO altruism and acquirer returns are also robust to other models used in Masulis, Wang, and Xie (2007) when we include industry competitiveness, board characteristics, and management quality.

The evidence in our study shows that not all CEOs are always selfish, they could be selfless at times and to determine which CEO is more likely to be selfless, we use a novel measure based on personal giving records. Specifically, we construct a dummy variable namely, Altruistic CEO, by using CEOs' personal charitable donation records collected manually. In our study, the dummy variable Altruistic CEO equals 1 if the number of a CEO's donating records to her appearing years in our full sample is larger than the 75th percentile of that ratio for all CEOs and it equals 0 otherwise. Our logic is that consistent donating behavior would be more likely to capture altruism than occasional donations.

Altruistic CEOs also show differences on other corporate wrongdoings. Specifically, we document a negative relation between CEO altruism and earnings management. When CEO is more self-interested, she cares more about getting a higher compensation than long term shareholder outlook. In other words, more selfish CEOs are motivated to manipulate reported earnings. Previous literature shows that when CEO's potential total compensation is more related to earnings, the manipulation of reported earnings becomes more (Bergstresser and Philippon, 2006). Thus, as altruistic CEOs are expected to be selfless, in this context, meaning they will be less likely to engage in earnings management relative to other CEOs because they would consider shareholders long term benefits first. Following Jones (1992) modified model, we use the absolute value of discretionary accruals as a measure for earnings management and find

consistent results that firms managed by altruistic CEOs show a lower value in earnings management.

As another measure for corporate wrongdoings, we also look at lawsuits against the firm. Altruism should be present for everyone including stakeholder. Consequently, altruistic CEOs are expected to treat stakeholder well and less likely to get sued. We look at the total lawsuit numbers and also the probability of being sued. To pursue maximum private benefits, CEOs could engage in unlawful activities and later being exposed and get sued by plaintiffs. We not only look at the total number of legal cases, but also look at the probability of being sued. Controlling for firm and CEO characteristics, we find that companies managed by altruistic CEOs have lower legal risk as evidenced by a negative relation between CEO altruism and the number of lawsuits against the company. Moreover, the probability of being sued is also lower for firms managed by altruistic CEOs.

Lastly, we look at insider trading activities and CEO altruism. Insider trading activity is a way of managers to exploit the private information they have and considered to be unfair and illegal for shareholders, thus hurting shareholder long term profits. We focus on CEO's insider trading profits only. Insider trading activity is normally considered suspicious because insiders accumulate private information through their daily overseeing firm's operations and also their large ownership in firm's stocks. As a consequence, insiders have both the incentives and also ability to trade based on private information and make a profit. Under U.S. securities law, it is an illegal behavior to trade based on private information. In this study, after controlling for other variables related to insider trading profits, we find that insider trading profit is significant lower for altruistic CEOs, especially for selling activities as insider selling activity tends to be information driven.

In this paper, we use a novel measure for CEO altruism and investigate various corporate actions when altruistic CEOs present. Our study makes several important contributions to the current literature, including corporate governance, managerial characteristics, and agency theory. First, we document a type of CEO who are less likely to be universally self-interested, thus moderating the agency problem. This evidence makes contribution in standard assumptions on managers which states all managers are completely selfish. We document that sometimes, managers can be selfless. Second, by using the number of charitable donations made by CEOs, we contribute to the literature on managerial characteristics. We add another important managerial characteristic, namely, management altruism to the current literature. We also document significant differences between altruistic CEOs and their peers on various corporate decisions and outcomes. Lastly, we make a contribution in corporate governance literature by showing examples where governance is not so important that costs needed for high governance procedures might be able to be spent on other activities to further maximize shareholder value.

This paper is organized as follows. Section 2 briefly reviews related literature and defines our hypotheses. Section 3 introduces our construction procedures for the main variables and regression models used in this study. Section 4 presents our main empirical results about corporate governance and CEO altruism. Section 5 documents additional results about CEO altruism and other corporate actions. Finally, section 6 concludes our study.

1.2 Hypotheses Development

1.2.1 Agency problems

When one party, the principal, employs another party, the agent, to create value, possible agency problems occur. The underlying assumptions include that people are universally self-interested and thus when the principal and the agent have divergent interests, the agent will not

always act in the best interests of the principal (Bosse and Phillips, 2016). Because of this, corporate governance mechanisms are needed to make sure managers act in the best interests of shareholders (Jensen and Meckling, 1976). Such mechanisms are said to reduce agency costs that arise from the agency problems (Fama and Jense, 1983).

One example lies in the relationship between antitakeover provisions and stock returns around acquisition dates. Masulis, Wang, and Xie (2007) investigate this relation and document that managers at firms protected by more antitakeover provisions, hence weaker corporate governance, are more likely to engage in empire-building acquisitions which destroy shareholder value. This evidence is consistent with the assumption of agency theory that people are self-interested and self-seeking. In this context, when CEOs face weak corporate governance they immediately seek private benefit by indulging in empire-building acquisitions that are also value-destroying. In other words, they do not consider shareholders' interests when making these poor acquisitions.

Another recent study conducted by El-Khatib, Fogel, and Jandik (2015) shows that high-centrality CEOs make worse acquisitions because they are able to avoid the discipline of the markets for corporate control and the executive labor market. In other words, they face weaker internal governance on their actions. In this study, we build on Masulis et al.'s study and investigate the behavior of altruistic CEOs when faced with weaker corporate governance. Next, we explain why we use charitable donations as a reflection of CEO altruism.

1.2.2 Altruism and charitable donations

Americans gave over 400 billion dollars to charities in 2017 (Giving USA, 2018) and this behavior is not considered to be consistent with traditional utility theory that individuals care only for their own consumption. One possible explanation for such charitable actions is altruism.

A large literature on altruism theories argues that the consumptions of other people are also positively related to one's utility function (Becker, 1974; Andreoni, 1989; Andreoni, 1990), that is, people are not always self-interested. The observed donating behavior is consistent with models of altruism (Becker, 1974), including pure and impure altruism. As a consequence, charitable donating behavior could reflect one's selflessness characteristic.

1.2.3 Agency problems and altruism

Managers are expected to maximize shareholder wealth by making the best strategic corporate decisions. However, agency theory assumes managers are totally selfish. However, anecdotal evidence exists that not all CEOs are totally selfish. The opposite of selfish is altruistic and in this study, we investigate the type of managers that are not totally selfish. According to Merriam-Webster dictionary, altruism is defined as "feelings and behavior that show a desire to help other people and a lack of selfishness". In this context, altruism can be thought as not always being selfish. In this study, we capture altruism using charitable donation records, specifically, we focus on CEO altruism and corporate governance.

Corporate governance is mostly needed when managers are completely self-interested. When the CEO is somewhat altruistic, they will not solely seek private benefits even with weaker corporate governance provisions. Thus, our first hypothesis is as follows:

H1: Firms managed by altruistic CEOs are less likely to make value-destroying acquisitions than firms not managed by altruistic CEOs.

To test our first hypothesis, we closely follow Masulis, Wang, and Xie (2007). We first look at the number of acquisitions made by altruistic CEOs and then we focus on the announcement returns from merger activities. Studies have shown that when facing weaker corporate governance, CEOs will tend to be totally self-interested and initiate value-destroying

acquisitions (Masulis, Wang, and Xie, 2007). If CEO altruism exists, altruistic CEOs are expected to seek self-interests less even when facing weaker corporate governance practices. In this study, we test this hypothesis by focusing on the interaction terms between Altruistic CEO and antitakeover provision variables used in previous studies.

Altruism is not only shown when facing weaker corporate governance. Altruistic CEOs should also behave better on corporate wrongdoing. Our second hypothesis is as follows:

H2: Altruistic CEOs are less likely to engage in wrong doings, including fewer lawsuits, less earnings management actions, and fewer profitable insider trades based on private information.

We follow previous literature on selecting control variables for these tests and we argue that altruistic CEOs are altruistic on other corporate actions including earnings management, insider trading activities, and legal cases. Essentially, perfect altruism means selfless, as reflected by considering others' interests and benefits first. Bergstresser and Philippon (2006) document that CEOs have incentives to manipulate accounting earnings because part of their compensation are tied to earnings. If CEOs are selfish, they would manipulate earnings but if they are selfless, they would not do so. Similar logic can be used for litigation risk and insider trading profits and we present details on them in later sections. Next section will present our data information and research design for this study.

1.3 Data and Research Design

1.3.1 Sample construction

We construct our main interested variable Altruistic CEO by using CEOs' charitable donation records, which are hand collected from a proprietary donation database. We manually search each CEO's name in this database to identify charitable donation records for firms listed on the

S&P 1500 index. To do this, we extract CEO's demographic information from ExecuComp and then use their full name to search for donation records. If we are not sure about whether the donation is made by this CEO, we google the record manually to ensure the accuracy of our matches. Altruistic CEO is a dummy variable which equals 1 if a CEO's donating records to her appearing years in our sample is higher than the 75th percentile for all CEOs.

We construct our acquisition sample using data from the Securities Data Corporation's (SDC) U.S. Mergers and Acquisitions database. We are able to identify 3,137 acquisitions made between January 1, 2000 and December 31, 2014 that meet the following criteria:

1. The acquisition is completed and deal value disclosed is at least $1 million.
2. The bidder owns less than 50% of the target's shares before the announcement date, and owns 100% after the transaction.
3. The relative deal value, that is, deal value to acquirer's market value of equity is at least 1% prior to the announcement date.
4. The financial statement information and stock return data are available from Compustat and CRSP.
5. Antitakeover provisions are available from ISS database.

For corporate governance measure, we follow Masulis, Wang, and Xie (2007) and use three main measures including GIM's G-index, BCF's E-index, and staggered board indicator. To construct these interested variables, we extract antitakeover provisions information from Institutional Shareholder Services (ISS) database. Following GIM, we assume that during the years between two consecutive publications, firms have the same governance provisions as in the previous publication year. GIM G-index has a shorter sample period which ends in year 2006. We follow BCF to construct E-index which is a more parsimonious antitakeover provision index

based on the six provision that they consider to be most important from a legal standpoint: staggered boards, limits to shareholder bylaw amendments, limits to shareholder charter amendments, supermajority requirements for mergers, poison pills, and golden parachutes. Staggered board is an indicator variable equals 1 if the firm has a staggered board.

For firm characteristics, we obtain the information on firm fundamentals from the Compustat database and company stock returns information from The Center for Research in Security Prices (CRSP) database. Finally, we retrieve information about CEOs from the ExecuComp database. We then merge all our data together which results in more than 17,000 firm-year observations. We present our sample statistics in Table 1.

1.3.2 Dependent variables

We examine two acquisition outcomes in our study. First, we focus on the likelihood that altruistic CEOs make acquisitions. Testing this, the dependent variables include number of acquisitions made during the fiscal year, any acquisition indicator during the fiscal year, the number of diversifying acquisitions made during the fiscal year, and at least 1 diversifying acquisition indicator during the fiscal year. Second, we investigate acquirer return from those acquisitions. In these tests, the dependent variables are the cumulative abnormal stock returns (CAR) of the acquirer firm's stock over the announcement period of the deal. Following Masulis, Wang, and Xie (2007), we obtain deal announcement dates from the SDC database and set the day of announcement as the event day 0. We then estimate the market model parameters using CRSP equal-weighted return as the market return over the 200-day period from event day -210 to event day -11. Then, we compute the 5-day cumulative abnormal returns (CAR) during the window encompassed by event days [-2, +2].

Other dependent variables include the number of lawsuits against the firm, discretionary accruals, and insider trading profits. Lawsuits data are from Audit Analytics database. We only use information when firms are the defendants. We use the absolute value of discretionary accruals as a measure for earnings manipulation following Jones (1992). Insider trading data are from Thomas Reuters. These three variables are considered to be indicators for corporate wrongdoing activities. After examining the relationship among CEO altruism, corporate governance, and acquisitions, we turn to these corporate wrongdoing variables and examine the difference in doing these activities for altruistic CEOs and other CEOs.

1.3.3 Research design

In our study, we follow closely to Masulis, Wang, and Xie (2007) who find that acquirers with weaker corporate governance provisions have lower announcement-period abnormal stock returns. That is, managers will be selfish and seeking private benefit by building empire and this is consistent with agency theory. To test our hypothesis that there exists altruistic CEOs who are not always seeking private benefit, we follow Masulis, Wang, and Xie (2007) and look at acquirer returns for those acquirers managed by altruistic CEOs.

To investigate whether an altruistic CEO manages firms differently when she faces different corporate governance provisions, we use the ordinary least squares (OLS) regression to test our hypotheses. The main regression model used in our study is as follows:

$$y_{i,t} = \alpha + \beta * \text{Altruistic CEO} + \gamma * \text{controls} + \text{fixed effects} + \epsilon_{i,t}$$

We include both year and industry fixed effects in our main tests and cluster the standard errors at the firm level for every regression in our study.

1.4 CEO Altruism, Corporate Governance, and Acquisitions

In this section, we present our regression results on acquisition decisions. We first investigate the possibility that a firm announces an acquisition for firms with different types of CEOs. We then focus on whether altruistic CEOs are less likely to initiate value-destroying acquisitions.

1.4.1 CEO altruism and the number of acquisitions

Based on agency theory, self-interested managers are more likely to distort investment budgets to maximize their private benefits. Empire-building is a well-known agency problem in corporate finance. Selfish CEOs are more prone to make acquisitions, especially diversifying ones, to enjoy a more powerful position without considering the consequence on shareholder value.

In this section, we investigate the relation between the frequency of acquisitions and CEO altruism. We first examine the number of acquisitions in Table 2. Columns 1 and 2 in Table 2 show regression results when the dependent variable is the number of total acquisitions in the fiscal year, while columns 3 and 4 present regression results when the dependent variable is the number of diversifying acquisitions in the year. We control CEO characteristics in columns 1 and 3 and both CEO characteristics and firm characteristics in columns 2 and 4.

In column 1 of Table 2, we find that firms managed by an altruistic CEO tend to initiate fewer acquisitions. The unconditional mean number of acquisitions in our sample is 0.260 and the coefficient on Altruistic CEO is -0.071 with a 1% significance level, this tells us that firms managed by altruistic CEOs tend to acquire 27% fewer acquisitions in any year, which is economically meaningful. Adding firm characteristics in column 2 of Table 2, our results hold and the coefficient on Altruistic CEO does not change much. In both specifications, we control year and industry fixed effects and standard errors are clustered at the firm level.

In column 3 of Table 2, we find a more interesting result that altruistic CEOs also tend not to empire-building, that is, they initiate fewer diversifying acquisitions. In our sample, the mean number of diversifying acquisitions is about 0.173 and the coefficient on Altruistic CEO is -0.047 and it is statistically significant at a 5% significance level, this shows us that altruistic CEOs tend to invest 27% fewer diversifying acquisitions in any given year, which is also economically meaningful. Our results still hold when we add firm characteristics in column 4 of Table 2. In both specifications, we control year and industry fixed effects and standard errors are clustered at the firm level.

In sum, the results in this section show that altruistic CEOs make fewer acquisitions in general and they also make fewer diversifying acquisitions. These results support our hypothesis that not all CEOs are totally selfish. In the next section, we look at the probability of making acquisitions.

1.4.2 CEO altruism and the probability of making acquisitions

In the last section, we focused on the relation between having an altruistic CEO and the number of acquisitions made during the year and we find that in general, altruistic CEOs make fewer acquisitions. In this section, we instead look at the probability of making acquisitions in a given year for firms managed by an altruistic CEO compared to firms managed by other CEOs. If our hypothesis is true, CEO altruism and the probability of making acquisition are expected to be negatively correlated, similar to the relation with the number of acquisitions in the previous section. Results of logit regressions are presented in Table 3. Columns 1 through 3 use any acquisition indicator as the dependent variable and columns 4 through 6 use any diversifying acquisition indicator as the dependent variable. All variables are defined in the Appendix.

In column 1 of Table 3, we find that firms managed by an altruistic CEO are less likely to initiate any acquisition in a given year. Specifically, the marginal effect of having an altruistic CEO is statistically significant in column 1 and it is statistically significant with a 1% significance level. The unconditional mean probability of making any acquisitions in our sample is about 0.176 thus, firms managed by altruistic CEOs tend to be less likely to initiate any acquisition in a given year. In column 2 we include firm characteristics and in column 3 we include firm fixed effects. In these two different specifications, our results are robust to firm characteristics and firm fixed effects.

In column 4 of Table 3, we focus on diversifying acquisitions only. We find that firms managed by an altruistic CEO are less likely to make any diversifying acquisitions in a given year. The marginal effect of having an altruistic CEO is significant in column 4 with a 1% significance level. We control for CEO characteristics in column 4 and both CEO and firm characteristic in column 5. In both specifications in columns 4 and 5, we control year and industry fixed effects to account for time and industry invariant characteristics. In the specification in column 6, we include firm fixed effects. As shown in the columns, our results are robust to firm characteristics and firm fixed effects.

To sum up, the regression results in this section document that firms managed by an altruistic CEO are less likely to make acquisitions compared to others. These results also support our main hypothesis that there exists CEOs who are not always self-interested. In the next section, we will focus on the outcomes of acquisitions.

1.4.3 CEO altruism and acquirer returns

1.4.3.1 Baseline regressions

In the previous two sections, we have documented that firms managed by an altruistic CEO tend to make fewer acquisitions, and they are also less likely to make acquisitions in a given year. A natural questions follows is the consequence when altruistic CEOs make acquisitions. In this section, we focus on merger announcement returns to investigate if altruistic CEOs make value-destroying or value-enhancing acquisitions. If our hypothesis holds, altruistic CEOs are less likely to seek private benefits, thus, acquirer returns should be high because the merger decision should be value enhancing. We measure acquirer announcement returns by market model adjusted stock returns around the acquisition announcements. Following Masulis, Wang, and Xie (2007), we compute 5-day cumulative abnormal returns (CAR) during the window encompassed by event days (-2, +2), where event day 0 is the acquisition announcement date. We also use CRSP equal-weighted return as the market return and estimate the market model parameters over the 200-day period from event day -210 to event day -11.

In Table 4, we report our baseline regression results, controlling for all the acquirer and deal characteristics as in Masulis, Wang, and Xie (2007). We first demonstrate that CARs for firms managed by altruistic CEOs are higher and we then replicate Masulis, Wang, and Xie (2007) governance results using G-index, E-index, and staggered board variables. Lastly, we focus on the interaction between altruistic CEO and the three difference governance index measures. In column 1 of Table 4, we find that acquirer returns are higher for firms managed by altruistic CEOs. The coefficient on Altruistic CEO is 0.007 with a 1% significance level. In column 2 of Table 4, we examine E-index and acquirer returns. Similar to results from Masulis, Wang, and Xie (2007), the coefficient on E-index is negative and highly significant, meaning when corporate governance is weaker, managers tend to make value-destroying acquisitions.

In column 3 of Table 4, we look at the consequence of having an altruistic CEO and high governance index for acquirer returns. If our hypothesis holds, then not all CEOs are totally selfish. Thus, altruistic CEOs are less likely to make value-destroying acquisitions compared to selfish CEOs. As a consequence, we expect to see a higher acquirer returns is the acquisition is made by an altruistic CEO. Also, when E-index is higher, that is, corporate governance is lower, the difference in bidder returns for altruistic CEOs and other CEOs should be higher. Results in column 3 confirm our hypothesis, the coefficient on the interaction term between the altruistic CEO dummy and E-index is positive and statistically significant.

In columns 4 and 5, we use G-index as another measure governance index. Because data limitation, the G-index ended in year 2006 which results in a smaller sample in our study. However, we find similar results as using E-index. Specifically, G-index and bidder returns are negatively related. Moreover, the interaction between altruistic CEO and G-index in column 5 of Table 4 is still positive although the significance is marginal with a 10% significance level.

In columns 6 and 7, we use staggered board dummy variable as yet another measure for governance index following Masulis, Wang, and Xie (2007). We still find similar results as using E-index and G-index. Specifically, staggered board and acquirer returns are negatively correlated and the interaction between altruistic CEO and staggered board dummy is positive and statistically significant. In column 6 of Table 4, we replicate Masulis, Wang, and Xie (2007) and get similar results as the coefficient on staggered board dummy is negative and statistically significant. In column 7, we look at what would an altruistic CEO do facing a weaker governance. The interaction term between altruistic CEO and staggered board is still positive and statistically significant with a 5% significance level.

Results together in Table 4 shows CEO altruism exists, that is, facing weaker corporate governance, altruistic CEOs are less likely to pursue private benefits to build empire by engaging in value-destroying acquisitions. Moreover, whenever altruistic CEOs make acquisition decisions, the outcome tends to be better as the cumulative abnormal return is higher relative to other CEOs. In the next section, we add more controls following Masulis, Wang, and Xie (2007) to check if results are robustness.

1.4.3.2 Controlling for product market competition

Following Masulis, Wang, and Xie (2007), we include control variables for product market competition in Table 5. These include competitive industry dummy and unique industry dummy. Competitive industry is a dummy variable which equals 1 if the acquirer's industry is in the bottom quartile of the 48 Fama-French industries sorted by the Herfindahl index and 0 otherwise. Unique industry equals 1 if the acquirer's industry is in the top quartile of the 48 Fama-French industries sorted by industry-median product uniqueness and 0 otherwise, where product uniqueness is defined as selling expense scaled by sales. What we find is that our results for the interaction term between altruistic CEO and three different measure for antitakeover provisions are still positive and statistically significant, consistent with our hypothesis.

In sum, our results on acquirer announcement returns are also robust to product market competition.

1.4.3.3 Controlling for board characteristics

We next include board characteristics in our baseline regression model following Masulis, Wang, and Xie (2007), because monitoring by the boards of directors is considered to be an important internal governance mechanism. In our study, we include CEO duality, board size, and board independence as in previous literature. Table 6 presents our regression results

when the dependent variable is CAR. We notice in Table 6, even after controlling for various board characteristics, the interaction term between the altruistic CEO dummy variable and the three antitakeover provisions proxies are still positive and statistically significant.

In sum, our results on bidder returns around the announcement date are also robust to board characteristics. In the next section, we look at other corporate actions including litigation risk and earnings management to further investigate CEO altruism.

1.4.3.4 Controlling for management quality

We add control for acquirer's CEO quality which is measured as the industry-adjusted operating income growth over the 3 years prior to the merger announcement (Morck, Shleifer, and Vishny; 1990). Adding this as a control would alleviate an omitted variable bias that bad CEOs are believed to make poor acquisitions and adopt antitakeover provisions to entrench themselves. Regression results presented in Table 7 show that CEOs of better quality make better acquisition for their shareholders by having a statistically significant and positive coefficient on operating income growth. More importantly, even after controlling for management quality, we still find the coefficients to be significantly positive for the interaction terms between the altruistic CEO dummy and two of the three antitakeover provisions we consider so far, including E-index and staggered board. The coefficient on the interaction term between altruistic CEO and G-index is positive but not statistically significant as the sample size is significantly smaller.

As another support for our hypothesis, results in Table 7 show that our main results do not appear to be driven by acquirer management quality.

1.4.3.5 Endogeneity problems

As is the case for many corporate finance papers, endogeneity problems prevent us from inferring causality that altruistic CEOs cause firms to engage in better acquisition deals. One

form of the endogeneity issue is an omitted variable bias. The concern here is that there exists some unobservable acquirer characteristics that are responsible for our results. We control this problem by using firm fixed effects and industry-year fixed effects to alleviate the omitted variable bias. In untabulated tables, we find consistent results when firm fixed effects are included or industry-year fixed effects are added for our main regressions. That is, even after controlling for firm fixed effects or industry-year fixed effects, results still suggest that altruistic CEOs tend to make better acquisitions, evidenced by having a higher bidder announcement return. Masulis, Wang, and Xie (2007) also pointed out that some unobservable acquirer characteristics could be responsible for both the level of takeover protection in a firm and the profitability of its acquisitions. They argue that management quality could be one such variable. Following them, we include management quality as a control variable and find similar results in our baseline regressions, results are discussed in the previous section and presented in Table 7.

Another form of the endogeneity issue is reverse causality, that is, firms good at picking merger targets might prefer to choose an altruistic CEO for some reasons. To alleviate this type of endogeneity problems, we perform an instrumental variable approach and estimate the two-stage-least-squares (2SLS) regression to solve the problem. Specifically, we construct our instrumental variable as the number of altruistic CEOs in the industry divided by the rank of charitable states of the firm's headquarters. This instrumental variable not only controls for CEO's peer group, that is industry peers, but also recognizes donating behavior near CEO's workplace, that is state peers. We present our 2SLS results in Table 8.

In column 1 through 4 of Table 8, we show the regression results from first stage where the dependent variables are Altruistic CEO. Meanwhile, in column 5 through 8, we present results from the second stage estimations where the dependent variables are the five-day CARs

as used in our main models. In column 1 through 4, we find our instrument variable to be valid as the coefficients on it are all positive and significant in four different specifications, thus, the instruments are correlated to our Altruistic CEO dummy variable yet not correlated with the five-day CARs. In column 5 through 8, we find consistent results as presented in previous tables. Specifically, in column 5, the coefficient on the instrumented altruistic CEO is positive and statistically significant, telling us that even after controlling for endogeneity, acquisitions made by altruistic CEOs tend to have a higher CARs surrounding the announcement date. More interestingly, in column 6 to 8, we focus our attention on the interaction terms between the instrumented altruistic CEO variable and the three antitakeover provision variables used in Masulis, Wang, and Xie (2007), including staggered board indicator, E-index, and G-index. Results are very similar as before, the interaction terms are positive and significant when we use E-index and staggered board indicator. When we use G-index, the interaction term becomes insignificant but the sign is still positive. We argue that the reason for this insignificance could come from the reduced sample size when information on G-index are missing after the year of 2006.

Evidence in this section focuses on solving the endogeneity issues, and we conclude that altruistic CEOs cause firms to make better acquisitions relative to other CEOs, consistent with our hypothesis. Moreover, the significance on the interaction terms between the instrumented altruistic CEO and antitakeover provision variables reinforce the idea because when corporate governance is weaker, the difference in CARs for altruistic CEOs and other CEOs becomes larger.

1.5 Additional Results

Previously we followed Masulis, Wang, and Xie (2007) to only focus on acquisitions. In this section, we look at the possible consequences for having an altruistic CEO from other corporate actions, including legal cases, earnings manipulation, and insider trading activities.

1.5.1 CEO Altruism and litigation risk

When firms engage in illegal activities, the probability and the number of lawsuits against them are significantly higher. Litigation risk, in our case, represents one type of corporate wrongdoings. In this section, we document the difference in litigation risk for firms managed by altruistic CEOs and other CEOs. We first examine the number of total lawsuits and then we move on to the probability of being sued.

Table 9 presents regression results on CEO altruism and firm's litigation risk. In the first two columns, we use the number of total lawsuits against the firm as the dependent variables. Results tell us that having altruistic CEO, firms are facing fewer lawsuits, controlling for firm and CEO characteristics. In columns 3 and 4, the dependent variables are the probability of being sued in the fiscal year. We find the coefficient on altruistic CEO is significantly negative, indicating that firms managed by altruistic CEOs are less likely to be sued.

Litigation merely reflects firm's risk from actions on outsiders and in the next section, we move on to CEO's action inside company, including earnings manipulation and insider trading activities.

1.5.2 CEO Altruism and earnings management

When CEO is altruistic, it is expected that she would be engage less on managerial misconduct. In this section, we consider one such behavior, earnings management. We follow Jones (1992) to measure earnings management as the absolute value of discretionary accruals.

Table 10 presents our regression results on earnings management. We include control variables that are documented to be correlated with earnings management. Following Summers and Sweeney (1998), we control for firm characteristics including firm size, market-to-book ratios, financial leverage, and return-on-assets. We also follow previous literature to control for channels of external monitoring, including the number of analysts following the firm (Yu, 2008) and institutional ownership (Shleifer and Vishny, 1986; McConnell and Servaes, 1990; Chung, Firth and Kim, 2002).

Column 1 of Table 10 shows OLS regression results before adding any control variables. Only including year and industry fixed effects, we find the coefficient on altruistic CEO dummy is statistically significantly negative, showing that altruistic CEOs engage less in earnings management by using less discretionary accruals. In column 2 of Table 10, we add firm characteristics and results hold. Similar can be said when we include firm characteristics and CEO incentives and traits in column 3 and 4 of Table 10.

In sum, results in Table 10 add another piece of evidence that altruistic CEO exists and our results are robust to adding controls and different regression specifications.

1.5.3 CEO Altruism and insider trading profits

In this section we examine the consequence from having an altruistic CEO on insider trading activities. Specifically, we focus on CEOs' insider trading activities. Following previous literature on insider trading activities, we use buy-and-holding (BHAR) abnormal returns after the trading day. We use 30-day, 60-day, 90-day, and 180-day BHARs in this paper. Studies before have shown that insider trades could generate abnormal returns because they possess private information and trade their stocks opportunistically. As prohibited by law, profitable

insider trading activities are considered as a wrongdoing in corporate finance and thus we look at CEO altruism and insider trading profits in this study.

Table 11 presents results for insider trading profits. We find that altruistic CEOs' insider trading profits are significantly lower than those of other CEOs. Moreover, results in Table 12 and 13 focus on purchase and sales trade respectively and indicate that results in Table 11 are mainly from insider sales, and insider selling activities are more likely to be private information driven. We also perform various robustness tests on insider trading profits and our results are robust after including different fixed effects and control variables.

In sum, altruistic CEOs are less likely to initiate profitable insider trading activities relative to other CEOs. Evidence presented in the past few sections together shows that altruistic CEOs are different from other CEOs on corporate wrongdoings, that is, they are less likely to engage in corporate wrongdoings relative to other CEOs.

1.5.4 More tests using different fixed effects

In Table 14, we perform our main regressions of acquirer return around the announcement date and include industry-year fixed effects as a robustness test. In Table 15, we perform our main regressions of the bidder returns around the merger event and include year and firm fixed effects as another robustness test. Panel A, B, C, and D in these two tables are similar to analysis before and include baseline regressions, industry competitiveness, board characteristics, and management quality, respectively. Similar results to our main regressions are shown in the tables and thus our results for bidder announcement returns are robust to these different specifications.

1.6 Concluding Remarks

In this study, we provide a different view on agency problems. By using CEO's charitable donations as a measure for altruism, we document a new type of CEO, altruistic CEO, which are less likely to be completely self-interested. We show that when faced with weaker corporate governance, altruistic CEOs are less likely to pursue private benefits as others to engage in more value-destroying acquisitions. When altruistic CEOs make acquisitions, because it is less likely to be completely self-interested, the acquirer returns surrounding the announcement of deals are significant higher, ceteris paribus. Moreover, we look at other corporate actions including earnings management, litigation risk, and insider trading profits. We find that be altruistic, these CEOs engagement less in earnings manipulations, firms managed by them are less likely to be sued against, and trades made by these CEOs are less likely to be private information-driven. All these interesting results make several important contributions to the current literature on corporate governance and agency theory. First, we document a type of CEO who are less likely to be universally self-interested, thus moderating the agency problem. This evidence makes contribution in standard assumptions on managers which states all managers are completely selfish. We document that sometimes, managers can be selfless. Second, by using the number of charitable donations made by CEOs, we contribute to the literature on managerial characteristics. We add another important managerial characteristic, namely, management altruism. We document significant difference between altruistic CEOs and others on various corporate decisions and consequences. Lastly, we make contribution in corporate governance literature by showing examples where governance is not so important that costs needed for high governance procedures might be able to be spent on other activities to maximize shareholder value.

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Appendix

Variables	Definitions
Altruistic CEO	Dummy variable which equals one when the ratio of the number of charitable donations made by the CEO to her appearing years in our sample is larger than the 75th percentile, zero otherwise.
CAR (+2, +2)	Five-day cumulative abnormal return calculated using the market model. The market model parameters are estimated over the period (-210, -11) with the CRSP equally-weighted return as the market index.
G-index	Following Gompers, Ishii, and Metrick (2003), based on 24 antitakeover provisions. Higher index levels correspond to more managerial power, indicating weaker corporate governance.
E-index	Following Bebchuk, Cohen, and Ferrell (2004), based on 6 antitakeover provisions. Higher index levels correspond to more managerial power, indicating weaker corporate governance.
Staggered board	Dummy variable which equals one if the firm has a staggered board, zero otherwise.
Firm Size	Natural logarithm of total assets.
Volatility	Standard deviation of monthly stock returns for the most recent three years.
ROA	Return on assets as net income divided by total assets at the beginning of the year.
Leverage	Book leverage as long-term debt plus debt in current liabilities scaled by total asset.
Market-to-book	(total assets – book equity + market value of equity)/total assets.
Volatility	Monthly stock return volatility in the past three years.
CEO ownership	Percentage of common shares held by the CEO.
CEO duality	Dummy variable equaling one if the CEO is the chairman of the board.
Female CEO	Dummy variable equaling one if the CEO is female.
Ln CEO tenure	Natural logarithm of CEO tenure.
CEO age	Age of the CEO.
Ln compensation	Natural logarithm of CEO total compensation.
Stock price runup	Bidder's buy-and-hold abnormal return (BHAR) during the period (-210, -11). The market index is the CRSP value-weighted return.
Public target	Dummy variable which equals one for public targets, zero otherwise.
Private target	Dummy variable which equals one for private targets, zero otherwise.
Subsidiary target	Dummy variable which equals one for subsidiary targets, zero otherwise.
All-cash deal	Dummy variable which equals one for purely cash-financed deals, zero otherwise.

Stock deal	Dummy variable which equals one for deals at least partially stock-financed, zero otherwise.
Diversifying acquisition	Dummy variable which equals one if bidder and target do not share a same SIC code, zero otherwise.
Relative deal size	Deal value over acquirer market value of equity
High tech	Dummy variable which equals one if acquirer and target are both from high tech industries defined by Loughran and Ritter (2004), zero otherwise.
Industry M&A	The value of all corporate control transactions of $1 million reported by SDC for each prior year and Fama-French industry divided by the total book value of assets of all Compustat firms in the same Fama-French industry and year.
Unique industry	Dummy variable which equals one if the acquirer's industry is in the top quartile of all 48 Fama–French industries annually sorted by industry-median product uniqueness, zero otherwise, where product uniqueness is defined as selling expense (item189) scaled by sales (item12).
Competitive industry	Dummy variable which equals one if the acquirer's industry is in the bottom quartile of all 48 Fama–French industries annually sorted by the Herfindahl index, 0 otherwise, where an industry's Herfindahl index is computed as the sum of squared market shares of all COMPUSTAT firms in the industry and with valid data on sales (item12).
Board size	Number of directors on acquirer's board.
Independent board	Dummy variable which equals one if over 75% of acquirer directors are independent, zero otherwise.

Table 1. 1 Summary Statistics

This table presents summary statistics for the main variables used in this study. The sample consists of the S&P 1500 firms from fiscal year 2000 to 2014. Variable definitions are provided in the Appendix.

	Count	Mean	SD	Median
Altruistic CEO	17038	0.255	0.436	0
Number of acquisitions	17038	0.260	0.682	0
Any acquisition indicator	17038	0.176	0.381	0
Firm size	17038	7.938	1.653	7.824
Market-to-book	17038	1.851	1.056	1.503
ROA	17038	0.0462	0.0803	0.0471
Leverage	17038	0.204	0.177	0.180
Volatility	17038	10.99	5.512	9.777
CEO ownership	17038	1.550	4.070	0.139
CEO Duality	17038	0.219	0.414	0
Female CEO	17038	0.0222	0.147	0
Ln CEO tenure	17038	1.649	0.578	1.609
CEO age	17038	55.93	7.252	56
Ln compensation	17038	8.176	0.993	8.220
CAR (-2, +2)	3137	0.00594	0.0570	0.00502
Stock price runup	3137	-0.153	0.667	-0.0560
Public target	3137	0.193	0.395	0
Private target	3137	0.474	0.499	0
Subsidiary target	3137	0.327	0.469	0
All-cash deal	3137	0.920	0.272	1
Diversifying acquisition	3137	0.651	0.477	1
Relative deal size	3137	0.107	0.146	0.0512
High tech	3137	0.241	0.428	0
Industry M&A	3137	0.0200	0.0232	0.0124
E-index	2378	1.630	1.144	2
G-index	1234	9.417	2.958	9
Staggered board	2369	0.602	0.490	1

Table 1. 2 Do Altruistic CEOs Make Fewer Acquisitions?

This table presents regression results of acquisitions on altruistic CEO dummy variables. Columns 1 and 2 use the number of completed acquisitions during the year as the dependent variable. Columns 3 and 4 use the number of completed diversifying acquisitions during the year as the dependent variable. All models include year and industry fixed effects. Variable definitions are provided in the Appendix. Standard errors are clustered at the firm level and t-statistics are shown in parentheses. Statistical significance at the 1%, 5%, and 10% level is indicated by ***, **, and *, respectively.

	(1) Number of acquisitions	(2) Number of acquisitions	(3) Number of diversifying acquisitions	(4) Number of diversifying acquisitions
Altruistic CEO	-0.071***	-0.070***	-0.047**	-0.043**
	(-2.99)	(-2.99)	(-2.22)	(-2.13)
CEO ownership	-0.002	-0.001	-0.003**	-0.003**
	(-0.72)	(-0.65)	(-2.04)	(-2.09)
CEO Duality	0.048	0.055*	0.042*	0.051**
	(1.55)	(1.87)	(1.67)	(2.02)
Female CEO	-0.065**	-0.067**	-0.054**	-0.056**
	(-2.13)	(-2.12)	(-2.03)	(-2.02)
Ln CEO tenure	0.012	0.013	0.012	0.012
	(0.62)	(0.66)	(0.80)	(0.83)
CEO age	-0.006***	-0.006***	-0.004**	-0.004**
	(-2.61)	(-2.66)	(-2.24)	(-2.26)
Ln compensation	0.006	0.012	0.002	0.015
	(0.30)	(0.34)	(0.15)	(1.05)
Firm size		-0.009		-0.019
		(-0.41)		(-1.56)
ROA		-0.178		-0.018
		(-0.61)		(-0.14)
Leverage		0.196**		0.177***
		(2.37)		(2.69)
Market-to-book		0.011		-0.008
		(0.34)		(-0.44)
Intercept	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Observations	17,038	17,038	17,038	17,038
Adjusted R-squared	0.0747	0.0765	0.0797	0.0823

Table 1. 3 Are Altruistic CEOs More Likely to Make Acquisitions?

This table presents logit regression results of the likelihood to make acquisitions on altruistic CEO dummy variables. Columns 1, 2, and 3 use the probability of making any acquisitions during the year as the dependent variable. Columns 4, 5, and 6 use the probability of making diversifying acquisitions during the year as the dependent variable. Variable definitions are provided in the Appendix. All models include year and industry fixed effects. Standard errors are clustered at the firm level and t-statistics are shown in parentheses. Statistical significance at the 1%, 5%, and 10% level is indicated by ***, **, and *, respectively.

	(1) Any acquisition indicator	(2) Any acquisition indicator	(3) Any acquisition indicator	(4) Any div. acquisition indicator	(5) Any div. acquisition indicator	(6) Any div. acquisition indicator
Altruistic CEO	-0.195***	-0.195***	-0.281**	-0.150***	-0.147**	-0.246*
	(-3.95)	(-3.79)	(-2.47)	(-2.63)	(-2.47)	(-1.82)
CEO ownership	-0.006	-0.005	-0.007	-0.021***	-0.020***	-0.025*
	(-1.10)	(-0.84)	(-0.64)	(-2.88)	(-2.65)	(-1.91)
CEO Duality	0.129**	0.165***	0.066	0.191***	0.245***	0.167
	(2.19)	(2.71)	(0.76)	(2.80)	(3.47)	(1.64)
Female CEO	-0.221	-0.213	0.213	-0.305	-0.299	0.361
	(-1.40)	(-1.35)	(0.69)	(-1.60)	(-1.56)	(0.98)
Ln CEO tenure	0.030	0.030	0.040	0.002	0.000	0.018
	(0.86)	(0.83)	(0.87)	(0.05)	(0.00)	(0.34)
CEO age	-0.012***	-0.013***	-0.011*	-0.011***	-0.013***	-0.012
	(-4.18)	(-4.36)	(-1.76)	(-3.28)	(-3.59)	(-1.63)
Ln compensation	0.120***	0.160***	0.139***	0.076***	0.120***	0.063
	(5.53)	(5.45)	(2.95)	(3.04)	(3.50)	(1.15)
Firm size		-0.063***	0.362***		-0.067***	0.411***
		(-3.14)	(4.37)		(-2.82)	(4.24)
ROA		0.800***	0.906**		0.705**	0.250
		(2.68)	(2.11)		(2.00)	(0.48)
Leverage		0.828***	0.674**		0.905***	-0.052
		(6.28)	(2.29)		(6.01)	(-0.15)
Market-to-book		-0.065***	0.030		-0.067**	0.075
		(-2.76)	(0.69)		(-2.43)	(1.45)
Intercept	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	No	Yes	Yes	No
Firm FE	No	No	Yes	No	No	Yes
Observations	17,796	17,024	10,323	17,719	16,884	8,022
Pseudo R-squared	0.0722	0.0740	0.0272	0.0840	0.0839	0.0266

Table 1. 4 Do Altruistic CEOs Make Better Acquisitions? Baseline Regression Analysis of Acquirer Returns

This table presents OLS regression results of the acquirer return on altruistic CEO dummy variables. The dependent variable is the acquirer's 5-day cumulative abnormal return. Column 1 shows the basic analysis of acquirer return and CEO altruism. Columns 2, 4, and 6 include three different measure for antitakeover provisions, including E-index, G-index, and staggered board. Columns 3, 5, and 7 include both the antitakeover provisions and altruistic CEO dummy variable and focus on the interaction terms between them. Variable definitions are provided in the Appendix. All models include year and industry fixed effects. Standard errors are clustered at the firm level and t-statistics are shown in parentheses. Statistical significance at the 1%, 5%, and 10% level is indicated by ***, **, and *, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
		E-index		G-index		Staggered board	
	CAR	CAR	CAR	CAR	CAR	CAR	CAR
Altruistic CEO	0.007***		-0.002		-0.017		0.001
	(2.60)		(-0.42)		(-1.23)		(0.30)
E-index		-0.004***	-0.005***				
		(-2.97)	(-3.70)				
Altruistic CEO x E-index			0.006**				
			(2.03)				
G-index				-0.004***	-0.004***		
				(-5.38)	(-5.80)		
Altruistic CEO x G-index					0.002*		
					(1.71)		
Staggered board						-0.005**	-0.007***
						(-2.28)	(-2.90)
Altruistic CEO x Staggered board							0.011**
							(2.05)
Firm size	-0.002***	-0.002**	-0.002**	-0.003*	-0.003**	-0.002**	-0.002**
	(-2.91)	(-2.29)	(-2.43)	(-1.93)	(-2.01)	(-2.19)	(-2.31)
Market-to-book	0.002*	0.001	0.001	0.002	0.002	0.001	0.001
	(1.66)	(0.91)	(0.93)	(1.27)	(1.28)	(0.96)	(0.99)
ROA	0.039*	0.017	0.015	0.010	0.008	0.018	0.016
	(1.95)	(0.82)	(0.74)	(0.34)	(0.29)	(0.89)	(0.77)
Leverage	0.023***	0.019**	0.019**	0.030**	0.029*	0.019**	0.019**

	(2.89)	(2.10)	(2.09)	(2.01)	(1.91)	(2.05)	(2.06)
Stock price runup	-0.006***	-0.006***	-0.006***	-0.006**	-0.006**	-0.006***	-0.006***
	(-3.14)	(-2.68)	(-2.62)	(-2.22)	(-2.23)	(-2.60)	(-2.60)
Industry M&A	-0.167***	-0.150**	-0.152**	-0.023	-0.026	-0.149**	-0.149**
	(-2.69)	(-2.31)	(-2.34)	(-0.26)	(-0.30)	(-2.29)	(-2.29)
Relative deal size	0.016	-0.005	-0.005	-0.012	-0.012	-0.004	-0.005
	(1.14)	(-0.32)	(-0.29)	(-0.57)	(-0.55)	(-0.27)	(-0.28)
High tech	0.006	0.000	0.002	0.005	0.006	0.000	0.002
	(1.34)	(0.08)	(0.32)	(0.68)	(0.83)	(0.09)	(0.34)
High tech x relative deal size	-0.033	-0.002	-0.002	-0.002	-0.003	-0.003	-0.004
	(-1.28)	(-0.07)	(-0.07)	(-0.06)	(-0.08)	(-0.12)	(-0.13)
Diversifying acquisition	-0.003	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002
	(-1.32)	(-0.70)	(-0.74)	(-0.48)	(-0.51)	(-0.73)	(-0.76)
Public target x stock deal	-0.029**	-0.029**	-0.029**	-0.051***	-0.050**	-0.029**	-0.029**
	(-2.51)	(-2.19)	(-2.21)	(-2.67)	(-2.57)	(-2.14)	(-2.13)
Public target x cash deal	-0.008	-0.005	-0.005	-0.027	-0.026	-0.005	-0.005
	(-0.82)	(-0.44)	(-0.42)	(-1.51)	(-1.42)	(-0.42)	(-0.42)
Private target x stock deal	-0.001	-0.006	-0.006	-0.036*	-0.036*	-0.002	-0.002
	(-0.10)	(-0.36)	(-0.37)	(-1.75)	(-1.70)	(-0.14)	(-0.14)
Private target x cash deal	0.000	0.000	0.001	-0.020	-0.019	0.000	0.000
	(0.00)	(0.04)	(0.05)	(-1.14)	(-1.05)	(0.02)	(0.01)
Subsidiary target x cash deal	0.009	0.010	0.010	-0.008	-0.007	0.010	0.010
	(0.93)	(0.92)	(0.95)	(-0.47)	(-0.41)	(0.88)	(0.85)
Intercept	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,983	2,254	2,254	1,167	1,167	2,246	2,246
Adjusted R-squared	0.0451	0.0512	0.0555	0.0743	0.0769	0.0464	0.0498

Table 1. 5 Do Altruistic CEOs Make Better Acquisitions? Controlling for Product Market Competition

This table presents OLS regression results of the acquirer return on altruistic CEO dummy variables. The dependent variable is the acquirer's 5-day cumulative abnormal return. Column 1 shows the basic analysis of acquirer return and CEO altruism. Columns 2, 4, and 6 include three different measure for antitakeover provisions, including E-index, G-index, and staggered board. Columns 3, 5, and 7 include both the antitakeover provisions and altruistic CEO dummy variable and focus on the interaction terms between them. Variable definitions are provided in the Appendix. All models include year and industry fixed effects. Standard errors are clustered at the firm level and t-statistics are shown in parentheses. Statistical significance at the 1%, 5%, and 10% level is indicated by ***, **, and *, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
		E-index		G-index		Staggered board	
	CAR	CAR	CAR	CAR	CAR	CAR	CAR
Altruistic CEO	0.006**		-0.002		-0.016		0.001
	(2.57)		(-0.46)		(-1.15)		(0.26)
E-index		-0.004***	-0.006***				
		(-3.16)	(-3.88)				
Altruistic CEO x E-index			0.006**				
			(2.00)				
G-index				-0.004***	-0.004***		
				(-5.56)	(-5.99)		
Altruistic CEO x G-index					0.001**		
					(2.07)		
Staggered board						-0.006**	-0.008***
						(-2.47)	(-3.04)
Altruistic CEO x Staggered board							0.011**
							(2.00)
Unique industry	-0.007**	-0.010***	-0.010***	-0.013***	-0.013***	-0.009***	-0.009**
	(-2.24)	(-2.82)	(-2.74)	(-2.60)	(-2.60)	(-2.63)	(-2.54)
Competitive industry	0.002	0.001	0.001	0.004	0.005	0.001	0.001
	(0.95)	(0.43)	(0.41)	(0.79)	(0.83)	(0.35)	(0.34)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Intercept	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,983	2,254	2,254	1,167	1,167	2,246	2,246
Adjusted R-squared	0.0482	0.0558	0.0600	0.0808	0.0832	0.0506	0.0538

Table 1. 6 Do Altruistic CEOs Make Better Acquisitions? Controlling for Board Characteristics

This table presents OLS regression results of the acquirer return on altruistic CEO dummy variables. The dependent variable is the acquirer's 5-day cumulative abnormal return. Column 1 shows the basic analysis of acquirer return and CEO altruism. Columns 2, 4, and 6 include three different measure for antitakeover provisions, including E-index, G-index, and staggered board. Columns 3, 5, and 7 include both the antitakeover provisions and altruistic CEO dummy variable and focus on the interaction terms between them. Variable definitions are provided in the Appendix. All models include year and industry fixed effects. Standard errors are clustered at the firm level and t-statistics are shown in parentheses. Statistical significance at the 1%, 5%, and 10% level is indicated by ***, **, and *, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
		E-index		G-index		Staggered board	
	CAR	CAR	CAR	CAR	CAR	CAR	CAR
Altruistic CEO	0.007**		-0.002		-0.015		0.001
	(2.51)		(-0.50)		(-0.98)		(0.14)
E-index		-0.004***	-0.006***				
		(-3.01)	(-3.80)				
Altruistic CEO x E-index			0.006**				
			(2.03)				
G-index				-0.003***	-0.004***		
				(-4.90)	(-5.39)		
Altruistic CEO x G-index					0.002		
					(1.48)		
Staggered board						-0.007***	-0.009***
						(-2.72)	(-3.29)
Altruistic CEO x Staggered board							0.011*
							(1.92)
Unique industry	-0.010***	-0.011***	-0.010***	-0.014**	-0.014**	-0.010***	-0.010***
	(-3.03)	(-2.88)	(-2.83)	(-2.51)	(-2.54)	(-2.82)	(-2.75)
Competitive industry	0.004	0.002	0.001	0.005	0.005	0.001	0.001
	(1.41)	(0.53)	(0.48)	(0.80)	(0.80)	(0.42)	(0.38)
Board size	-0.002	0.000	-0.000	0.000	0.002	0.000	-0.000
	(-0.37)	(0.01)	(-0.01)	(0.00)	(0.16)	(0.04)	(-0.06)
Independent board dummy	0.001	-0.000	-0.000	0.001	0.000	-0.000	-0.000

	(0.21)	(-0.01)	(-0.05)	(0.27)	(0.11)	(-0.10)	(-0.12)
Intercept & Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,509	2,086	2,086	1,066	1,066	2,081	2,081
Adjusted R-squared	0.0541	0.0514	0.0556	0.0740	0.0766	0.0485	0.0514

Table 1. 7 Do Altruistic CEOs Make Better Acquisitions? Controlling for Management Quality

This table presents OLS regression results of the acquirer return on altruistic CEO dummy variables. The dependent variable is the acquirer's 5-day cumulative abnormal return. Management quality is measured as the operating income growth rate adjusted by industry median. Column 1 shows the basic analysis of acquirer return and CEO altruism. Columns 2, 4, and 6 include three different measure for antitakeover provisions, including E-index, G-index, and staggered board. Columns 3, 5, and 7 include both the antitakeover provisions and altruistic CEO dummy variable and focus on the interaction terms between them. Variable definitions are provided in the Appendix. All models include year and industry fixed effects. Standard errors are clustered at the firm level and t-statistics are shown in parentheses. Statistical significance at the 1%, 5%, and 10% level is indicated by ***, **, and *, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
		E-index		G-index		Staggered board	
	CAR	CAR	CAR	CAR	CAR	CAR	CAR
Altruistic CEO	0.006**		-0.003		-0.015		0.000
	(2.29)		(-0.52)		(-1.11)		(0.09)
E-index		-0.003**	-0.004***				
		(-2.13)	(-2.94)				
Altruistic CEO x E-index			0.006*				
			(1.78)				
G-index				-0.003***	-0.003***		
				(-3.76)	(-4.05)		
Altruistic CEO x G-index					0.001		
					(1.32)		
Staggered board						-0.006**	-0.008***
						(-2.34)	(-2.89)
Altruistic CEO x Staggered board							0.011**
							(1.98)
Management quality	0.000***	0.000***	0.000***	0.000***	0.000**	0.000***	0.000***
	(5.26)	(4.91)	(4.63)	(2.77)	(2.56)	(5.30)	(5.13)
Unique industry	-0.006*	-0.008**	-0.008**	-0.010*	-0.009*	-0.008**	-0.008**
	(-1.94)	(-2.36)	(-2.26)	(-1.89)	(-1.84)	(-2.24)	(-2.12)
Competitive industry	0.003	0.001	0.001	0.005	0.006	0.001	0.001
	(1.15)	(0.29)	(0.31)	(0.80)	(0.91)	(0.28)	(0.32)
Intercept & Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,628	1,918	1,918	844	844	1,911	1,911
Adjusted R-squared	0.0536	0.0592	0.0631	0.1009	0.1019	0.0558	0.0589

Table 1. 8 Do Altruistic CEOs Make Better Acquisitions? A 2SLS Approach

This table presents 2SLS regression results of the acquirer return on altruistic CEO dummy variables. The dependent variable is altruistic CEO in columns 1. The dependent variable is the acquirer's 5-day cumulative abnormal return in columns 5. Column 1 shows results from first stage regressions. Column 5 shows results from the second stage regressions. The instrumental variable used in this table is calculated as the number of altruistic CEOs in the industry divided by the charitable rank of firm's state, thus it controls both for the CEO's peer group and her neighbors. Variable definitions are provided in the Appendix. All models include year and industry fixed effects. Standard errors are clustered at the firm level and t-statistics are shown in parentheses. Statistical significance at the 1%, 5%, and 10% level is indicated by ***, **, and *, respectively.

	(1) First Stage: Altruistic CEO	(5) Second Stage: CAR
Instrumental variable	0.196***	
	(23.81)	
Predicted altruistic CEO		0.005**
		(1.98)
Constant	Yes	Yes
Controls	Yes	Yes
Year FE	Yes	Yes
Industry FE	Yes	Yes
Observations	2,960	2,960
Adjusted R-squared		0.0474

Table 1. 9 Do Altruistic CEOs Abide Law?

This table presents OLS regression results of lawsuits against the firm on altruistic CEO dummy variables. The dependent variable is the number of lawsuits against the firm in the year in columns 1 and 2. Columns 3 and 4 use the probability of being sued as the dependent variable. Variable definitions are provided in the Appendix. Columns 1 and 3 include year and industry fixed effects. Column 2 and 4 include year and firm fixed effects. Standard errors are clustered at the firm level and t-statistics are shown in parentheses. Statistical significance at the 1%, 5%, and 10% level is indicated by ***, **, and *, respectively.

	(1) Number of lawsuits	(2) Number of lawsuits	(3) Probability of being sued	(4) Probability of being sued
Altruistic CEO	-0.088**	-0.081*	-0.013*	-0.012
	(-2.00)	(-1.84)	(-1.80)	(-1.01)
Firm size	0.472***	0.402***	0.032***	0.016*
	(8.11)	(3.59)	(7.84)	(1.90)
ROA	-0.136	-0.219	0.058	-0.035
	(-0.58)	(-1.40)	(1.58)	(-1.19)
Leverage	-0.699***	-0.152	-0.048***	-0.011
	(-5.78)	(-0.69)	(-2.91)	(-0.41)
Market-to-book	0.106***	-0.006	0.003	-0.006
	(3.20)	(-0.15)	(1.03)	(-1.23)
Volatility	0.019***	0.003	-0.001*	0.000
	(4.72)	(0.85)	(-1.77)	(0.30)
CEO ownership	0.016***	0.007	-0.000	0.001
	(2.58)	(1.27)	(-0.28)	(0.73)
CEO Duality	-0.004	-0.065*	-0.008	-0.023**
	(-0.09)	(-1.77)	(-1.15)	(-2.55)
Female CEO	-0.051	-0.053	0.001	0.022
	(-0.60)	(-0.44)	(0.05)	(0.64)
Ln CEO tenure	-0.026	-0.009	-0.003	-0.007
	(-1.33)	(-0.54)	(-0.60)	(-1.50)
CEO age	-0.006**	0.002	-0.000	0.000
	(-2.42)	(0.51)	(-0.86)	(0.49)
Ln compensation	-0.123*	-0.127*	0.003	0.008
	(-1.88)	(-1.84)	(0.98)	(1.44)
Intercept	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	No	Yes	No
Firm FE	No	Yes	No	Yes
Observations	15,517	15,517	15,517	15,517
Adjusted R-squared	0.1909	0.4473	0.0642	0.1471

Table 1. 10 Do Altruistic CEOs Manipulate Earnings Less?

This table presents OLS regression results of the firm's earnings management on altruistic CEO dummy variables. The dependent variable is the absolute value of discretionary accruals (Jones, 1992). Column 1 does not include control variables. Column 2 includes firm's characteristics shown to affect earnings management. Column 3 include firm's characteristics and CEO characteristics. Variable definitions are provided in the Appendix. Columns 1 to 3 include year and industry fixed effects. Column 4 includes industry-year fixed effects. Standard errors are clustered at the firm level and t-statistics are shown in parentheses. Statistical significance at the 1%, 5%, and 10% level is indicated by ***, **, and *, respectively.

	(1) Earnings Management	(2) Earnings Management	(3) Earnings Management	(4) Earnings Management
Altruistic CEO	-0.126**	-0.127**	-0.138**	-0.100**
	(-2.32)	(-2.14)	(-2.22)	(-1.99)
Firm size		0.030	0.040	0.030
		(1.22)	(1.50)	(1.28)
Market-to-book		0.002	0.016	0.031
		(0.06)	(0.43)	(0.91)
Leverage		0.337	0.425*	0.489**
		(1.51)	(1.82)	(2.40)
ROA		1.318***	1.526***	0.933***
		(3.33)	(3.62)	(2.72)
Analyst coverage		-0.014**	-0.015**	-0.013***
		(-2.44)	(-2.58)	(-2.75)
Institutional Ownership		-0.418**	-0.506**	-0.532***
		(-2.19)	(-2.48)	(-2.98)
CEO delta			-0.000	-0.000
			(-1.00)	(-1.35)
CEO vega			-0.000	-0.000
			(-1.35)	(-0.23)
CEO ownership			-0.013*	-0.003
			(-1.89)	(-0.51)
CEO Duality			0.054	0.090
			(0.60)	(1.53)
Female CEO			-0.069	-0.151
			(-0.42)	(-1.43)
Ln CEO tenure			-0.043	-0.044
			(-0.95)	(-1.38)
CEO age			-0.004	-0.007**
			(-1.14)	(-2.04)
Intercept	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	No
Industry FE	Yes	Yes	Yes	No
Industry-Year FE	No	No	No	Yes
Observations	15,447	13,118	12,127	12,127

Adjusted R-squared	0.1739	0.1773	0.1752	0.7016

Table 1. 11 Altruistic CEO and Insider Trading Profits

This table reports OLS regressions of post-trade buy-and-hold abnormal returns (BHAR) on altruistic CEO variable. Fama-French three factor model is used to calculate the abnormal returns. In columns 1 to 4, month and industry fixed effects are included. In columns 5 to 8, month and firm fixed effects are used. Variable definitions are provided in the Appendix. Standard errors are clustered at the firm level and t-statistics are shown in parentheses. Statistical significance at the 1%, 5%, and 10% level is indicated by ***, **, and *, respectively.

	(1) BHAR (0, 30)	(2) BHAR (0, 60)	(3) BHAR (0, 90)	(4) BHAR (0, 180)	(5) BHAR (0, 30)	(6) BHAR (0, 60)	(7) BHAR (0, 90)	(8) BHAR (0, 180)
Altruistic CEO	-0.029***	-0.042**	-0.049***	-0.044**	-0.030***	-0.020	-0.046**	-0.045*
	(-2.88)	(-2.37)	(-2.62)	(-2.47)	(-2.87)	(-1.45)	(-2.25)	(-1.80)
Firm size	-0.003	-0.006	-0.009	-0.021***	-0.018	-0.016	-0.005	0.006
	(-1.14)	(-1.21)	(-1.45)	(-2.63)	(-1.15)	(-0.70)	(-0.14)	(0.17)
Market-to-book	-0.015*	-0.023**	-0.039***	-0.040***	-0.030	-0.046	-0.089**	-0.126***
	(-1.88)	(-2.17)	(-2.99)	(-3.41)	(-1.31)	(-1.54)	(-2.49)	(-7.12)
ROA	-0.100	-0.164	-0.095	-0.137	-0.142	-0.302	-0.201	0.059
	(-1.25)	(-1.44)	(-0.72)	(-0.68)	(-0.90)	(-1.49)	(-1.04)	(0.18)
Transaction	0.000	-0.000	-0.001	-0.001	0.000	0.000	0.000	0.000
	(1.08)	(-0.99)	(-1.21)	(-1.59)	(1.06)	(0.30)	(0.45)	(0.60)
Holdings	0.000***	0.000**	0.000**	-0.000	0.000*	0.000**	0.000*	0.000
	(3.09)	(2.29)	(2.27)	(-1.13)	(1.87)	(2.09)	(1.74)	(0.56)
Month FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	No	No	No	No
Firm FE	No	No	No	No	Yes	Yes	Yes	Yes
Observations	132,261	132,261	132,261	132,261	132,261	132,261	132,261	132,261
Adjusted R-squared	0.1344	0.1590	0.1841	0.1553	0.2747	0.3502	0.3750	0.3649

Table 1. 12 Altruistic CEO and Insider Trading Profits

This table reports OLS regressions of post-purchase-trade buy-and-hold abnormal returns (BHAR) on altruistic CEO variable. Fama-French three factor model is used to calculate the abnormal returns. In columns 1 to 4, month and industry fixed effects are included. In columns 5 to 8, month and firm fixed effects are used. Variable definitions are provided in the Appendix. Standard errors are clustered at the firm level and t-statistics are shown in parentheses. Statistical significance at the 1%, 5%, and 10% level is indicated by ***, **, and *, respectively.

	(1) BHAR (0, 30)	(2) BHAR (0, 60)	(3) BHAR (0, 90)	(4) BHAR (0, 180)	(5) BHAR (0, 30)	(6) BHAR (0, 60)	(7) BHAR (0, 90)	(8) BHAR (0, 180)
Altruistic CEO	-0.018	0.024	0.012	-0.023	-0.007	0.076	0.059	0.026
	(-1.53)	(0.88)	(0.39)	(-0.60)	(-0.18)	(0.74)	(0.47)	(0.20)
Firm size	-0.010*	-0.006	-0.001	0.003	-0.181***	-0.110	-0.167	-0.463**
	(-1.86)	(-0.66)	(-0.07)	(0.23)	(-2.86)	(-0.97)	(-1.46)	(-2.13)
Market-to-book	-0.006	-0.009	0.030	0.093**	-0.028	-0.040	0.039	0.180**
	(-0.46)	(-0.36)	(1.15)	(2.11)	(-0.94)	(-0.74)	(0.75)	(2.07)
ROA	0.323**	0.581*	0.494	0.276	0.730*	1.115	0.913	0.769
	(2.00)	(1.88)	(1.64)	(0.54)	(1.88)	(1.56)	(1.44)	(0.64)
transaction	0.002*	0.000	-0.000	0.002	0.001	0.001	0.001	0.002
	(1.85)	(0.16)	(-0.06)	(0.85)	(0.84)	(1.44)	(0.74)	(0.88)
Holdings	0.000	0.000	-0.000	-0.000	-0.000	-0.000	-0.000	0.000
	(0.08)	(0.24)	(-0.33)	(-0.90)	(-0.98)	(-0.59)	(-0.17)	(0.02)
Month FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	No	No	No	No
Firm FE	No	No	No	No	Yes	Yes	Yes	Yes
Observations	5,585	5,585	5,585	5,585	5,585	5,585	5,585	5,585
Adjusted R-squared	0.1159	0.1108	0.1249	0.1373	0.2806	0.2824	0.3293	0.4362

Table 1. 13 Altruistic CEO and Insider Trading Profits

This table reports OLS regressions of post-selling-trade buy-and-hold abnormal returns (BHAR) on altruistic CEO variable. Fama-French three factor model is used to calculate the abnormal returns. In columns 1 to 4, month and industry fixed effects are included. In columns 5 to 8, month and firm fixed effects are used. Variable definitions are provided in the Appendix. Standard errors are clustered at the firm level and t-statistics are shown in parentheses. Statistical significance at the 1%, 5%, and 10% level is indicated by ***, **, and *, respectively.

	(1) BHAR (0, 30)	(2) BHAR (0, 60)	(3) BHAR (0, 90)	(4) BHAR (0, 180)	(5) BHAR (0, 30)	(6) BHAR (0, 60)	(7) BHAR (0, 90)	(8) BHAR (0, 180)
Altruistic CEO	-0.032***	-0.046**	-0.054***	-0.046**	-0.033***	-0.025*	-0.058***	-0.062**
	(-2.93)	(-2.43)	(-2.69)	(-2.45)	(-2.85)	(-1.74)	(-2.68)	(-2.46)
Firm size	-0.002	-0.004	-0.008	-0.021**	-0.014	-0.015	-0.001	0.024
	(-0.55)	(-0.84)	(-1.22)	(-2.38)	(-0.84)	(-0.62)	(-0.03)	(0.67)
Market-to-book	-0.014*	-0.022**	-0.039***	-0.040***	-0.030	-0.045	-0.090**	-0.130***
	(-1.69)	(-1.99)	(-2.89)	(-3.30)	(-1.26)	(-1.46)	(-2.49)	(-7.20)
ROA	-0.105	-0.190	-0.118	-0.134	-0.191	-0.413*	-0.291	0.022
	(-1.22)	(-1.58)	(-0.84)	(-0.62)	(-1.09)	(-1.88)	(-1.38)	(0.06)
transaction	0.000	-0.001	-0.001	-0.002**	-0.000	-0.000	-0.000	-0.000
	(0.12)	(-1.46)	(-1.53)	(-2.15)	(-0.07)	(-0.87)	(-0.53)	(-0.33)
Holdings	0.000**	0.000*	0.000**	-0.000	0.000**	0.000**	0.000*	0.000
	(2.49)	(1.90)	(2.05)	(-1.18)	(1.97)	(2.16)	(1.78)	(0.65)
Month FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	No	No	No	No
Firm FE	No	No	No	No	Yes	Yes	Yes	Yes
Observations	126,676	126,676	126,676	126,676	126,676	126,676	126,676	126,676
Adjusted R-squared	0.1521	0.1839	0.2056	0.1760	0.2880	0.3735	0.4002	0.3893

Table 1. 14 Do Altruistic CEOs Make Better Acquisitions? Controlling for Industry-Year Fixed Effects

This table presents OLS regression results of the acquirer return on altruistic CEO dummy variables using different fixed effects. The dependent variable is the acquirer's 5-day cumulative abnormal return. Column 1 shows the basic analysis of acquirer return and CEO altruism. Columns 2, 4, and 6 include three different measure for antitakeover provisions, including E-index, G-index, and staggered board. Columns 3, 5, and 7 include both the antitakeover provisions and altruistic CEO dummy variable and focus on the interaction terms between them. Panel A use baseline regressions. Panel B also controls for industry competitiveness. Panel C controls for board characteristics. Panel D controls for management quality. Variable definitions are provided in the Appendix. All models industry-year fixed effects. Standard errors are clustered at the firm level and t-statistics are shown in parentheses. Statistical significance at the 1%, 5%, and 10% level is indicated by ***, **, and *, respectively.

Panel A	(1)	(2)	(3)	(4)	(5)	(6)	(7)
		E-index		G-index		Staggered board	
	CAR	CAR	CAR	CAR	CAR	CAR	CAR
Altruistic CEO	0.006**		-0.002		-0.020		0.002
	(2.17)		(-0.45)		(-1.28)		(0.51)
E-index		-0.005***	-0.006***				
		(-3.15)	(-3.83)				
Altruistic CEO x E-index			0.006*				
			(1.86)				
G-index				-0.004***	-0.004***		
				(-4.76)	(-5.20)		
Altruistic CEO x G-index					0.003*		
					(1.79)		
Staggered board						-0.006**	-0.008***
						(-2.34)	(-2.78)
Altruistic CEO x Staggered board							0.010
							(1.64)
Intercept	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry-Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,983	2,254	2,254	1,167	1,167	2,246	2,246
Adjusted R-squared	0.0553	0.0466	0.0506	0.0533	0.0581	0.0415	0.0443

Panel B	(1)	(2)	(3)	(4)	(5)	(6)	(7)
		E-index		G-index		Staggered board	
VARIABLES	CAR	CAR	CAR	CAR	CAR	CAR	CAR
Altruistic CEO	0.006**		-0.003		-0.020		0.001
	(2.11)		(-0.62)		(-1.20)		(0.37)
E-index		-0.005***	-0.007***				
		(-3.42)	(-4.11)				
Altruistic CEO x E-index			0.006*				
			(1.94)				
G-index				-0.004***	-0.004***		
				(-4.95)	(-5.39)		
Altruistic CEO x G-index					0.001**		
					(2.29)		
Staggered board						-0.007**	-0.009***
						(-2.54)	(-2.94)
Altruistic CEO x Staggered board							0.010
							(1.63)
Unique industry	-0.007**	-0.012***	-0.012***	-0.014**	-0.014**	-0.011***	-0.011***
	(-2.19)	(-3.18)	(-3.16)	(-2.57)	(-2.58)	(-2.78)	(-2.69)
Intercept	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry-Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,983	2,254	2,254	1,167	1,167	2,246	2,246
Adjusted R-squared	0.0571	0.0525	0.0564	0.0591	0.0635	0.0460	0.0485

Panel C	(1)	(2)	(3)	(4)	(5)	(6)	(7)
		E-index		G-index		Staggered board	
VARIABLES	CAR	CAR	CAR	CAR	CAR	CAR	CAR
Altruistic CEO	0.006**		-0.003		-0.020		0.001
	(2.00)		(-0.66)		(-1.17)		(0.23)
E-index		-0.005***	-0.006***				
		(-2.87)	(-3.62)				
Altruistic CEO x E-index			0.007**				
			(2.03)				
G-index				-0.004***	-0.004***		
				(-4.31)	(-4.86)		
Altruistic CEO x G-index					0.003*		
					(1.73)		
Staggered board						-0.008***	-0.010***
						(-2.73)	(-3.08)
Altruistic CEO x Staggered board							0.010
							(1.62)
Unique industry	-0.012***	-0.013***	-0.013***	-0.016***	-0.016***	-0.012***	-0.012***
	(-3.23)	(-3.18)	(-3.19)	(-2.64)	(-2.74)	(-2.92)	(-2.86)
Board size	0.001	0.003	0.003	0.005	0.006	0.003	0.003
	(0.15)	(0.48)	(0.44)	(0.46)	(0.61)	(0.51)	(0.38)
CEO Duality	-0.007**	-0.000	-0.000	-	-	-0.000	-0.000
	(-2.03)	(-0.09)	(-0.03)			(-0.09)	(-0.08)
Independent board dummy	-0.000	-0.001	-0.001	-0.001	-0.002	-0.001	-0.001
	(-0.02)	(-0.23)	(-0.33)	(-0.16)	(-0.37)	(-0.29)	(-0.38)
Intercept	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry-Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,509	2,086	2,086	1,066	1,066	2,081	2,081
Adjusted R-squared	0.0588	0.0394	0.0436	0.0454	0.0514	0.0381	0.0405

Panel D	(1)	(2)	(3)	(4)	(5)	(6)	(7)
		E-index		G-index		Staggered board	
	CAR	CAR	CAR	CAR	CAR	CAR	CAR
Altruistic CEO	0.005*		-0.004		-0.021		-0.001
	(1.71)		(-0.77)		(-1.21)		(-0.32)
E-index		-0.004**	-0.005***				
		(-2.54)	(-3.27)				
Altruistic CEO x E-index			0.006				
			(1.63)				
G-index				-0.003***	-0.004***		
				(-3.54)	(-3.96)		
Altruistic CEO x G-index					0.003		
					(1.43)		
Staggered board						-0.008***	-0.010***
						(-2.79)	(-3.23)
Altruistic CEO x Staggered board							0.011*
							(1.78)
Management quality	0.000***	0.000***	0.000***	0.000**	0.000*	0.000***	0.000***
	(4.09)	(4.23)	(4.05)	(2.22)	(1.85)	(4.81)	(4.77)
Unique industry	-0.006*	-0.011***	-0.011***	-0.010*	-0.010*	-0.010**	-0.009**
	(-1.89)	(-2.79)	(-2.75)	(-1.83)	(-1.85)	(-2.49)	(-2.39)
Intercept	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry-Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,628	1,918	1,918	844	844	1,911	1,911
Adjusted R-squared	0.0685	0.0694	0.0717	0.0913	0.0929	0.0675	0.0692

Table 1. 15 Do Altruistic CEOs Make Better Acquisitions? Controlling for Firm Fixed Effects

This table presents OLS regression results of the acquirer return on altruistic CEO dummy variables using different fixed effects. The dependent variable is the acquirer's 5-day cumulative abnormal return. Column 1 shows the basic analysis of acquirer return and CEO altruism. Columns 2, 4, and 6 include three different measure for antitakeover provisions, including E-index, G-index, and staggered board. Columns 3, 5, and 7 include both the antitakeover provisions and altruistic CEO dummy variable and focus on the interaction terms between them. Panel A use baseline regressions. Panel B also controls for industry competitiveness. Panel C controls for board characteristics. Panel D controls for management quality. Variable definitions are provided in the Appendix. All models yea and firm fixed effects. Standard errors are clustered at the firm level and t-statistics are shown in parentheses. Statistical significance at the 1%, 5%, and 10% level is indicated by ***, **, and *, respectively.

Panel A	(1)	(2)	(3)	(4)	(5)	(6)	(7)
		E-index		G-index		Staggered board	
	CAR	CAR	CAR	CAR	CAR	CAR	CAR
Altruistic CEO	0.021***		-0.010		-0.064		-0.011
	(3.83)		(-0.76)		(-1.36)		(-1.32)
E-index		-0.016***	-0.019***				
		(-2.90)	(-4.42)				
Altruistic CEO x E-index			0.019**				
			(2.41)				
G-index				-0.006***	-0.007***		
				(-3.60)	(-5.83)		
Altruistic CEO x G-index					0.009*		
					(1.83)		
Staggered board						-0.044***	-0.060***
						(-3.20)	(-4.74)
Altruistic CEO x Staggered board							0.053***
							(4.32)
Intercept	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,983	2,254	2,254	1,167	1,167	2,246	2,246
Adjusted R-squared	0.1604	0.1188	0.1296	0.0939	0.1001	0.1227	0.1385

Panel B	(1)	(2)	(3)	(4)	(5)	(6)	(7)
		E-index		G-index		Staggered board	
	CAR	CAR	CAR	CAR	CAR	CAR	CAR
Altruistic CEO	0.021***		-0.011		-0.062		-0.012
	(3.78)		(-0.81)		(-1.32)		(-1.38)
E-index		-0.016***	-0.019***				
		(-2.92)	(-4.49)				
Altruistic CEO x E-index			0.019**				
			(2.47)				
G-index				-0.006***	-0.007***		
				(-3.62)	(-6.03)		
Altruistic CEO x G-index					0.009*		
					(1.78)		
Staggered board						-0.045***	-0.061***
						(-3.24)	(-4.80)
Altruistic CEO x Staggered board							0.054***
							(4.37)
Unique industry	-0.017**	-0.016*	-0.017*	-0.010	-0.012	-0.019**	-0.020**
	(-2.46)	(-1.77)	(-1.87)	(-0.64)	(-0.74)	(-2.15)	(-2.36)
Competitive industry	0.000	-0.001	-0.001	-0.009	-0.006	-0.001	-0.001
	(0.05)	(-0.24)	(-0.18)	(-1.17)	(-0.85)	(-0.26)	(-0.28)
Intercept	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,983	2,254	2,254	1,167	1,167	2,246	2,246
Adjusted R-squared	0.1625	0.1201	0.1312	0.0935	0.0993	0.1249	0.1411

Panel C	(1)	(2)	(3)	(4)	(5)	(6)	(7)
		E-index		G-index		Staggered board	
	CAR	CAR	CAR	CAR	CAR	CAR	CAR
Altruistic CEO	0.021***		-0.007		-0.063		-0.009
	(3.75)		(-0.51)		(-1.36)		(-0.99)
E-index		-0.014**	-0.017***				
		(-2.53)	(-3.88)				
Altruistic CEO x E-index			0.017**				
			(2.26)				
G-index				-0.006***	-0.007***		
				(-3.55)	(-5.58)		
Altruistic CEO x G-index					0.009*		
					(1.82)		
Staggered board						-0.052***	-0.065***
						(-3.64)	(-4.89)
Altruistic CEO x Staggered board							0.048***
							(3.74)
Unique industry	-0.015	-0.016	-0.017*	-0.015	-0.017	-0.020**	-0.021**
	(-1.53)	(-1.56)	(-1.66)	(-0.88)	(-1.00)	(-2.00)	(-2.14)
Competitive industry	0.002	-0.001	-0.000	-0.007	-0.005	-0.001	-0.001
	(0.66)	(-0.16)	(-0.07)	(-1.03)	(-0.69)	(-0.19)	(-0.20)
Board size	-0.005	-0.014	-0.011	-0.009	-0.008	-0.011	-0.008
	(-0.38)	(-0.87)	(-0.70)	(-0.32)	(-0.28)	(-0.71)	(-0.53)
CEO Duality	0.008	0.008	0.009*	-	-	0.009*	0.010*
	(1.62)	(1.59)	(1.69)			(1.80)	(1.84)
Independent board dummy	0.003	0.001	0.002	-0.003	-0.001	0.001	0.002
	(0.64)	(0.18)	(0.43)	(-0.29)	(-0.11)	(0.15)	(0.35)
Intercept	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,509	2,086	2,086	1,066	1,066	2,081	2,081
Adjusted R-squared	0.1495	0.1164	0.1269	0.0961	0.1018	0.1307	0.1443

Panel D	(1)	(2)	(3)	(4)	(5)	(6)	(7)
		E-index		G-index		Staggered board	
	CAR	CAR	CAR	CAR	CAR	CAR	CAR
Altruistic CEO	0.023***		-0.013		-0.080*		-0.011
	(3.44)		(-0.76)		(-1.78)		(-1.03)
E-index		-0.012	-0.017***				
		(-1.63)	(-2.95)				
Altruistic CEO x E-index			0.023**				
			(2.55)				
G-index				-0.003	-0.005*		
				(-0.80)	(-1.90)		
Altruistic CEO x G-index					0.009*		
					(1.71)		
Staggered board						-0.050***	-0.066***
						(-2.85)	(-4.18)
Altruistic CEO x Staggered board							0.058***
							(4.08)
Management quality	0.000***	0.000	0.000	0.000	0.000	0.000***	0.000***
	(2.59)	(1.13)	(0.73)	(0.57)	(0.16)	(2.88)	(2.82)
Unique industry	-0.013*	-0.011	-0.012	-0.003	-0.004	-0.014	-0.016*
	(-1.85)	(-1.10)	(-1.20)	(-0.13)	(-0.19)	(-1.50)	(-1.74)
Competitive industry	0.001	0.000	0.001	-0.008	-0.006	0.000	0.001
	(0.43)	(0.09)	(0.22)	(-0.87)	(-0.66)	(0.10)	(0.18)
Intercept	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,628	1,918	1,918	844	844	1,911	1,911
Adjusted R-squared	0.1617	0.1077	0.1230	0.1025	0.1053	0.1190	0.1377

CHAPTER TWO: CEO PERSONAL DONATING BEHAVIOR AND CORPORATE SOCIAL RESPONSIBILITY

2.1 Introduction

There has been rising attention paid to corporate social responsibilities (CSR) both in the academic and business world. Besides increasing shareholder value, being a member of the society, corporations are often expected and do choose to invest in activities that are deemed to be socially responsible to show their good citizenship. Previous research in economics, finance, and strategic management has investigated the potential benefits and costs of investing in corporate social responsibility. More recently, researchers have focused more directly on the determinants of CSR, including both external drivers such as the salience of external stakeholders (Agle, Mitchell, and Sonnenfeld, 1999), stakeholder activism (Clark and Hebb, 2004; David, Bloom, and Hillman, 2007), and internal drivers such as incentive compensation (Deckop, Merriman, and Gupta, 2006; McGuire, Dow, and Argheyd, 2003), management team commitment to ethics (Muller and Kolk, 2010), CEO personal value (Hemingway et al., 2004), and CEO political ideologies (Chin, Hambrick, and Trevino, 2013). With regards to CSR, the role played by top managers is extremely important (Quazi, 2003; Swanson, 2008). For example, Quazi (2003) argues that the commitment of managers to CSR activities may have its origin in their personal characteristics, since managers not only represent a business as an individual but also make decisions as a professional executive. Thus, managers' perceptions of what should be done play an extremely vital role in their daily lives and also professional business decisions. Swanson (2008) further argues that top managers could drive corporate social responsibility through moral leadership directing the organization

towards socially responsible goals. As Godos-Diez, Fernandez-Gago, and Martinez-Campillo (2011) states, "There cannot be socially responsible corporations without socially responsible managers…, it is the top managers who spread interest in ethics and social responsibility throughout the firm." However, despite the important role of top managers in implementing CSR, there has been little research investigating what types of managers are more prone to engage in CSR activities and this study serves the purpose to fill the gap in the literature.

The behavioral consistency theory predicts that CEOs would behave consistently across different situations, including personal decision-makings and also professional decision-makings (Allport, 1937, 1966; Epstein, 1979, 1980; and Funder and Colvin, 1991). Several recent studies in economics, finance, and accounting support this notion. For example, Barsky, Juster, Kimball, and Shapiro (1997) show a positive relationship across individuals between all types of risky behavior they study, such as holding stocks rather than Treasury bills, risky entrepreneurial activity, and smoking and alcohol consumption. In a corporate finance setting, Malmendier and Tate (2005) document that CEOs who tend to be overconfident in their personal investment decisions are also more likely to be overconfident in corporate investment decisions. Hutton, Jiang, and Kumar (2010) find that Republican CEOs pursue more conservative corporate policies than do Democrats as the Republican party is more conservative in making various policies. Chyz (2013) documents a positive relationship between CEOs' personal and corporate tax decisions. Specifically, he finds that CEOs who are personally more tax aggressive manage firms with more tax avoidance activities. Benmelech and Frydman (2015) document that CEOs with military experience are associated with more conservative corporate policies and ethical behavior. Cain and McKeon (2016) find that the personal risk-taking behavior of CEOs is correlated with corporate risk-taking. All the above studies show that personal preferences and choices of decision-makers such as CEOs

can partly explain their professional decisions. Thus, personal socially responsible behavior may also have a positive effect on the engagement of corporate level socially responsible activities.

Given this background, we propose to examine the relationship between CEOs' socially responsible behavior at a personal level and their firms' CSR policies. For this purpose, we hand-collected a dataset of CEO charitable donations. We argue that making charitable donations is a positive signal of a person's prosocial attitude. Consistent with the notion that CEOs' personal socially responsible behavior (in our case, making charitable donations) determines the corporate level socially responsible behavior (in our case, firm's CSR engagement), we find that firms with donating CEOs have significantly higher CSR performance. Moreover, we distinguish two types of donating CEOs, including routine donor CEOs, and non-routine donor CEOs. Specifically, we construct a dummy variable *Routine donor CEO* which equals one when the fraction of a CEO's donating years is larger than the 75th percentile of all CEOs. The idea is that if a person constantly makes charitable donations, it is more likely that the donating behavior reflects this person's personal level of socially responsible behavior. Similarly, all other donating CEOs are *non-routine donor CEOs*, and the rest that did not make any charitable donation are *non-donor CEOs*. We find that relative to firms with *non-donor CEOs* and firms with *non-routine donor CEOs*, firms with a *routine donor CEO* tend to engage more in CSR activities. Moreover, relative to firms with *non-routine donor CEOs*, firms with *routine donor CEOs* also have higher CSR scores. This further validates the construction of the two dummy variables, *routine donor CEO* and *non-routine donor CEO*. The above evidence together shows a positive relationship between the CEO's personal socially responsible behavior and firm-level CSR activities.

If the relation between CEOs' charitable donation consistency and their firm's CSR performance is driven by the CEO, we expect the relationship to be stronger if CEOs are more

powerful because they would have more power on making corporate policies. Specifically, we use CEO duality as an indicator of CEO power. If a CEO is also the chairman of the board, she is expected to have more power over corporate decisions. Consistent with our expectation, we find that CEO power enhances the positive relationship between CEO personal donating behavior and CSR investment. In particular, by interacting CEO duality dummy with our routine donor CEO dummy variable, we find a positive and statistically significant coefficient on this interaction term, indicating that when the routine donor CEOs have a higher influence on corporate decisions, they tend to be more likely to impose their preferences on CSR.

The positive correlation between CEO's personal socially responsible behavior and CSR engagement needs to be interpreted with caution. Donating CEOs or the firms they manage could be self-selected based on unobservable characteristics that can also explain a higher investment in CSR. We use three different approaches to address the concern of endogeneity. First, we analyze a subsample of CEO turnovers, where the turnovers are classified as exogenous in the literature. Specifically, we focus on the exogenous turnovers where the departing CEO is a non-donor or non-routine donor and the incoming CEO is a routine donor. We compare whether a firm's CSR score changes following such exogenous turnovers. We find that firms significantly increase their CSR score after such exogenous turnovers. In contrast, when examining the exogenous turnovers where the departing CEO is a routine donor and the incoming CEO is a non-routine donor or non-donor, we find change in the opposite direction, i.e. firms significantly reduce their CSR score after such exogenous turnovers. By doing this, we are able to isolate the impact of CEO preference from possible selection of the CEO by the firm. Second, we make use of the Deepwater Horizon oil spill in 2010 as a shock to corporate social reasonability and examine whether firms with a routine-donor CEO are more responsive to such a shock. Consistent with our expectation, we find

that firms with CEOs that routinely donate increase their corporate social responsibility more than firms with CEOs that occasionally donate or do not donate. Third, we estimate an instrumental variable regression, using the proportion of CEOs that routinely donate within the same zip code as a firm's headquarter as an instrument. We find that the results from this instrumental variable approach are consistent with our prior results. The results from these three approaches collectively shed more light on the causal relationship between CEO personal donating behavior and corporate social responsibility.

Our study makes several important contributions to the existing literature. First, we examine CEOs' donating behavior and corporate social responsibilities and thus contribute to the growing literature on CSR. Our evidence shed new light on the determinants of a firm's CSR performance. The existing literature offers two explanations for why firms invest in CSR: "doing well by doing good" which means doing CSR enhances profitability and firm value and "doing good by doing well" which means only well-performing firms can afford to invest in CSR (Deng, Kang, and Low (2013); Flammer (2015); Krueger (2015); Dimson, Karaks, and Li (2015); Hong, Kubik, and Scheinkman (2012)). However, neither of the above two explanations can explain the cross-firm variation in CSR. In this paper, we show that the preference of CEOs is an important factor in determining CSR investment. Second, we make use of charitable donations as a measure of CEOs' social preferences, and this contributes to the management characteristics literature. That is, routine donating behavior could capture some personal trait that also affects a manager's corporate decisions. Moreover, our paper provides new evidence on the behavioral consistency between CEOs' personal activities and their professional activities.

The rest of this paper is organized as follows: Section 2 reviews related literature and develops our hypotheses; Section 3 describes our data and sample statistics; Section 4 shows

empirical results; Section 5 discusses our identification strategies; Section 6 presents some additional tests, and Section 7 concludes.

2.2 Related Literature and Hypothesis Development

2.2.1 Corporate social responsibility

Corporate social responsibility refers to one process by which a firm expresses and develops its corporate culture and social consciousness (Rupp et al, 2006 and Calderon, 2011). Moreover, McWilliams and Siegel (2001) define CSR concisely as actions on the part of the firm that appear to advance, or acquiesce in the promotion of some social good, beyond the immediate interests of the firm and its shareholders. The attention paid to corporate social responsibility by researchers has been growing. For example, Carroll (1979) gives a conceptual model of corporate social performance that categorizes total social responsibilities into four groups, which include economic responsibilities, legal responsibilities, ethical responsibilities, and discretionary responsibilities. He gives the definition, "The social responsibility of business encompasses the economic, legal, ethical, and discretionary expectations that society has of organizations at a given point in time" and addresses the importance of the social responsibilities on an on-going business model.

Recent studies have investigated the possible determinants of the engagement of CSR activities. Among these studies, two different types of drivers have been examined. The first type includes external drivers, such as the salience of external stakeholders (Agle, Mitchell, and Sonnenfeld, 1999) and stakeholder activism (Clark and Hebb, 2004; David, Bloom, and Hillman, 2007). The second type includes internal drivers, such as executive incentives (e.g., Deckop, Merriman, and Gupta, 2006; McGuire, Dow, and Argheyd, 2003), management team commitment to ethics (Muller and Kolk, 2010), and CEO political ideologies (Chin, Hambrick, and Trevino,

2013). However, relatively few have investigated the impact of personal preferences on CSR activities. According to McWilliams and Siegel (2001), corporate social responsible activities are "actions that appear to further some social good, beyond the interests of the firm and that which is required by law", hence we link CEO personal actions that "appear to further some social good" and "that which is not required by law" with company's CSR to investigate the effects of executive personal traits on CSR.

2.2.2 Donating behavior

Charitable donation or the simple act of giving is accredited to the human helping behavior as addressed by the altruism theory (Simmons and Emanuele, 2007). The definition of altruism from different researchers includes, a cognitive activity to help others (Brewer, 2003), a helping behavior (Schwartz, 1970), and a desire to improve another's condition (Karylowski, 1982). The empathy-altruism hypothesis from social-psychology studies shows that people are not always self-seeking and may be driven by empathy and as such help out others (Eveland and Crutchfield, 2007). Altruistic motivations can be a helping motive and it also includes sympathy responding to a request, believing in the cause, and a moral sense of obligation to give back to society (Hibbert et al., 2005). As such, giving as a prosocial behavior refers to "voluntary actions that are intended to help or benefit another individual or group of individuals" (Eisenberg and Mussen 1989). According to Schuyt, Bekkers, and Smit (2010), most philanthropy is for the benefit of unknown strangers or far-reaching goals. "The key motives for philanthropy may be tied in with stewardship and a sense of social responsibility for the well-being of society as a whole" (Schuyt, Bekkers, and Smit, 2010). In other words, CEOs' charitable donations are ways of expressing their individual level of social responsibility and whether this individual level social responsibility is related to corporate social responsibility deserves a thorough investigation.

2.2.3 CEOs' donating behavior and firm CSR activities

Recent developments in psychology and behavioral economics have been used to examine CSR as a behavior of "sacrificing profits in the social interest" (Benabou and Tirole, 2010). In this interpretation, Crifo and Forget (2014) define CSR as a prosocial behavior which reflects managers' willingness to engage in philanthropic activities for altruistic reasons. Typically, this view corresponds to Milton Friedman (1970)'s view that CSR amounts to spending others' money for prosocial motivations. That is, as donating behavior of CEOs, CSR engagement is essentially a corporate level prosocial behavior.

Research has shown that top managers' characteristics affect organization decisions and behavior (Chatterjee and Hambrick, 2007; Finkelstein and Hambrick, 1996; Hambrick, 2007; Hambrick and Mason, 1984). Prior work further shows that at least part of the heterogeneity in CEOs' managerial styles reflects variations in individual life experiences (e.g., Graham and Narasimhan, 2005; Malmendier and Tate, 2005; Malmendier, Tate, and Yan, 2011; Schoar and Zuo, 2011; Benmelech and Frydman, 2014; Linet al., 2014; Dittmar and Duchin, 2016). Since CSR actions are voluntary managerial "actions that appear to further some social good, beyond the interests of the firm and that which is required by law" (McWilliams and Siegel, 2001), building on the theory of upper echelon (Hambrick and Mason, 1984), we hypothesize that the CEO will have a significant influence in such discretionary decisions. In other words, we expect that a company's engagement in CSR activities may be affected by CEO's preferences and priorities that derive from their values and personal behavior (Chatterjee and Hambrick, 2007). Based on the above discussion, our first hypothesis is as follows.

Hypothesis 1: Donating CEOs tend to engage more in CSR activities relative to non-donor CEOs.

To test this hypothesis, we categorize CEOs into different groups. Specifically, we define *donor CEOs* as those who made at least one donation in our sample period. To further investigate the donating behavior, we define *routine donor CEOs* as those donor CEOs whose donating yeas to her appearing years ratio in our sample is larger than the 75th percentile for all CEOs. The rationale is that if a CEO makes donations persistently, it is more likely that the donating behavior reflects this CEO's personal level social preference rather than strategic activities. By this categorization, we are more able to discern different types of donating behaviors and further identify CEOs who truly have a preference for personal level socially responsible behavior.

If donating CEOs impose their personal preferences on corporate decisions and engage more in CSR investments in our context, we expect the effect of donating CEOs on CSR to be stronger when these CEOs are more powerful. Thus, our second hypothesis is related to the strengthening effect of CEO power.

Hypothesis 2: CEO power has a strengthening effect on CSR engagement for donating CEOs.

To test the second hypothesis, we make use of two variables to measure the power of CEOs: CEO duality which is a dummy variable that indicates whether the CEO is also the chairman of the board and board independence which is the percentage of independent directors on a firm's board. The rationale is that when a CEO is also the chairman of the board, this CEO is more powerful in a firm's decision making. By the same token, if the governance of a firm is weak as measured by a low percentage of independent directors on a firm's board, the CEO of this firm is more powerful and more likely to impose his/her personal preference on firm decisions.

2.3 Data and Empirical Methodology

The dataset used in our study comes from various sources. CEOs' charitable donations records are manually collected from a proprietary database. We manually search each CEO's name in this database to identify charitable donation records for firms listed on S&P 1500. We extract CEO's demographic information from ExecuComp and then use their full name to search for donation records. If we are not sure about whether the donation is made by this CEO, we google the record manually to ensure the accuracy of our matches. We construct a dummy variable *Donor CEO*, which equals one if a CEO has made at least one donation in our sample period. We also construct another dummy variable *Routine Donor CEO* which equals one if a CEO's donating yeas to her appearing years ratio in our sample is larger than the 75th percentile for all CEO to minimize the possibility that the donation is made for some strategic purposes. For corporate social responsibility information, we make use of the Kinder Lydenburg and Domini (KLD) database. The KLD database is the standard source for CSR activities engagement measure (Mattingly and Berman, 2006), which employs surveys, financial statements, media and academic articles, and also governmental reports to assess a company's social performance along several different dimensions. In this database, firm's CSR scores are available for the S&P 500 firms since 1991 and has expanded its coverage to the largest 3,000 U.S. publicly traded companies measured by market capitalization.

Following previous literature, we use scores on six areas from the KLD database for a firm's social performance including environment, human rights, diversity, employee relations, product quality and safety, and community relations. In each one of the six areas, multiple subcategories exist for measuring strengths and concerns. Binary values are assigned to these strengths and concerns subcategories. For our purpose here, we calculate strengths and concerns scores as the sum of the subcategories' scores for strengths and concerns, respectively. We also

take sum of all the strengths and concerns scores to calculate a firm's CSR strength score and concerns score. Then the total CSR score for a firm in each year is calculated by subtracting that firm's CSR concerns score from its strengths score, which is the standard way to measure a firm's total CSR performance in the literature (Waddock and Graves, 1997; Johnson and Greening, 1999; Chatterji et al., 2009).

For firm characteristics, we extract the information on firm fundamentals from the Compustat database. Company stock returns and volatility are from The Center for Research in Security Prices (CRSP) database. In addition, board characteristics are from ISS and institutional ownership information is from Thomas Reuter's database. We then merge our hand-collected data on CEO charitable donations with the KLD CSR dataset ranging from 2000 to 2013. Our final sample consists of 14,328 firm-year observations.

In panel A of Table 1, we present the summary statistics for our full sample. Our full sample contains 14,328 firm-year observation ranging from 2000 to 2013. In panel A, we divide our sample into two subsamples based whether a CEO has made any charitable donations in our sample period. First subsample contains observations with *Donor CEO* = 0, meaning that for these firm-year observations, the CEOs of such firms did not make any charitable donation in our sample period. Similarly, second subsample is comprised of observations with *Donor CEO* = 1, meaning that for these firm-year observations, the CEOs of such firms has made at least one donation in our sample period. The two subsamples have different number of observations (3,801 for *Donor CEO* = 0, and 10,527 for *Donor CEO* = 1) suggesting that most CEOs donated some money as they are wealthier than average population. For our two subsamples, we see that the mean CSR score is much smaller for the subsample with Donor=0 than the mean CSR score for the subsample with Donor=1. For firm size, we use the natural logarithm of the firm's total assets. *Return on assets*

(ROA) is measured by the ratio of a firm's net income over total assets at the beginning of the fiscal year. *Stock volatility* is measured as the standard deviation of the most recent three years' monthly stock returns. *Leverage* is a firm's book leverage calculated as the long term debt plus current portion of long term debt divided by total assets. *Market-to-book* is the ratio of market value of equity to book value of equity. CEO ownership is the percentage of the firm's shares owned by its CEO. *CEO duality* is a dummy variable that equals one if the CEO is the chairman of the board. *Female CEO* is an dummy variable indicating whether the CEO is female. *Ln CEO tenure* is the natural logarithm of a CEO's tenure. We measure a CEO's tenure using *the date became CEO* variable in the ExecuComp database and when this variable is missing we manually search related information using google.com. *Ln compensation* is the natural logarithm of a CEO's total compensation. *Institutional ownership* is calculated as the percent of a firm's shares owned by institutional investors. We define all other variables in the Appendix.

In panel B of Table 1, we look at the summary statistics in firms with donating CEOs. Among 10,527 observations with *Donor CEO* = 1, we identify 3,907 observations with *routine donor CEO* = 1, and 6,597 observations with *routine donor CEO* = 0. We notice that even among firms with donor CEOs, those with routine donor CEOs exhibit higher average CSR score.

To investigate whether a CEO's donating behavior affects a firm's CSR engagement, in our study, we use the ordinary least squares (OLS) regression to test our hypotheses. The main regression model used in this study is as follows:

$$y_{i,t} = \alpha + \beta_1 * \textit{Donor CEO} + \beta_2 \cdot \textit{firm characteristics} +$$

$$\gamma \cdot \textit{CEO characteristics} + \textit{fixed effects} + \varepsilon_{i,t}$$

We include year and industry fixed effects in every regression and cluster the standard errors at the firm level for every regression in our study. For the main dependent variable, we use

a firm's CSR score to measure this firm's CSR engagement. *Donor CEO* and *Routine Donor CEO* are our main explanatory variables of interest which capture a CEO's personal level donating behavior. For firm characteristics, we include variables that have been shown to be correlated with a firm's CSR scores, including firm size, stock return volatility, return on assets, book leverage, and market-to-book ratios. For CEO characteristics, we include CEO ownership, CEO duality, CEO tenure, CEO gender, CEO age, and CEO compensation.

2.4 Empirical Results

2.4.1 Univariate analysis

In Panel A of Table 2, we present our univariate test results based on the mean difference of each variable conditional on the dummy variable *Donor CEO*. In particular, we separate our full sample into two groups based the value of *Donor CEO*: firms with donor CEOs (*Donor CEO* = 1) and firms with non-donor CEOs (*Donor CEO* = 0). As shown in Panel A of Table 2, the mean CSR score is 0.25 for firms with donor CEOs and it is negative -0.36 for firms with non-donor CEOs. The univariate test results in Panel A of Table 2 indicate that the mean difference in CSR scores between these two subsamples is statistically significant at the 1% significance level (*t-statistic* = 14.33) and the mean CSR score for firms with donor CEOs is much higher than those with non-donor CEOs (mean difference = 0.61). For firm characteristics, we notice that firms with donor CEOs tend to be larger than firms with non-donor CEOs and the mean difference of firm size between these two subsamples is statistically significant at a 1% significance level (*t-statistic* = 30.79). Although the mean difference of return on assets for the two subsamples is not statistically significant (*t-statistic* = 1.51), the mean difference of stock return volatility is statistically significant at the 1% significance level (*t-statistic* = -11.35). Specifically, stock returns for firms with donor CEOs tend to be less volatile than those for firms with non-donor CEOs. The

mean market-to-book ratios for the two subsamples are not significantly different with a *t-statistic* of 0.12. However, the mean book leverages for these two subsamples are statistically significantly different at the 1% significance level with a *t-statistic* of 8.05. Firms with donor CEOs are slightly more levered relative to firms with non-donor CEOs. For variables on CEO characteristics, the mean differences in CEO tenure (t-statistic=13.77), CEO age (t-statistic=7.01), and CEO compensation (t-statistic=19.05) are statistically significant. On the other hand, the mean difference in CEO gender and ownership are not statistically significant (t-statistic=-0.38 and -0.01, respectively). The mean differences in CEO duality (t-statistic=10.82) is statistically significant for the two subsamples.

In Panel B of Table 2, we show our univariate test results based on mean difference of each variable conditional on the dummy variable *routine donor CEO*. In particular, we separate our subsample with *Donor CEO* equaling one into two groups based on the value of *Routine Donor CEO* dummy: firms with routine donor CEOs (*routine donor CEO* = 1) and firms with non-routine donor CEOs (*routine donor CEO* = 0). As shown in Panel B of Table 2, the mean CSR score is 0.49 for firms with routine donor CEOs and it is only 0.11 for firms with non-routine donor CEOs. The univariate test results in Panel A of Table 2 indicate that the mean difference in CSR scores between these two subsamples is statistically significant at a 1% significance level (*t-statistic* = 6.66) and the mean CSR score for firms with routine donor CEOs is higher than those with non-routine donor CEOs (mean difference = 0.38). For firm characteristics, we notice that firms with routine donor CEOs tend to be larger than firms with non-routine donor CEOs and the mean difference of firm sizes between these two subsamples is statistically significant at the 1% significance level (*t-statistic* = 13.02). Although the mean difference of return on assets for the two subsamples is not statistically significant (*t-statistic* = -1.04), the mean difference of stock

return volatility is statistically significant at the 1% significance level (*t-statistic* = -6.47). Specifically, stock returns for firms with routine donor CEOs tend to be less volatile than those for firms with non-routine donor CEOs. The mean market-to-book ratios for the two subsamples are significantly different with a *t-statistic* of -5.72, and the mean book leverages for these two subsamples are also significantly different at the 5% significance level with a *t-statistic* of 2.71. For variables on CEO characteristics, the mean differences in CEO tenure (t-statistic=-5.04), CEO age (t-statistic=6.42), and CEO compensation (t-statistic=9.03) are all statistically significant with the 1% significance level. On the other hand, the mean differences in CEO gender and CEO ownership are not statistically significant (t-statistics are 0.72 and -1.63, respectively). The mean differences in CEO duality (t-statistic=3.9) are statistically significant for the two subsamples. We investigate the relationship between CEO's donating behavior and CSR engagement in a multivariate setting in the next subsection.

2.4.2 Donating CEO and CSR ratings

To further test our basic findings on the difference in CSR scores for firms with different types of CEOs in the univariate analysis, in this section, we employ the ordinary least squares (OLS) panel regressions to analyze the above question. We present the OLS regression results in Table 3. Results in column 1 of Table 3 indicate that firms with donor CEOs tend to have a statistically significantly (5% significance level with t-statistic at 2.54) higher CSR score relative to firms with non-donor CEOs. In other words, firms with donor CEOs tend to have better social performance on average relative to firms without a donor CEO. We further distinguish donor CEOs between routine donors and non-routine donors. By doing this, we aim to minimize the effect of strategic donations from CEOs on firms' CSR engagement. Column 2 and 3 of Table 3 show the effects of a routine donor CEO on a firm's CSR score. Specifically, in column 2 of Table 3, we

run our regression using the full sample and show that relative to other firms, firms with routine donor CEOs have a higher CSR score. The coefficient is still statistically significantly positive with the coefficient being 0.293 and t-statistic being 2.82. In column 3 of Table 3, we exclude non-routine donor CEOs and compare routine donor CEOs with non-donor CEOs. Column 3 shows the effect of having a routine donor CEO on firm CSR scores relative to non-donor CEOs is positive and statistically significant with the coefficient being 0.323 and t-statistic being 2.88. In column4 of Table 3, we compare routine donor CEOs with non-routine donor CEOs. We find that the coefficient on routine donor CEO is positive and statistically significant with the coefficient being 0.244 and t-statistic being 2.17. In column 5 and 6, we compare non-routine donor CEOs with non-donor CEOs and find no significant difference between these two, which justifies our construction of routine donor CEO variable. The regression results in Table 3 are consistent with our main hypothesis, which is that Donating CEOs have a positive effect on firms' CSR engagement.

2.4.3 Donating CEOs and CSR ratings components

In the above analysis, we document that firms with donor CEOs tend to have better social performance and this effect is mainly from routine donor CEOs. In this section, we investigate which specific component of CSR routine donor CEOs have impact on . Table 4 presents our regression results of the effects of routine donor CEO on six CSR categories' ratings. Results in Table 4 show that relative to firms without routine donor CEOs (these firms either have non-routine donor CEOs or have non-donor CEOs), firms with routine donor CEOs tend to focus more on the Diversity and Community components in the CSR six categories. When Diversity is the dependent variable, column 3 of Table 4 shows that firms with routine donor CEOs tend to have higher diversity score relative to firms without such CEOs. The coefficient on routine donor CEO

dummy variable is 0.173 with t-statistic being 3.42 in column 3 of Table 4. In column 4, we show that firms with routine donor CEOs tend to have higher Community score relative to firms without a routine donor CEO. The coefficient on routine donor CEO is 0.082 with the t-statistic being 3.44.

2.4.4 Donating CEOs, CEO power, and CSR engagement

Up to now, we have documented that firms with routine donor CEOs tend to have higher CSR scores. In this section, we examine the relationship between routine donor CEO and CSR engagement conditional on CEO's power. In our analysis, we first use a dummy variable CEO duality to indicate whether the CEO is also the chairman of the board of directors. If the CEO is also the chairman of the board, she is believed to have more influence on varies corporate decisions including CSR investments.

Table 5 presents our regression results. If donating CEOs indeed cause higher engagement in CSR activities, we expect the effect to be stronger when CEOs have more influence over corporate decisions. In column 1 of Table 5, we use our full sample to analyze the above question. The variable of interest in column 1 is the interaction term between the *routine donor CEO* and *CEO duality*. Specifically, we find that the coefficient on this interaction term is positive and statistically significant at the 1% significance level. The coefficient equals 0.484 with a t-statistic being 2.96. This tells us that when a CEO has higher influence on corporate decisions, (being the chairman of the board of directors), routine donor CEO would engage more in CSR activities. In column 2 and 3 of Table 5, we use subsamples to further test the effects from CEO power. Specifically, in column 2 of Table 5, we test this hypothesis by excluding non-routine donor CEOs, and thus we are comparing firms with routine donor CEOs with firms with non-donor CEOs. The coefficient on the interaction is still positive and statistically significant at the 1% significance level. In column 3 of Table 5, we test our hypothesis about CEO power by excluding non-donor

CEOs, and thus we are comparing firms with routine donor CEOs with firms with non-routine donor CEOs. The coefficient on the interaction term is again positive and statistically significant at the 1% significance level. As a robustness check, in column 4 of Table 5, we exclude firms with routine donor CEOs, and thus we are comparing firms with non-routine donor CEOs with firms with non-donor CEOs. The coefficient on the interaction term between the Routine donor CEO dummy and the CEO duality dummy becomes insignificant.

The existing literature has shown that when a higher portion of the directors on a firm's board is outsiders, CEOs are more strictly monitored. In other words, CEOs are less powerful when the board is more independent. In Table 6, we use board independence as an alternative measure for CEO power to test if donating CEOs would impose their personal preferences on firm's CSR engagement when the governance of the firm is weaker. We subset our sample into three subsamples. Column 1 includes observations when a firm's board independence is in the bottom quarter of the same industry in the same year. Column 2 includes observations when a firm's board independence is in the second and third quarter of the same industry in the same year. Column 3 includes observations when a firm's board independence is in the top quarter of the same industry in the same year. We perform our main regressions as in the previous sections. We find that when the board of a firm is more independent, the coefficient on our Routine donor CEO dummy variable is not significant. However, the coefficient is significant in columns 1 and 2, where the independence of boards is higher. We perform the seemingly unrelated estimation and find that the coefficient on Routine donor CEO in column 1 and in column 3 are statistically different. These results show that when CEOs are less powerful, they are less likely to impose their personal preference on firms' CSR investment.

2.5 Identification Strategies

2.5.1 Exogenous CEO turnover and CSR engagement

Our first identification strategy to draw causality between having a routine donor CEO and CSR engagement is to examine CEO turnovers in cases when a CEO is replaced for plausibly exogenous reasons. We utilize data from Eisfeldt and Kuhnen (2013) who classify CEO turnovers from 1992 to 2006 as either being exogenous, forced or unclassified. Eisfeldt and Kuhnen (2013) identify a CEO turnover event as exogenous if the CEO's departure is not forced and was announced at least six months before the anticipated succession date or was caused by a well-specified health problem. We augment this dataset following the same procedure. We do not use forced CEO turnovers or unclassified CEO turnovers because these events are highly endogenous. We merge their dataset with ours and focus only on the exogenous CEO turnovers. We are able to identify a set of treated turnovers, defined as turnovers in which a non-routine donor CEO or non-donor CEO is replaced by a routine donor CEO (that is, from Routine donor CEO = 0 to Routine donor CEO = 1). We then carefully construct a control group of turnovers that are matched by time and industry in which a non-routine donor CEO or non-donor CEO is replaced by another non-routine donor CEO or non-donor CEO.

We are able to identify 74 turnovers in our treatment group and 99 turnovers in our control group. We use a difference-in-differences approach to analyze the changes in CSR engagement around exogenous CEO turnovers in the treated group relative to the control group. The estimation model is as follows:

$$CSR_{i,t+n} = \alpha_i + \beta * Treat_{i,t} + \gamma * CEO\ Turnover_{i,t} +$$

$$\delta * Treat * CEO\ Turnover + \epsilon_{i,t}$$

Treat is a dummy variable that equals 1 (both in pre- and post-turnover periods) if the firm has experienced a CEO transition from a non-donor CEO or non-routine donor CEO to a routine

donor CEO and 0 otherwise (that is for our control firms). CEO Turnover is a dummy variable taking the value one in periods following an exogenous turnover and zero for the pre-turnover period. The difference-in-differences coefficient *Treat*CEO Turnover* captures the differential effects. A causal effect of routine donor CEOs on corporate social performance would manifest in a positive coefficient on the interaction term since an exogenous change from a non-donor CEO or non-routine donor CEO to a routine donor CEO should cause an increase in CSR performance. We report the results of the regressions in Table 7.

In column 1 of Table 7, we find that the interaction term *Treat*CEO Turnover* is positive and statistically significant with the coefficient being 0.813. The interaction term is statistically significant at the 5% significance level. Results in column 1 of Table 7 confirm our hypothesis that socially responsible CEOs also invest more in corporate level social responsible activities. In other words, the personal preference of CEOs is a determinant of firm level CSR engagement.

In column 2 of Table 7, we perform a similar regression as in column 1. Specifically, we focus on exogenous CEO turnovers, where a routine donor CEO is replaced by a non-routine donor CEO or a non-donor CEO. We argue that if bringing in a routine donor CEO would cause firms to invest more in CSR activities, the opposite should be expected if a routine donor CEO is replaced with a non-routine donor CEO or non-donor CEO. Using the similar matching procedure, we are able to identify 53 cases where a routine donor CEO is replaced by a non-routine donor CEO or non-donor CEO, and 26 events that a routine donor CEO is replaced with another routine donor CEO. Column 2 of Table 7 presents our regression results. In column 2, *Treat* is a dummy variable which equals one if a routine donor CEO is replaced by a non-routine donor CEO or non-donor CEO and zero if a routine donor CEO is replaced with another routine donor CEO. *Turnover* is similarly defined as in column 1. We find that the interaction term between Treat and CEO

turnover is negative and statistically significant with the coefficient being -1.051 and the t-statistic being -1.85. That is, when a routine donor CEO is replaced by a non-routine donor CEO or non-donor CEO, firm's CSR engagement decreases, consistent with our hypothesis.

2.5.2 Quasi-natural experiment – the Deepwater Horizon oil spill disaster

The Deepwater Horizon oil spill (also referred to as the BP oil disaster) happened on April 20, 2010, in the Gulf of Mexico on the BP-operated Macondo Prospect. This man-made disaster is considered to be the largest marine oil spill in the history and had a severe environmental impact. The U.S. government estimated the total discharge at 4.9 million barrels (210 million U.S. gallons, or 780,000 m^3), which directly polluted 68,000 square miles (180,000 km^2) of ocean and had a devastating effect on marine life in the Gulf.

As this disaster is a shock for environmental concerns, we compare firms' engagement in CSR with and without a routine donor CEO after the oil spill. In table 8, we perform a difference-in-differences estimation where the variable *Treat* equals one if the firm has a routine donor CEO three years before and after the year of oil spill (2010) and zero otherwise. Post 2010 is a dummy variable equals one after year 2010 and zero otherwise. We hypothesize that after the oil spill, routine donor CEO could engage more in CSR activities and especially for the environment category. Consistent with our expectation, we find a positive and statistically significant coefficient on the interaction term between Treat and Post 2010 on CSR score and Environment category score in both Panel A and Panel B of Table 8. For a placebo test, we randomly pick a year without significant disasters as the placebo year (in our case, year 2003). *Treat* is similarly defined and Post placebo 2003 equals one after year 2003 and zero otherwise for three years before and after 2003. We do not find significant results using 2003, further confirming a causal interpretation of the effect of routine donor CEOs on firms' CSR investment.

2.5.3 Two stage least squares estimation

To further address the endogeneity issues here, we utilize the two stage least squares (2SLS) regressions in this subsection. We construct our instrumental variable as the proportion of donor CEOs (donor CEO dummy = 1) within the same zip codes of the company's headquarters in each year. The instrument measures the potential CEO candidate pool for each firm, since the candidate pool itself is less likely to be related to a firm's CSR performance. Table 9 shows our two stage least squares estimation results. In the first stage, we regress our main variable *routine donor CEO* on the instrumental variable. Results in column (1) show that the coefficient on the instrument variable is positive (coefficient = 0.507) and also statistically significant at the 1% significance level (*t-statistic* = 33.62). In column (2), we perform the second stage IV regressions with the dependent variables being CSR scores on the instrumented routine donor CEO variable. In column (2), the coefficient on the *Instrumented routine donor CEO* dummy variable is positive (coefficient = 0.439) and also statistically significant at the 1% significance level (t-statistic = 2.63). By performing the 2SLS regressions, we further confirm that our results are robust to this potential endogeneity problem and conclude that CEO's donating behavior is a determinant of a firm's CSR engagement.

2.6 Additional Analysis

In Table 10, we instead include firm fixed effects to account for unobserved firm characteristics in our main analysis of the effects of routine donor CEOs on firms' CSR engagement. We find similar results to those in our main tests. Column 1 of Table 9 uses total CSR score as the dependent variable. Column 2 through column 7 use the six components of CSR activities as the dependent variables. Specifically, in column 1 of Table 10, the coefficient on *Routine donor CEO* is positive and statistically significant with the coefficient being 0.257 with a

t-statistic equaling 2.22, which means even controlling for the unobserved firm characteristics our main results that routine donor CEOs engagement more in CSR activities continue to hold. For the six CSR sub-categories, we find similar results to previous analysis.

2.7 Concluding Remarks

In this article, we investigate the relationship between the CEO's donating behavior and the firm's CSR engagement. We find that firms with donor CEOs tend to perform better with regard to corporate social responsibilities. Moreover, we further show that the higher CSR engagement is solely from routine donor CEOs. We also find that this relation between CEO personal social responsible behavior and corporate level social responsible activities is stronger when CEO is more powerful, that is, when a CEO has higher influence on firm policies. We also examine the CSR improvement brought by donor CEOs by investigating exogenous CEO turnover events. We find that when a non-routine-donor CEO or non-donor CEO is replaced by a routine donor CEO, the firm's CSR performance improves. Conversely, when a routine donor CEO is replaced by a non-routine donor CEO or non-donor CEO, the firm's CSR performance deteriorates. Moreover, we use Deepwater Horizon Oil Spill as a shock to CSR and find that routine donor CEOs respond more to such event.

Our results have possible implication for both academic and practical world. we add another potential determinant for corporate social responsibilities engagement: CEO personal preference. By doing so, we reconfirm the importance of CEO for a firm's success on corporate social performance around upper echelon theory.

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Appendix

Variables	Definition and Sources of Data
Donor CEO	Dummy variable equaling one if the CEO donates money to charities in the year.
Routine donor CEO	Dummy variable which equals one when the ratio of the number of charitable donations made by the CEO to her appearing years in our sample is larger than the 75th percentile.
Non-routine donor CEO	Dummy variable which equals one if Routine donor CEO = 0 and Donor CEO = 1.
Firm characteristics:	
Firm Size	Natural logarithm of total assets. From: Compustat
Volatility	Standard deviation of monthly stock returns for the most recent three years. From: CRSP
ROA	Return on assets as net income divided by total assets at the beginning of the year. From: Compustat
Leverage	Book leverage as long-term debt plus debt in current liabilities scaled by total asset. From: Compustat
Market-to-book	(total assets – book equity + market value of equity)/total assets. From: Compustat
Volatility	Monthly stock return volatility in the past three years. From: CRSP
CEO characteristics:	
CEO ownership	Percentage of common shares held by the CEO. From: ExecuComp
CEO duality	Dummy variable equaling one if the CEO is the chairman of the board. From: ISS
Female CEO	Dummy variable equaling one if the CEO is female. From: ExecuComp
Ln CEO tenure	Natural logarithm of CEO tenure. From: ExecuComp
CEO age	Age of the CEO. From: ExecuComp
Ln compensation	Natural logarithm of CEO total compensation. From: ExecuComp
Governance:	

Board independence	Number of independent directors divided by the number of directors. From: ISS

Table 2. 1
Sample Statistics
Panel A: Donor CEOs and Non-donor CEOs
This table presents descriptive statistics of firms who's CEO donates money to charities in the year and firms who's CEO do not donate. The sample consists of the S&P 1500 firms from fiscal year 2000 to 2014. All variables are described in the Appendix.

	count	mean	sd	p50
Donor = 1				
CSR score	10527	0.254	2.767	0
Firm size	10527	8.153	1.657	8.031
Volatility	10527	10.95	5.515	9.718
ROA	10527	0.0463	0.0792	0.0465
Leverage	10527	0.208	0.175	0.185
Market-to-book	10527	1.834	1.058	1.476
CEO Duality	10527	0.231	0.421	0
Female CEO	10527	0.0216	0.145	0
Ln CEO tenure	10527	1.685	0.581	1.792
CEO age	10527	56.09	7.233	56
Ln compensation	10527	8.231	1.098	8.302
Donor = 0				
CSR score	3801	-0.355	2.025	-1
Firm size	3801	7.259	1.488	7.150
Volatility	3801	12.16	5.707	10.84
ROA	3801	0.0431	0.0892	0.0475
Leverage	3801	0.181	0.177	0.147
Market-to-book	3801	1.832	1.030	1.505
CEO Duality	3801	0.153	0.360	0
Female CEO	3801	0.0226	0.149	0
Ln CEO tenure	3801	1.538	0.558	1.609
CEO age	3801	55.13	7.231	55
Ln compensation	3801	7.851	1.038	7.868
Total				
CSR score	14328	0.0923	2.605	0
Firm size	14328	7.916	1.661	7.795
Volatility	14328	11.27	5.592	10.03
ROA	14328	0.0454	0.0820	0.0468
Leverage	14328	0.201	0.176	0.176
Market-to-book	14328	1.834	1.051	1.484
CEO Duality	14328	0.210	0.407	0
Female CEO	14328	0.0218	0.146	0
Ln CEO tenure	14328	1.646	0.579	1.609
CEO age	14328	55.83	7.244	56
Ln compensation	14328	8.130	1.095	8.183
Observations	14328			

Panel B: Routine donor CEOs and Non-routine donor CEOs

This table presents descriptive statistics of firms with routine donor CEOs and non-routine donor. The sample consists of the S&P 1500 firms from fiscal year 2000 to 2014. All variables are described in the Appendix.

	count	mean	sd	p50
Non routine donor CEO = 1				
CSR score	6597	0.111	2.638	0
Firm size	6597	7.991	1.625	7.913
Volatility	6597	11.21	5.511	10.01
ROA	6597	0.0469	0.0821	0.0471
Leverage	6597	0.204	0.176	0.179
Market-to-book	6597	1.879	1.085	1.513
CEO Duality	6597	0.218	0.413	0
Female CEO	6597	0.0208	0.143	0
Ln CEO tenure	6597	1.707	0.585	1.792
CEO age	6597	55.74	7.179	56
Ln compensation	6597	8.158	1.126	8.243
Routine donor CEO = 1				
CSR score	3930	0.493	2.956	0
Firm size	3930	8.426	1.675	8.232
Volatility	3930	10.50	5.493	9.202
ROA	3930	0.0453	0.0741	0.0448
Leverage	3930	0.214	0.174	0.193
Market-to-book	3930	1.759	1.008	1.418
CEO Duality	3930	0.252	0.434	0
Female CEO	3930	0.0229	0.150	0
Ln CEO tenure	3930	1.648	0.573	1.609
CEO age	3930	56.68	7.285	56
Ln compensation	3930	8.353	1.038	8.395
Total donor sample				
CSR score	10527	0.254	2.767	0
Firm size	10527	8.153	1.657	8.031
Volatility	10527	10.95	5.515	9.718
ROA	10527	0.0463	0.0792	0.0465
Leverage	10527	0.208	0.175	0.185
Market-to-book	10527	1.834	1.058	1.476
CEO Duality	10527	0.231	0.421	0
Female CEO	10527	0.0216	0.145	0
Ln CEO tenure	10527	1.685	0.581	1.792
CEO age	10527	56.09	7.233	56
Ln compensation	10527	8.231	1.098	8.302
Observations	10527			

Table 2. 2
Univariate Tests
Panel A: Univariate test of CSR score for donor CEO and non-donor CEO firms.

					Mean (1) – (3)	
	mean	sd	mean	sd	b	t
CSR score	0.25	2.77	-0.36	2.02	0.61***	(14.33)
Firm size	8.15	1.66	7.26	1.49	0.89***	(30.79)
Volatility	10.95	5.52	12.16	5.71	-1.21***	(-11.35)
ROA	0.05	0.08	0.04	0.09	0.00	(1.94)
Leverage	0.21	0.18	0.18	0.18	0.03***	(8.05)
Market-to-book	1.83	1.06	1.83	1.03	0.00	(0.12)
CEO Duality	0.23	0.42	0.15	0.36	0.08***	(10.82)
Female CEO	0.02	0.15	0.02	0.15	-0.00	(-0.38)
Ln CEO tenure	1.69	0.58	1.54	0.56	0.15***	(13.77)
CEO age	56.09	7.23	55.13	7.23	0.96***	(7.01)
CEO ownership	1.53	4.15	1.53	3.98	-0.00	(-0.01)
Ln compensation	8.23	1.10	7.85	1.04	0.38***	(19.05)
Observations	10527		3801		14328	

Panel B: Univariate test of CSR score for routine donor CEO and non-routine donor CEO firms.

	mean	sd	mean	sd	b	t
CSR score	0.49	2.96	0.11	2.64	0.38***	(6.66)
Firm size	8.43	1.68	7.99	1.62	0.43***	(13.02)
Volatility	10.50	5.49	11.21	5.51	-0.72***	(-6.47)
ROA	0.05	0.07	0.05	0.08	-0.00	(-1.04)
Leverage	0.21	0.17	0.20	0.18	0.01**	(2.71)
Market-to-book	1.76	1.01	1.88	1.08	-0.12***	(-5.72)
CEO Duality	0.25	0.43	0.22	0.41	0.03***	(3.90)
Female CEO	0.02	0.15	0.02	0.14	0.00	(0.72)
Ln CEO tenure	1.65	0.57	1.71	0.58	-0.06***	(-5.04)
CEO age	56.68	7.28	55.74	7.18	0.94***	(6.42)
CEO ownership	1.44	3.98	1.58	4.24	-0.14	(-1.63)
Ln compensation	8.35	1.04	8.16	1.13	0.20***	(9.03)
Observations	3930		6597		10527	

Table 2. 3 Does CEO Donating Behavior Affect CSR Engagement?

This table reports estimated coefficients from OLS regressions of firm CSR score on different donor CEO dummy variables. Donor CEO equals one if the CEO made charitable donation for at least once. Routine donor CEO equals one if the CEO has donated more times than 75th percentile of all CEOs in our sample. Non routine donor CEO equals one if the CEO has donated fewer times than 75th percentile of all CEOs in our sample but at least once. The CSR score is measured as total strength minus total concerns. All other variables are described in the Appendix. Model 1 and 2 include all observations. Model 3 excludes non routine donor CEOs (excludes observations if donor CEO =1 & routine donor CEO = 0). Model 4 excludes non donor CEOs (excludes observations if donor CEO = 0). Model 5 excludes routine donor CEOs (excludes observations if routine donor CEO = 1). All models include year fixed effects and industry fixed effects. Standard errors are clustered at the firm level and t-statistics are shown in parentheses. Statistical significance at the 1%, 5%, and 10% level is indicated by ***, **, and *, respectively.

VARIABLES	(1) CSR score	(2) CSR score	(3) CSR score	(4) CSR score	(5) CSR score	(6) CSR score
Donor CEO	0.200**					
	(2.54)					
Routine donor CEO		0.293***	0.323***	0.244**		
		(2.82)	(2.88)	(2.17)		
Non routine donor CEO					0.139	-0.244**
					(1.64)	(-2.17)
Firm size	0.502***	0.501***	0.551***	0.510***	0.440***	0.510***
	(9.82)	(9.89)	(8.31)	(8.73)	(7.86)	(8.73)
ROA	0.573	0.562	0.753*	0.737	0.263	0.737
	(1.63)	(1.60)	(1.72)	(1.57)	(0.73)	(1.57)
Leverage	-0.812***	-0.804***	-0.831***	-0.789**	-0.820***	-0.789**
	(-3.15)	(-3.13)	(-2.86)	(-2.44)	(-2.86)	(-2.44)
Market-to-book	0.247***	0.252***	0.253***	0.248***	0.245***	0.248***
	(6.29)	(6.41)	(5.25)	(5.12)	(5.77)	(5.12)
Volatility	-0.017**	-0.016**	-0.015*	-0.019**	-0.014*	-0.019**
	(-2.49)	(-2.48)	(-1.83)	(-2.22)	(-1.95)	(-2.22)
CEO ownership	-0.032***	-0.031***	-0.026***	-0.036***	-0.030***	-0.036***
	(-4.35)	(-4.27)	(-3.17)	(-4.16)	(-3.39)	(-4.16)
CEO Duality	0.429***	0.432***	0.577***	0.411***	0.312***	0.411***
	(4.66)	(4.70)	(4.74)	(3.68)	(3.03)	(3.68)
Female CEO	1.311***	1.306***	1.516***	1.159***	1.267***	1.159***
	(4.32)	(4.37)	(3.38)	(2.88)	(4.73)	(2.88)
Ln CEO tenure	-0.045	-0.029	-0.041	-0.055	-0.027	-0.055
	(-1.13)	(-0.72)	(-0.82)	(-1.11)	(-0.60)	(-1.11)
CEO age	-0.010*	-0.010*	-0.010*	-0.010	-0.011*	-0.010

	(-1.79)	(-1.90)	(-1.69)	(-1.42)	(-1.77)	(-1.42)
Ln compensation	0.016	0.015	-0.005	0.034	0.010	0.034
	(0.36)	(0.35)	(-0.09)	(0.64)	(0.21)	(0.64)
Intercept	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	14,328	14,328	7,731	10,527	10,398	10,527
Adjusted R-squared	0.2225	0.2238	0.2524	0.2312	0.2033	0.2312

Table 2. 4 How Does CEO Donating Behavior Affect CSR's Each Component?

This table reports estimated coefficients from OLS regressions of six CSR component scores on routine donor CEO dummy (which equals one if the CEO has donated more times than 75th percentile of all CEOs in our sample.). The CSR component scores are measured as each component's strength minus each component's concerns. All other variables are described in the Appendix. All models include year fixed effects and industry fixed effects. Standard errors are clustered at the firm level and t-statistics are shown in parentheses. Statistical significance at the 1%, 5%, and 10% level is indicated by ***, **, and *, respectively.

VARIABLES	(1) Environment	(2) Product	(3) Diversity	(4) Community	(5) Employee relation	(6) Human rights
Routine donor CEO	0.049	-0.018	0.173***	0.082***	0.010	-0.003
	(1.54)	(-0.68)	(3.42)	(3.44)	(0.26)	(-0.27)
Firm size	0.036**	-0.160***	0.476***	0.097***	0.091***	-0.040***
	(2.31)	(-11.30)	(21.51)	(7.79)	(5.53)	(-6.49)
Volatility	-0.008***	-0.004**	0.002	-0.002	-0.004	-0.001
	(-3.53)	(-2.28)	(0.63)	(-1.51)	(-1.57)	(-0.74)
ROA	0.121	0.028	-0.163	0.049	0.531***	-0.004
	(1.17)	(0.29)	(-0.92)	(0.60)	(3.58)	(-0.11)
Leverage	0.066	0.192***	-0.618***	-0.152***	-0.354***	0.063**
	(0.84)	(2.74)	(-4.62)	(-2.79)	(-3.69)	(2.47)
Market-to-book	0.035***	0.014	0.100***	0.028***	0.081***	-0.006
	(3.42)	(1.43)	(4.68)	(3.01)	(5.68)	(-1.50)
CEO ownership	-0.010***	-0.003	-0.010**	-0.002	-0.007**	-0.000
	(-5.03)	(-1.58)	(-2.36)	(-1.19)	(-2.47)	(-0.68)
CEO Duality	0.150***	0.040**	0.212***	0.053***	-0.036	0.013
	(5.00)	(1.99)	(5.03)	(2.92)	(-1.10)	(1.43)
Female CEO	-0.001	0.058	1.190***	0.029	0.016	0.015
	(-0.02)	(1.21)	(8.67)	(0.53)	(0.15)	(0.71)
Ln CEO tenure	0.008	-0.005	-0.020	-0.004	-0.010	0.002
	(0.67)	(-0.40)	(-1.00)	(-0.43)	(-0.63)	(0.43)
CEO age	-0.003	0.001	-0.005*	-0.002**	0.000	-0.001***
	(-1.60)	(0.89)	(-1.70)	(-2.52)	(0.07)	(-2.63)
Ln compensation	0.000	-0.008	0.044*	0.006	-0.029*	0.002
	(0.03)	(-0.60)	(1.85)	(0.58)	(-1.72)	(0.39)
Intercept	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes

Observations	14,328	14,328	14,328	14,328	14,328	14,328
Adjusted R-squared	0.2027	0.2251	0.3789	0.1375	0.1539	0.1094

Table 2. 5 CEO Duality and CSR Engagement

This table presents our regression results of CSR score on the interaction terms between varies donor CEO dummy variables and CEO power. Routine donor CEO equals one if the CEO has donated more times than 75th percentile of all CEOs in our sample. Non routine donor CEO equals one if the CEO has donated fewer times than 75th percentile of all CEOs in our sample but at least once. CEO power is measured by a dummy variable CEO duality equaling one if the CEO is also the chairman of the board. All models include year fixed effects and industry fixed effects. All other variables are defined in the Appendix. Standard errors are clustered at the firm level and t-statistics are shown in parentheses. Statistical significance at the 1%, 5%, and 10% level is indicated by ***, **, and *, respectively.

VARIABLES	(1) CSR score (full sample)	(2) CSR score (excludes non routine donor CEO)	(3) CSR score (excludes non donor CEO)	(4) CSR score (excludes routine donor CEO)
CEO Duality	0.281***	0.239*	0.222*	0.253*
	(2.83)	(1.76)	(1.75)	(1.87)
Routine donor CEO	0.181*	0.218*	0.133	
	(1.68)	(1.91)	(1.13)	
Non routine donor CEO				0.125
				(1.50)
Routine donor CEO = 1 * CEO duality	0.484***	0.572***	0.472***	
	(2.96)	(3.08)	(2.68)	
Non routine donor CEO = 1 * CEO duality				0.086
				(0.52)
Firm size	0.499***	0.546***	0.509***	0.439***
	(9.85)	(8.18)	(8.72)	(7.83)
Volatility	-0.017**	-0.016**	-0.019**	-0.014**
	(-2.53)	(-1.96)	(-2.23)	(-1.96)
ROA	0.577*	0.778*	0.756	0.264
	(1.65)	(1.77)	(1.61)	(0.73)
Leverage	-0.798***	-0.807***	-0.790**	-0.817***
	(-3.11)	(-2.77)	(-2.45)	(-2.84)
Market-to-book	0.253***	0.253***	0.247***	0.245***
	(6.43)	(5.25)	(5.13)	(5.76)
CEO ownership	-0.030***	-0.025***	-0.036***	-0.030***
	(-4.15)	(-2.99)	(-4.06)	(-3.38)
Female CEO	1.305***	1.522***	1.156***	1.269***
	(4.34)	(3.38)	(2.85)	(4.73)
Ln CEO tenure	-0.027	-0.038	-0.054	-0.027

	(-0.68)	(-0.77)	(-1.10)	(-0.59)
CEO age	-0.010*	-0.011*	-0.009	-0.011*
	(-1.89)	(-1.71)	(-1.40)	(-1.78)
Ln compensation	0.016	-0.006	0.035	0.010
	(0.36)	(-0.11)	(0.65)	(0.21)
Intercept	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Observations	14,328	7,731	10,527	10,398
Adjusted R-squared	0.2249	0.2542	0.2323	0.2033

Table 2. 6 Board Independence, Routine Donor CEO, and CSR

This table reports regression results from an OLS estimation using three sub-samples. Column 1 includes observations when the independence of the board is in the bottom quarter in the industry-year group. Column 2 includes observations when the independence of the board is in the second and third quarter in the same industry-year group. Column 3 includes observations when the independence of the board is in the top quarter in the same industry-year group. The dependent variables in all three columns are CSR score from KLD database. All models include both year fixed effects and industry fixed effects. . Standard errors are clustered at the firm level and t-statistics are shown in parentheses. Statistical significance at the 1%, 5%, and 10% level is indicated by ***, **, and *, respectively.

	(1)	(2)	(3)
VARIABLES	CSR score (Bottom Quarter independence)	CSR score (Middle Quarter Independence)	CSR score (Top Quarter Independence)
Routine donor CEO	0.533***	0.336**	0.042
	(3.19)	(2.23)	(0.20)
Firm size	0.195***	0.612***	0.687***
	(2.77)	(8.09)	(6.96)
Volatility	-0.012	-0.001	-0.023
	(-1.01)	(-0.06)	(-1.28)
ROA	0.865	0.807	0.553
	(1.45)	(1.35)	(0.54)
Leverage	-0.985**	-0.854**	-0.956*
	(-2.37)	(-2.23)	(-1.71)
Market-to-book	0.122**	0.304***	0.436***
	(2.29)	(5.13)	(3.78)
CEO ownership	-0.012	-0.020	-0.088**
	(-1.18)	(-1.52)	(-2.05)
CEO Duality	0.022	0.069	0.615***
	(0.13)	(0.53)	(3.12)
Female CEO	0.953**	1.661***	1.442**
	(2.23)	(4.99)	(2.15)
Ln CEO tenure	0.025	-0.081	0.037
	(0.41)	(-1.28)	(0.38)
CEO age	-0.004	-0.012	-0.020
	(-0.49)	(-1.41)	(-1.28)
Ln compensation	0.019	0.016	0.013
	(0.32)	(0.21)	(0.10)
Intercept	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
Observations	3,457	6,107	2,412
Adjusted R-squared	0.1715	0.2434	0.2925
		Diff (1) – (3)	
Difference		0.491*	

Table 2. 7 Exogenous CEO Turnover and CSR

This table reports the regressions results from a difference-in-differences specification. The dependent variable is CSR score. In column 1, Treat is a dummy variable that takes the value 1 (both in pre- and post-turnover periods) if the firm has experienced an exogenous CEO transition from a non-donor CEO or non-routine donor CEO to a routine donor CEO or 0 otherwise (that is for our control firms). In column 2, Treat is a dummy variable that takes the value 1 (both in pre- and post-turnover periods) if the firm has experienced an exogenous CEO transition from a routine donor CEO to a non-donor CEO or non-routine donor CEO and 0 otherwise. CEO Turnover is a dummy variable taking the value one in periods following an exogenous turnover and zero for the pre-turnover period. We use three years for both the pre- and after- periods. The difference-in-differences coefficient Treated*CEO Turnover is the effect from a routine donor CEO. All models in this table include year and firm fixed effects. Standard errors are clustered at the firm level and t-statistics are shown in parentheses. Statistical significance at the 1%, 5%, and 10% level is indicated by ***, **, and *, respectively.

VARIABLES	(1) CSR score	(2) CSR score
CEO Turnover	-0.153	0.766
	(-0.57)	(1.52)
Treat * CEO Turnover	0.813**	-1.051*
	(2.31)	(-1.85)
Firm size	-0.254	0.488
	(-0.60)	(0.91)
Volatility	-0.018	-0.031
	(-0.68)	(-1.24)
ROA	-0.284	3.073
	(-0.31)	(1.56)
Leverage	1.513*	4.102**
	(1.68)	(2.34)
Market-to-book	0.015	-0.445***
	(0.09)	(-2.90)
CEO ownership	0.027	0.005
	(1.50)	(0.30)
CEO Duality	0.432*	0.590**
	(1.87)	(2.41)
Female CEO	-0.247	-1.497***
	(-0.43)	(-3.08)
Ln CEO tenure	0.009	0.090
	(0.08)	(0.61)
CEO age	-0.008	0.001
	(-0.54)	(0.06)
Ln compensation	-0.106	-0.367*
	(-0.93)	(-1.73)
Intercept	Yes	Yes
Year FE	Yes	Yes
Firm FE	Yes	Yes
Observations	980	457
Adjusted R-squared	0.6334	0.6620

Table 2. 8 Quasi-Natural Experiment with Routine Donor CEO on CSR

This table reports the difference-in-differences regression results using the Deepwater Horizon Oil Spill Disaster as a quasi-natural experiment and also a placebo year as a comparison. Treat equals one if the firm has a routine donor CEO three years before and after the year of oil spill happened (2010). Post in Panel A equals one for years after 2010 and 0 for years before 2010. We use three years before and after. Post in Panel B equals one for years after 2003 and 0 for years before 2003. We use three years before and after. All other variables are defined in the Appendix. Standard errors are clustered at the firm level and t-statistics are shown in parentheses. Statistical significance at the 1%, 5%, and 10% level is indicated by ***, **, and *, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Deepwater Horizon Oil Spill Disaster	CSR score	Environment	Product	Diversity	Community	Employee relation	Human rights
Treat	-0.064	-0.125**	-0.087**	0.123*	0.006	0.038	-0.020
	(-0.41)	(-2.51)	(-2.11)	(1.66)	(0.16)	(0.60)	(-1.08)
Treat * Post 2010	0.591***	0.246***	0.125***	0.143**	0.100**	-0.049	0.028
	(3.64)	(4.04)	(3.13)	(2.21)	(2.49)	(-0.79)	(1.29)
Adjusted R-squared	0.2623	0.2308	0.2195	0.4063	0.1518	0.1649	0.0635
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Treat * Post 2010	0.574***	0.222***	0.133***	0.139**	0.105***	-0.053	0.029
	(3.55)	(3.57)	(3.37)	(2.19)	(2.68)	(-0.85)	(1.31)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8,206	8,206	8,206	8,206	8,206	8,206	8,206
Adjusted R-squared	0.6585	0.5440	0.5848	0.7515	0.5474	0.4511	0.3495
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Placebo							
Treat	0.429*	0.096	-0.004	0.227**	0.109	-0.008	0.009
	(1.76)	(1.24)	(-0.06)	(1.96)	(1.46)	(-0.08)	(0.26)
Treat * Post placebo 2003	-0.015	-0.051	0.011	-0.036	-0.045	0.099	0.006
	(-0.08)	(-0.83)	(0.18)	(-0.36)	(-0.73)	(1.10)	(0.23)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.2134	0.2423	0.2822	0.3452	0.1449	0.1123	0.1869
Treat * Post placebo 2003	0.185	0.013	0.041	0.007	-0.034	0.129	0.029
	(1.00)	(0.22)	(0.68)	(0.07)	(-0.57)	(1.39)	(1.20)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6,720	6,720	6,720	6,720	6,720	6,720	6,720
Adjusted R-squared	0.7819	0.7646	0.7523	0.8154	0.6928	0.6176	0.6551

Table 2. 9 2SLS Regressions

This table reports results from the 2SLS regressions. Column 1 shows first stage regression results of our routine donor CEO dummy variable on our instrumental variable. Instrumental variable is the proportion donor CEOs within the same zip codes of the respective company's headquarter. Column 2 reports second stage regression results using instrumented routine donor CEO as the main independent variable. The dependent variable is CSR score. All models include year fixed effects and industry fixed effects. Standard errors are clustered at the firm level and t-statistics are shown in parentheses. Statistical significance at the 1%, 5%, and 10% level is indicated by ***, **, and *, respectively.

	(1)	(2)
VARIABLES	Routine donor CEO	CSR score
Instrument	0.507***	
	(33.62)	
Routine donor CEO		0.439***
		(2.63)
Firm size	0.021***	0.494***
	(2.81)	(9.63)
Volatility	-0.000	-0.016**
	(-0.01)	(-2.48)
ROA	-0.032	0.569
	(-0.52)	(1.63)
Leverage	-0.008	-0.803***
	(-0.16)	(-3.14)
Market-to-book	0.000	0.251***
	(0.06)	(6.39)
CEO ownership	0.000	-0.031***
	(0.13)	(-4.29)
CEO Duality	0.018	0.427***
	(1.16)	(4.68)
Female CEO	0.008	1.302***
	(0.15)	(4.39)
Ln CEO tenure	-0.008	-0.029
	(-1.17)	(-0.71)
CEO age	0.001	-0.011**
	(1.39)	(-1.97)
Ln compensation	0.008	0.013
	(1.00)	(0.30)
Intercept	Yes	Yes
Year	Yes	Yes
Industry FE	Yes	Yes
Observations	14,328	14,328
Adjusted R-squared	0.2680	0.2232

Table 2. 10 Robustness Test – Firm Fixed Effects

This table reports regression results using a similar specification as in Table 3 and Table 4 above. Column 1 uses total CSR score as the dependent variable. Column 2 to 7 use the six components of CSR score as the dependent variables. Routine donor CEO is defined as in Table 3. All models include both year fixed effects and firm fixed effects. Standard errors are clustered at the firm level and t-statistics are shown in parentheses. Statistical significance at the 1%, 5%, and 10% level is indicated by ***, **, and *, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	CSR score	Environment	Product	Diversity	Community	Employee relation	Human rights
Routine donor CEO	0.257**	0.075	0.026	0.162***	0.066**	-0.079	0.007
	(2.22)	(1.58)	(0.79)	(3.03)	(2.23)	(-1.50)	(0.37)
Firm size	-0.239**	-0.200***	-0.056*	0.052	-0.009	-0.003	-0.022
	(-2.51)	(-5.31)	(-1.80)	(1.25)	(-0.45)	(-0.09)	(-1.56)
Volatility	-0.031***	-0.010***	0.001	-0.006*	-0.005***	-0.009***	-0.001
	(-4.69)	(-3.92)	(0.31)	(-1.77)	(-3.18)	(-3.36)	(-0.90)
ROA	0.424	0.140	0.075	-0.132	-0.034	0.406***	-0.031
	(1.55)	(1.40)	(1.11)	(-1.04)	(-0.59)	(3.15)	(-0.89)
Leverage	0.451*	0.285***	-0.039	0.180	0.114*	-0.087	-0.002
	(1.76)	(2.88)	(-0.57)	(1.42)	(1.80)	(-0.75)	(-0.07)
Market-to-book	-0.105***	-0.051***	0.009	0.004	-0.018*	-0.038**	-0.011**
	(-2.74)	(-3.24)	(0.69)	(0.21)	(-1.90)	(-2.30)	(-1.99)
CEO ownership	0.015**	0.002	0.002	0.007**	0.002*	0.002	0.001
	(1.96)	(0.50)	(1.24)	(1.97)	(1.90)	(0.56)	(0.40)
CEO Duality	0.377***	0.211***	0.038**	0.118***	0.026	-0.024	0.009
	(5.15)	(6.99)	(2.11)	(3.65)	(1.44)	(-0.79)	(0.89)
Female CEO	-0.016	-0.034	0.129	0.218	-0.056	-0.326**	0.052
	(-0.06)	(-0.26)	(1.46)	(1.37)	(-0.73)	(-1.97)	(1.39)
Ln CEO tenure	-0.013	0.012	-0.019**	0.019	0.005	-0.029**	-0.001
	(-0.46)	(1.20)	(-2.45)	(1.39)	(0.76)	(-2.08)	(-0.27)
CEO age	-0.015***	-0.003	-0.001	-0.005**	-0.001	-0.004	-0.001*
	(-2.63)	(-1.11)	(-0.84)	(-2.02)	(-0.60)	(-1.55)	(-1.81)
Ln compensation	-0.040	-0.014	0.001	-0.018	0.002	-0.015	0.003
	(-1.21)	(-1.01)	(0.11)	(-0.98)	(0.29)	(-0.97)	(0.59)
Intercept	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	14,328	14,328	14,328	14,328	14,328	14,328	14,328
Adjusted R-squared	0.6138	0.5110	0.5825	0.7178	0.5277	0.4421	0.3861

CHAPTER THREE: CEOS AND CFOS: DOES AGE GAP MATTER?

3.1 Introduction

A major debate in the top management team literature concerns whether diversity in managers' characteristics inhibits or improves firm financial performance. On one side, the top management diversity may increase firm value as it provides a competitive advantage through increased creativity and problem-solving capabilities (Cox, 1994). On the other side, managers with diverse traits could have different personal preferences and values that would cause troubles communicating to each other, hence disagreeing on which policies will optimize a firm's objectives (Giannetti and Zhao, 2016) and resulting in worse performance. Thus, the impact of top management team diversity on corporate outcomes is still questionable and worth further studying. In this paper, we recognize the importance of the two most important top managers-the CEO and the CFO and examine how their age heterogeneity affects firm performance.

During the past century, technology and healthcare systems improved to a great extent. As a consequence, human lifespan has been increasing to a record high. For example, the world average life expectancy at birth in years was 33 in the year 1900 and this number increased to 48 in the year of 1950 and 71.5 in the year 2014.[1] This has caused companies to rely increasingly on an aging workforce. Consequently, four distinct generations exist in today's workplace, including the Traditional generation (Traditionalists), the Baby Boomer generation (Baby Boomers), Generation X, and Generation Y. People from different generations experience

[1] Prentice, Thomson. "Health, history and hard choices: Funding dilemmas in a fast-changing world". World Health Organization: Global Health Histories. Retrieved November 4, 2010.

different historical events, thus they are heterogeneous in various aspects. Interesting studies have been performed on the effects of generational differences. Common conclusions from these generational gap studies are that people belonging to one generation experience similar historical events (Zemke, Raines, and Filipczak, 2000). Although people are diverse, their similar experiences might be expected to cause them to share certain behaviors, thoughts, and personal values. Based on these similarities in behavior, thoughts, and personal values, people from the same generations could bond much easier than people from different generations. This is based on the similarity-attraction paradigm from the field of social psychology (Byrne, 1971). Accordingly, communication gaps exist between different generations, thus, generations matter for communicating efficiently[2]. Intuitively, age determines generations and generational gaps. People of different age might communicate with less efficiency or have less tendency to communicate. Moreover, studies on aging effects also confirm our suggestion. Conclusions from the previous literature show that age affects a person's attitude, behavior, and thinking (Rhodes, 1983; Serfling, 2014; Taylor, 1975). Thus, managers of a similar age are likely to hold similar attitudes, beliefs, and opinions because they experienced the same historical events and social trends. For our study, this simply means that if the CEO and the CFO are of a similar age, they are likely to be mentally connected and similarly minded. Motivated by the generational gaps and aging effect studies, we posit that the relation between the CEO and the CFO is partly shaped by the age similarity between the two. Consequently, increased age gap between the CEO and the CFO might reduce mutual attraction between them, which leads to a lower level of communication that is more difficult and inefficient (McPherson et al., 2001).

[2] Today's generations face new communication gaps, By Denise Kersten, USATODAY.com.

In this paper, we focus on the age difference between the two most important executives in a company, the CEO and the CFO. Specifically, we use the age difference between the CEO and the CFO as our main independent variable of interest (*Age gap*). We construct this variable as the CEO's age minus the CFO's age. Intuitively, a larger age gap means that the CEO is much older than the CFO and a negative age gap means that the CFO is older than the CEO. Previous studies show that the CEO's age matters for various corporate policies and financial performance (Yim 2013, Serfling 2014, Huang, Rose-Green and Lee 2012). For example, Serfling (2014) shows that portfolios of firms managed by older CEOs earn lower risk-adjusted stock returns. Yim (2013) documnets evidence that older CEOs make fewer acquisitions relative to younger ones. Moreover, according to the aging literature, older managers are often more risk-averse, invest less aggressively, and make fewer acquisitions (Vroom and Pahl, 1971; Yim, 2013). However, in this paper, we first incorporate the difficulty from communicating with different generations to show that when the age gap between a company's CEO and CFO increases, the company tends to perform worse where performance is measured by industry median adjusted Tobin's Q, controlling for firm and the CEO and CFO's characteristics previously shown to have an influence on a firm's Tobin's Q. We find that the age gap has a negative correlation with a company's financial performance by having a lower adjusted Tobin's Q. Moreover, we find that the negative age gap effects are stronger for high-tech industries where more technical and efficient communications are essential. These results are consistent with Zenger and Lawrence (1989), who find empirical evidence that the age dissimilarity between managers in an organization negatively affects the frequency and efficiency of technical communications. Similar results hold for younger companies. With less resources, younger firms rely more heavily on human capital. To account for this, we include a dummy variable *Young firm* which

accounts for a young firm. We define a firm as young if its age is below the 25 percentile firm age for all firms in our sample. Anecdotal evidence suggests that younger firms do not have as much access to resources as more mature firms. Consequently, their performance relies heavily on management human capital, including communications and also cooperation between top executives. In our test, we find confirming evidence by showing the interaction term between *Age gap* and *Young firm* has a negative correlation with firm's adjusted Tobin's Q. We suggest that when communications and cooperation are more important, the effects from age gap between the two most important executives are stronger.

As an alternative to age-based analysis, we also use different measures for generational gaps to capture the age dissimilarity thus the difficulty of communications between the CEO and the CFO. Pilcher (1994) argues that age-induced dissimilarities between individuals (such as the CEO and the CFO) are most evident across different generations. Following this logic, we first categorize each CEO and CFO to proper generations based on their age. We categorize each CEO and CFO into their proper generations based on normal categorizations. First is the Traditional generation (Traditionalists) including those who were born between the year 1900 and 1945. Second is the Baby Boomer generation (Baby Boomers) including those with a birth year between 1946 and 1964. Last is Generation X. Birth year range for Generation X is from the year 1965 to 1980. We do not include Generation Y because there are too few observations. Then we construct a dummy variable *generational gap* which equals one when the CEO and the CFO are from different generations. We find evidence showing that when the CEO and the CFO are from different generations, a firm's Tobin's Q tends to be lower. To exclude the possibility that the CEO and the CFO are at a generation's border line, for example, if the CEO was born in 1964 and the CFO was born in 1965, the generation gap dummy is still one but less intuitive, we

construct another binary variable equaling one when the age gap between the two is larger than 20. This is consistent with the sociology literature (e.g., Strauss and Howe, 1997) in which a generational gap is defined as having an age difference of 20 years. We argue that there exists a generational gap between the CEO and the CFO if the age difference between them is greater than 20. Using this measure for generational gaps, we find similar results as before. We show that a firm's adjusted Tobin's Q tends to be lower when the CEO and the CFO are from different generations, that is, age heterogeneity among top management team might not always be beneficial. Logically, the effects from the age gap between the CEO and the CFO should be stronger for larger gaps. Thus, we use quartiles for the age gap variable to further test our hypothesis. We find that as the age gap moves from the bottom quartile to the top quartile, the negative relationship between the age gap and firm's adjusted Tobin's Q are even stronger.

For our robustness tests, we first calculate a different measure for the age gap between the CEO and the CFO which account for their current ages. We construct this measure, relative age gap, as the age gap between the CEO and the CFO divided by the sum of their ages. We perform the same regression specification as in our main test and still find consistent results. This standardized age gap between the CEO and the CFO has a statistically significantly negative correlation with firm's adjusted Tobin's Q. Secondly, we use the age diversity among all top executives as another measure for age heterogeneity and we also control for directors' age diversity. We use the standard deviation of ages for the top five executives or independent directors as the measure of age diversity. We find that when the top executives' age diversity is higher, a firm's Tobin's Q tends to be lower but when independent directors' age diversity is higher, the firm's Tobin's Q tends to be higher. This makes sense logically because the difference in effects from top executives and directors is due to the different responsibilities and

accountabilities for them. When top executives' ages are more diverse, effective and efficient communications and cooperation might be more difficult which could results in a lowered firm valuation (Jensen, 1993; Yermack, 1996; Schadewitz and Niskala, 2010). On the other hand, when independent directors' age diversity is higher, different opinions could occur among independent directors, thus, the board might be less friendly for the executives resulting in stronger monitoring for the managers (Schmidt, 2015). Third, we include situations when the CEO is more important and when the CFO becomes more important. We posit that when the CEO is more powerful, the effects from the age gap between the CEO and the CFO should be stronger as the CEO is has a more significant controlling power over the CFO. We capture this situation by using a dummy variable CEO duality, which equals on when the CEO is also the chairman of the board. Moreover, we investigate the relationship between age dissimilarity between the CEO and the CFO and future executive turnovers. We find that when the age gap is larger, CEO turnover is more likely but not CFO turnover. Addressing the possibility for older CEOs and CFOs to retire, we only include samples where the CEO and the CFO are younger than 60 years old. One might speculate that it could be a bad performance that is driving the results for CEO turnover. To address this issue, we then use a subsample which only includes firm-year observations that have positive abnormal performance, where abnormal performance is defined as the difference between a firm's stock return and the median stock return for all firms in the same Fama-French 48 Industry Classifications for that year. For this subsample, we obtain similar results, thus confirming that the age gap is correlated with CEO turnover and it is not the positive abnormal performance driving our results. Lastly, we consider the effect of the age gap between the CEO and the CFO on various firm financial policies. We show that the age gap has a negative correlation with firm R&D spending, capital expenditure intensity, and cash holdings.

All these results are statistically significant. When the age gap between the CEO and the CFO is larger, the difficulty of communications and cooperation might cause firms to have less efficient investment policies, consistent with our main hypothesis.

We address the possible endogeneity issues between the CEO's and CFO's ages using the two-stage least squares (2SLS) estimation models. Logically, a CEO might prefer a younger CFO to enhance CEO power. Alternatively, she could also prefer an older CFO because older CFO might have more experience. To account for these possibilities, we use the mean age range of top executives' ages for each of the Fama-French 48 Industry and for each state as our instrumental variables. We suggest that the executive labor market could have its own age range for each industry and/or state. Thus, this age range is endogenous to our age gap measure between the CEO and the CFO but exogenous to a firm's financial performance. In the first stage, we regress our age gap between the CEO and the CFO on the executive's age range for the corresponding industry and state. We find that the coefficients on the instruments are positive and are statistically significant for the age range measured for the industry. Thus, our instruments are valid instruments based on F-statistic for the weak IV test, which is equal to 2.33. In the second stage, we use our main model but replace the actual age gap with the instrumented age gap. We find that the coefficient is still negative and statistically significant.

Our study contribute literature in several ways. First, our study contributes to the literature which correlates managerial characteristics to corporate performance. Recent work by Kaplan, Klebanov, and Sorensen (2012) investigates which characteristics of the Chief Executive Officer matter more. They find that CEO candidates vary along two primary dimensions: one measures general ability and the other contrasts communication and interpersonal skills with execution skills. They show that firm performance is positively related to these skills. Moreover,

another managerial characteristic, the overconfidence of the CEO, has also been studied extensively in recently published papers (Malmendier and Tate, 2005, 2009; Heaton, 2002; Graham, Harvey, and Puri, 2010). However, we extend the literature that links managerial characteristics to corporate performance by including interactions of characteristics of managers.

Second, our paper looks at the Chief Executive Officer and the Chief Financial Officer at the same time. In other words, we incorporate the role of the CFO in corporate decision making. The importance of the CFO has been shown recently. For example, Frank and Goyal (2007) show that CFOs are at least as important as CEOs for determining corporate leverage. Favaro (2001) reveals an increasing demand for CFOs with extensive educational and professional experience, suggesting that the CFO's job could have considerable influence on the most important corporate decisions. Zorn (2004) also concludes that the role of CFO keeps expanding in public companies. Previous studies often focus on the equity incentives of the CEO and the CFO and corporate financial performance or policies. However, our study focuses on the characteristics for both executives and controls for the equity incentives using executives' compensation and ownership.

Third, this paper investigates the age gap between CEO and CFO and contributes to the literature on top management teams. Previous research on top management teams has already shown connections between corporate performance and demographic characteristics of top managers (Hambrick and D'Aveni, 1992; Michel and Hambrick, 1992). Knight et al (1999) uses characteristics including "Educational Diversity", "Functional Diversity", "Location", and "Age Diversity" to establish a linkage with strategic consensus. These characteristics are significant. Finally, Miller and Triana (2009) link company performance to race and gender diversity.

The rest of this paper is organized as follows. Section 2 briefly introduces the related literature and define our hypotheses. Section 3 describes the data and sample used in the paper. Section 4 presents our empirical results. Section 5 addresses our identification strategy and robustness tests. Finally, section 6 concludes our study.

3.2 Related Literature and Hypothesis Development

3.2.1 Do the CEO and the CFO matter?

No doubt, the most important top manager in a company is the Chief Executive Officer (CEO). Previous studies have shown that managerial characteristics could affect corporate financial policies and also performance (Bennedsen, Perez-Gonzalez, and Wolfenzon 2006, Bertrand and Schoar 2003, Kaplan, Klebanov, and Sorensen 2012). However, prior literature often focuses on the CEO and shows that various characteristics of CEOs are important (Bhagat, Bolton, and Subramanian, 2010; Gottesman and Morey, 2006; Barker III and Mueller, 2002; Yim, 2013; Serfling, 2014; Faccio, Marchica, and Mura, 2016). Thus, studing the CEO in this paper is reasonable and meaningful.

While the CEO has received much attention both in industry and academia, there are numerous studies done on the entire top management teams. Previous studies have focused on the linkage between the characteristics of top management teams and organizational outcomes (Michel and Hambrick, 1992; Wiersema and Bantel, 1992; Bantel, 1993). Also, Pfeffer (1983) and Tihanyi et al. (2000) show the theoretical developments for these linkages. These together serve as a foundation for our study that the interaction between the characteristics of two managers will have consequences.

After the passage of the Securities and Exchange Commission's (SEC) new disclosure requirement on the Chief Financial Officer's (CFO) compensation, researchers and practitioners

recognized the importance of the CFO and began investigating them and their influences on various topics of firms[3]. A CFO's job requirement contains three major parts. First is the controllership duties, which involve financial preparation and reporting responsibilities. The second is the treasury duties, which are related to current financial conditions, including “how to invest the company's money”, “determining the best mix of debt, equity and internal financing”, and “addressing the issues surrounding capital structure”. The third part includes economic strategy and forecasting, which extends a CFO’s job to be responsible for the firm’s future. Thus, CFOs have changed from bookkeepers to strategic decision makers for companies.

Moreover, recent studies on CFOs have shown that CFOs are the second most important officer in a company. For example, Finkelstein and Hambrick (1990) show that organizational outcomes are not determined by the CEO alone but rely on the entire top management team. Further, Frank and Goyal (2007) argue that the CFO matters more than the CEO for corporate leverage choices. Thus, the CFO's role expanded “beyond bean counting” to giving advice to the CEO on the most important corporate decisions (Favaro 2001). In his study, Zorn (2004) documented the rise of the CFO position and argues that the role of CFO keeps expanding and is now focusing on managing shareholder value. Some current research papers show evidence that CFOs could be more important than CEOs under certain circumstances. For example, although the CEO's equity incentives have been shown to be related to earnings management (Bergstresser and Philippon 2006; Cheng and Warfield 2005), more recent research conducted by Jiang, Petroni, and Wang (2010) argues that the CFO’s equity incentives should be more important than those of the CEO for earnings management. They document that the magnitude of a firm’s

[3] Jiang, Petroni, and Wang (2010); Chava, and Purnanandam (2010); Kim, Li, and Zhang (2011); McKinsey on Finance. No. 27, Spring 2008". McKinsey.com. Retrieved 1 June 2016; Zwilling, Martin (2016-03-18). "Good Chief Financial Officers Focus on Much More Than Finance". Entrepreneur. Retrieved 2018-05-01

earnings management is more sensitive to the CFO's equity incentives. Motivated by the above evidence, we consider characteristics of both the CEO and the CFO simultaneously in this study. Specifically, we investigate the age dissimilarity between a company's CEO and CFO.

3.2.2 Why should age matter?

Studies related to managerial characteristics often include age in the independent variables on the right-hand side, with various interesting results. For example, Vroom and Pahl (1971) show that older managers are more conservative in risk-taking activities. Serfling (2014) argues that the CEO's age could significantly influence a company's risk-taking behavior and financial performance. Yim (2013) shows evidence that older CEOs make fewer acquisitions. Thus, age is a managerial characteristic that might affect certain corporate financial policies and performance.

Pfeffer (1983) documents that demographic characteristics affect individual behavior, belief, and decision-making. Among these characteristics, age and gender are clearly the most discernible. Moreover, unlike other demographic characteristics, age is dynamic in the sense that it encompasses individual experiences during people's lives. Consequently, as people age, a diverse set of factors would progressively shape their personalities (Medawar, 1952). Thus, aging would affect people's behavior, decision-making, information processing and usage, risk-taking, communication, thinking and commitment to work (Child, 1974; Rhodes, 1983; Taylor, 1975; Zenger and Lawrence, 1989). Furthermore, Stangor et al. (1992) find that age constitutes a basis for group categorization, independent of whether there are underlying attitudinal or behavioral differences. On top of this, Ferris et al. (1991) argue that "age plays a major role in establishing the social context in which organizational members interact" (p. 617). Wagner et al. (1984) focuses on members of boards of directors. Directors of similar age share similar

experiences, resulting in similar attitudes, beliefs, and opinions. They have also experienced the same historical events and social trends, which have influenced their life experiences and moral values. Thus, directors or managers of a similar age could be mentally connected and similarly minded thus able to communicate easily and efficiently with each other (Goergen, Limbach, and Scholz, 2015).

3.2.3 Why age gap?

According to Deloitte's third-quarter 2013 CFO Signals survey[4], to build a strong relationship with CEOs, "trust and communication that is open, honest and frequent" are the most important insights. An article from the Wall Street Journal notes that in the survey, "the most common words mentioned were communicate, align, trust and honest". It also notes that CFOs should be a "CEO's right hand" to fully "understand how he/she thinks about critical company issues". Thus, in this study we suggest that the communication between a company's CEO and CFO is crucially important.

Ideally, if we can measure the frequency and efficiency of the communication between a firm's CEO and CFO, things would be much easier. In reality, however, subjective measures such as communication is difficult. Earlier studies have shown that people who share demographic attributes communicate more frequently than those who do not (March and Simon, 1958 p167; Pfeffer, 1983). In this paper, we use the age difference between a company's CEO and CFO as a possible proxy for their communication efficiency. Our theoretical foundation is the similarity-attraction paradigm (Byrne, 1971; Riordan & Shore, 1997) which argues that individuals prefer to affiliate with persons whom they perceive to have similar demographic characteristics, including age. Previous studies have argued that such mutual attraction fosters

[4] http://deloitte.wsj.com/cfo/2013/10/17/cfos-advice-for-building-strong-ceo-relationships/, CFOs' Advice for Building Strong CEO Relationships

cooperation in teams and workgroups (Chattopadhyay, 1999; Hobman, Bordia, & Gallois, 2004; Pelled, Xin, & Weiss, 2001). Lawrence (1988) refers to such effects when she explains that employees of similar ages share comparable experiences and thus develop like attitudes and beliefs which, in turn, foster communication and cooperation. Also there is the homophily phenomenon (Byrne, 1971; Byrne and Griffitt, 1973). People prefer to communicate and interact with others that are similar to them. The reasoning behind this is that similarity ensures more affirmative feedback while limiting disagreements as well as the emergence of alternative opinions. Consequently, similarity between the CEO and the CFO can lead to more effective communication. Thus, the question in this study is the following: does the age gap between the CEO and the CFO affect firm financial policies and performance? We make the following hypotheses:

Hypothesis I: The age gap between the CEO and the CFO and a firm's financial performance are negatively correlated.

Hypothesis II: For high-tech industries, where communication frequency and efficiency are more important, the age gap effect will be more significant.

3.3 Data and Empirical Methodology

The data used in our study come from various sources. In order to investigate the effects from the age differences between the CEO and the CFO, we gather information on the S&P 1500 companies' fundamentals from Compustat, stock prices and returns data from The Center for Research in Security Prices (CRSP), and information about the CEO and the CFO from the ExecuComp and ISS (formerly RiskMetrics) databases. Because the Execucomp database starts in year 1992, we select our sample period from year 1992 to year 2011. We exclude utilities (SIC 4900 - 4999) and financial firms (SIC 6000 - 6999) because of the different regulatory

requirements and fundamentals. In the ExecuComp database, we first identify the CEO and the CFO using the variables *annual flag* for CEO or CFO. However, sometimes the annual flag is missing for the CFO. Specifically, ExecuComp does not report this annual flag variable for CFOs prior to year 2006. To correct for this issue, we use the annual job title for each executive and try to identify words related to "CFO" following previous studies. Specifically, if either "CFO", "Chief Financial Officer", or "Chief Finance Officer" is mentioned in the annual job title, we define the executive as the CFO and add the annual CFO flag if it is not currently present. There are few observations that have both the CEO and the CFO annual flags and we determine the right title by checking the annual job titles. When the title is also unavailable, we drop the observation for cautiousness. This process results in an unbalanced panel of 25,767 firm-year observations for 2,557 unique companies from year 1992 to year 2011. Since we are investigating the age gap between the CEO and the CFO, we exclude observations where age data are missing. In our sample, 24,453 firm-year observations have age information for the CEOs and 13,875 firm-year observations have age information for the CFOs. We then construct our main variable, i.e., the age gap variable, as the difference between the CEO's age and the CFO's age. There are 11,160 firm-year observations with available age gap variables and our control variables. Table 1 presents the summary statistics for the main variables used in our paper. We include the definitions for all of the variables in the Appendix. Notice that the mean CEO age is about 55.05 in years and that for the CFO is about 49.95, thus the mean age gap is about 5.10 years with a standard deviation of 8.64 years. We also retrieve the executives stock ownership data from Compustat. We use the percentage ownership as a control variable for executives' stakes in the company. As Table 1 shows, the mean percentage ownership for the two executives is very different. The mean ownership for the CEO is about 2.90% and that for

the CFO is only about 0.26%. To investigate firm valuation, we use a firm's Tobin's Q adjusted at the Fama French 48 industry level. In order to calculate adjusted Tobin's Q, we first calculate the industry median Tobin's Q for each Fama French 48 industry classification every year. Then we subtract the corresponding industry median Tobin's Q from each firm's Tobin's Q in that specific year. The mean Tobin's Q and the mean industry-adjusted Tobin's Q in our sample are 2.019 and 0.450, respectively. We also construct a dummy variable *Generation Gap*. It is equal to one if the CEO and the CFO are from different generations. To address the borderline problem in generation categorizations we mentioned before, we also construct a dummy variable *Age Gap 20.* It is set to one if the age difference between the CEO and the CFO is greater than 20. We use 20 years because in sociology literature, a difference of abount 20 years defines a generational gap (Strauss and Howe, 1997). We posit that if the CEO and the CFO are from different generations, there will be a generational gap making communication more difficult and less frequent (Bengtson, 1970; Myers and Sadaghiani, 2010; Zenger and Lawrence, 1989).

The main regression model in our paper is an ordinary least squares (OLS) model with fixed effects as follows:

$$y_{i,t} = \alpha + \beta_1 * Age\ Gap + \beta_2 * firm\ characteristics + \beta_3 * CEO/CFO\ characteristics + fixed\ effects\ (year,\ Industry, or\ firm) + \epsilon_{i,t}.$$

We use robust standard errors for every regression in this study. For the main dependent variables, we use the firm's Fama French 48 Industry median adjusted Tobin's Q to measure firm performances. Age gap is our primary measure for the age difference between the CEO and the CFO. For the CEO and CFO, it is a continuous variable which will be larger if the CEO is much older than the CFO. For firm characteristics, we include firm size (measured as the natural logarithm of total assets), compounded annual stock return for the past 12 months, financial leverage (total debt divided by total assets), and stock return volatility (the standard deviation of

daily stock returns over the past twelve months). For executive characteristics, we include age gap, CEO ownership, CFO ownership, CEO tenure, CFO tenure, gender gap (equals one if they are of different gender), CEO compensation, and CFO compensation. We also control for institutional ownership following previous literature.

3.4 Main Results

3.4.1 Age gap and firm performance

In Table 2, we present the regression results of our main model. In this table, the dependent variable is the industry median-adjusted Tobin's Q, where industry classification is based on the Fama-French 48 industry classifications. We find that the coefficient on our main independent variable *Age gap* is negative and statistically significant with at least a 5% level[5]. In the first model (Columns 1), we control for year fixed effects and industry fixed effects. In the second model (Columns 2) we control for year fixed effects and firm fixed effects. These results are consistent with our first hypothesis that the age gap between the CEO and the CFO and the firm's financial performance are negatively correlated. For example, in model (2), the coefficient on age gap is -0.006. Since our age gap measure is continuous, this coefficient means that if the age difference between the CEO and the CFO is 20 years larger, firm's adjusted Tobin's Q is 0.12 lower. The mean adjusted Tobin's Q in our sample is 0.45, thus 0.12 also has a significant economical meaning. This change is equal to 27% of the mean industry-adjusted Tobin's Q (-0.006 x 20 / 0.450 = -27% where 0.450 is the mean industry-adjusted Tobin's Q). As for the control variables, our results confirm those from previous studies. The coefficients on firm size and leverage are negative and statistically significant. Thus, they are negatively correlated with firm value (Bebchuk et al., 2009; Custodio and Metzger, 2014; Dittmann et al., 2010). In our

[5] In unreported table, we use an absolute value of the age gap and find very similar results regarding the statistical significance and the magnitude of coefficient. This is because there are fewer cases where age gap is negative, or the CFO is older than the CEO.

study, stock return and volatility are positively correlated to firm value. For executive ownership, we find that all coefficients are positive but not significant. The coefficient on CEO tenure is positive but only significant when we control for firm fixed effects. On the other hand, the coefficient on CFO tenure is negative and also significant when we control for firm fixed effects. The dummy variable gender gap shows no significance in determining firm performance. Both the CEO's and CFO's compensation have positive coefficients and are statistically significant in Column 2 with a 10% significance.

3.4.2 Generational gap and relative age gap

As an alternative to age-based analysis, we categorize each CEO and CFO in their respective generations based on when their birth year. In this study, we do not include Generation Y because there are too few observations. For our sample, each CEO and CFO belong to one of the three generations: the Traditional generation (Traditionalists), whose birth year ranges from year 1900 to year 1945, the Baby Boomer generation (Baby Boomers), whose birth year ranges from year 1946 to year 1964, and Generation-X (born from year 1965 to year 1980). We pair each CEO and CFO and present the statistics in Panel B of Table 1. Most of the CEO/CFO pairs are from the Baby Boomer generation. Table 3 shows our results for the generational gap and firm performance.

We construct a dummy variable *Generation Gap* which equals one if the CEO and the CFO are from different generations, meaning there is a generational gap between them. In order to control the situations where the executives are in different generations but both are on the borderline years (e.g., the CEO is a Traditionalist but was born in year 1945, and the CFO is a Baby Boomer but was born in year 1946), we use a different measure for generational gap, that is, a dummy variable *Age Gap > 20* which equals one when the age gap between the CEO and

the CFO is larger than 20 years. This construction follows previous sociology literature where a generational gap is defined by an age difference of about 20 years.

In model 1, we regress industry median-adjusted Tobin's Q on generational gap dummy and all our control variables. We find that the coefficient is negative and statistically significant for the generation gap dummy variable. In model 1 the coefficient is -0.094 and significant at a 5% significance level, meaning that if there is a generational gap between the CEO and the CFO, firm value tends to be lower. This is consistent with our hypothesis that age gap hinders effective and efficient communications between the CEO and the CFO. In model 2, we use our second dummy variable for the generational gap, that is, *Age Gap > 20*. Sociology studies show that people with at least a 20 years' difference in age will define a generational gap. The coefficient is more negative and significant than using the first generational gap dummy. In model 2, the coefficient on *Age Gap > 20* dummy is -0.184 and statistically significant with a 1% significance level. For each regression in generational gap tests, we also include year and firm fixed effects and use robust standard errors clustered at the Fama-French 48 industry level. We conclude that if there is a generation gap between the CEO and the CFO, firm value tends to be lower. This is consistent with our first hypothesis that the age gap between the CEO and the CFO and firm value are negatively correlated.

We next subset our sample into quartiles based on the age gap between the CEO and the CFO and construct dummy variables corresponding to each quartile. We posit that the age gap effects will be higher when the age gap is much larger, as the communication will be less efficient. Results in models 3 in Table 3 confirm our suggestions. The base quartile has the lowest age gap, where the age gap is smaller than -1. Quartile 2 has an age gap between -1 and 6. Quartile 3 has an age gap between 6 and 12. The age gap range for Quartile 4 is larger than 12.

All the coefficients on age gap quartile dummies are negative and statistically significant and their magnitudes are increasing in order. The coefficient on the last quartile is the largest in absolute value and most statistically significant. We test to see if the coefficients on each age gap quartile are equal and results show that the coefficients on age gap quartiles 2 and 4, and age gap quartiles 3 and 4 are not equal (p-values are 0.038 and 0.0614, respectively), but the coefficients on age gap quartiles 2 and 3 are not statistically significantly different with a p-value of 0.487.

We also confirm our results by using an alternative definition for the age gap between the CEO and the CFO. Specifically, it is possible that executive's age contributes our results rather than the age gap. To address this issue, we construct an alternative age gap between the CEO and the CFO as the age gap divided by the sum of the two executives' ages and redo our main test. Model 4 presents results using this alternative age gap measure. The coefficient on Relative age gap are negative and statistically significant. These results continue to confirm our hypothesis.

3.4.3 Underlying mechanisms: high-tech industries and young firms

Our evidence so far shows that the age gap among the CEO and the CFO has a negative impact on firm performance. We argue that age differences in the top two might deter efficient and timely communications in the top management team, which will be detrimental to the firm. If the inefficient or slow communications are possible underlying mechanisms through which this effect occurs, we may be able to observe stronger results in firms in which efficient top management communication and actions are key survival factors.

First, we examine whether the impact of the age gap on firm performance is stronger in the high-tech industries where more technical and efficient communications are essential (Zenger and Lawrence (1989)). The American Electronics Association uses 45 SIC codes to define the high-tech industries, falling into three broad categories, which include high tech manufacturing,

communications services, software and computer-related services. It does not include broad categories if the high-tech portion does not represent a clear majority. Also, the high-tech definition does not include some related industries, such as biotechnology, engineering services, and research and testing services. Following this definition, we construct a dummy variable high-tech industry which equals one if the firm's four-digit SIC code falls into the high-tech industry definition from the American Electronics Association. We present our regression results in Table 4. In column 1 of Table 4, the dependent variable is the industry median-adjusted Tobin's Q and the relevant independent variable is the interaction term between age gap and high-tech industry dummy variables. Consistent with our hypothesis, the interaction term between the age gap and high-tech industry dummy is negative and statistically significant with a 1% significance level. The coefficient in column 1 is -0.009 with 1% significance level. For high-tech companies, successful and fast innovation should be more important which would require better communications between managers. Thus, communications between the CEO and the CFO needs to be more efficient and more frequent. As the age gap between the CEO and the CFO becomes larger, communications between the two becomes more difficult, thus, a higher age gap and firm valuations are negatively correlated as evidenced in our test. Our results also shows some economic significance. The mean adjusted Tobin's Q in our sample is about 0.450, the -0.009 means the adjusted Tobin's Q would be 20% lower on average if the age gap between the CEO and the CFO is 10 years.

We also examine whether the results are stronger for firms in relatively early life cycle. As we mentioned before, newly established companies tend to have fewer capital resources to utilize. Instead, firms normally need to rely heavily on human capital, especially that of top managers. When the communication between managers becomes more efficient and frequent,

better financial performance should be expected. According to an article on Entrepreneur.com, one of the most important roles of a startup's CEO is to build teams[6]. To be successful at "team building", startup CEOs need to "actively solicit guidance from trusted members[7]". When the age gap between the CEO and the CFO is larger, less trust might lead to less effective communication which could destroy a startup firm's value. To address this issue, we construct a dummy variable *Young Firm*, which equals one if a firm's age is below the 25th percentile for all firm ages and zero if it is above the 25th percentile for all firm ages. In column 2 of Table 4, we run our main regression and add in this new indicator variable *Young firm* and the interaction term with our main variable *Age gap*. We find that the coefficient on the interaction term between age gap and young firm is negative (-0.006) and statistically significant at a 10% significance level. These results are consistent with our third hypothesis that when communications are more important, the effects from the age gap tend to be stronger.

3.5 Instrumental Variable Approach

The firm performance and the age gap can be jointly determined by unknown factors. To address this simultaneity problem, we use industry specific executive pool as our instrumental variable. We argue that executives' age diversity within each industry captures the supply side of executives in diverse age range. Table 5 reports results from the first and second stage regressions. *Executive age diversity (state)* is defined as the standard deviation of top 5 executives' ages within each FF 48 industry during the fiscal year. In the first stage, we regress our main variable *age gap* on our instrumental variable. Results show that *Executive age diversity (state)* is positively correlated with *Age gap*, which is consistent with our expectation. In the first stage regression, the F-statistic is 4.36, thus our instrument is not weak. We then

[6] The 6 Most Important Roles of a Startup CEO, April 15 2015, https://www.entrepreneur.com/article/244391
[7] 10 Approaches to Handle the Burden of Leadership, Dec 12, 2014, https://www.entrepreneur.com/article/240620

perform our second stage regression. We regress the instrumented age gap on industry median adjusted Tobin's Q. The coefficient on instrumented age gap is negative (-0.114), and statistically significant at 5% level, which is consistent with our results.

3.6 Corporate Policies

In this subsection, we investigate the relationship between age gap and other corporate financial policies. Specifically, we use *R&D Intensity*, measured as research and development expenses divided by total assets, *Capital Expenditure Intensity* (capital expenditure divided by total assets) and *Cash Holdings* (cash divided by total assets). Chauvin and Hirschey (1993) show that R&D expenditure has large, positive and consistent influence on the value of the firm. Chung, Wright, and Charoenwong (1998) show that announcements of increases (decreases) in capital expenditures positively (negatively) affect the stock prices of firms with valuable investment opportunities. Opler, Pinkowitz, Stulz, and Williamson (1999) document that firms with strong growth opportunities hold relatively high ratios of cash to total non-cash assets. They also find evidence that firms that do well tend to accumulate more cash than predicted by the static tradeoff model where managers maximize shareholder wealth. Based on these studies, we suggest that to be consistent with our findings above, the age gap between the CEO and the CFO should be negatively correlated with these corporate policies. We find consistent results in Table 6. The age gap has a negative correlation with R&D spending, capital expenditures, and corporate cash holdings. All results are statistically significant at least with a 10% level. When the age gap is larger, the CEO and the CFO may find it difficult to communicate effectively and efficiently.

3.7 Conclusion

In this study, we consider the age dissimilarity between a company's CEO and CFO as a measure of diversity. We investigate the effect on firm performance when the age gap between the CEO and the CFO is larger. Using ordinary least squares estimation method, we find that the age gap between the CEO and CFO has a negative effect on firm value. When the age gap is larger, the magnitude in firm value decrease will be higher. Moreover, among young firms where management communication and cooperation are most needed, the effect of the age gap is more negative and statistically significant. We also consider another measure of the age gap, that is, generational gap between the CEO and the CFO. When the CEO and the CFO are from different generations, firm value tends to be lower. Also, the age gap has a negative effect on firm R&D spending, capital expenditure, and firm cash holdings.

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Appendix

Variables	*Definition and Sources of data*
Age gap	CEO age minus CFO age: From ExecuComp
Generation gap	Indicator variable that equals one if the CEO and CFO are not in the same generation. Three generation terms are followed as Traditionalists (1900 – 1945), Baby Boomer (1946 –1964), and Generation-X (1965 – 1980): From ExecuComp
Age gap > 20	Indicator variable that equals one if Age Gap > 20: From ExecuComp
Age gap Quartile	Categorical variable that indicates the bottom quantile value if Age Gap < -1, the second quantile value if -1 <= Age Gap < 6, the third quantile value if 6 <= Age Gap < 12, and the top quantile value if Age Gap >= 12: From ExecuComp
Gender gap	Indicator variable that equals one if the CEO and CFO are not of the same gender: From ExecuComp
Abs. age gap	Absolute value of age gap between CEO and CFO: From ExecuComp
Stock return	Holding period stock return over the fiscal year: From CRSP
Log assets	Total Assets: From Compustat
Leverage	Book leverage: From Compustat
Stock volatility	Standard deviation of daily stock return for the past 12 months: From CRSP
Tobin's Q	Market value of assets divided by book value of assets: From Compustat
Ind. Adj. Tobin's Q	Market value of assets divided by book value of assets. The industry adjustment is made at the Fama-French 48 industry level by year and by subtracting the industry median (using all firms in Compustat) Tobin's from the firm's Tobin's Q: From Compustat
CEO turnover	Indicator variable that equals one if the CEO left the firm during the fiscal year: From ExecuComp
CFO turnover	Indicator variable that equals one if the CFO left the firm during the fiscal year: From ExecuComp
CEO Ownership	Percentage of common shares outstanding held by the CEO, including fully exercised stock options: From ISS
CFO Ownership	Percentage of common shares outstanding held by the CFO,

	including fully exercised stock options: From ISS
CEO Tenure	Number of years a CEO has served in the firm: ExecuComp
CFO Tenure	Number of years a CFO has served in the firm: ExecuComp
CEO Compensation	Consists of salary, bonus, the Black-Scholes value of option grants, restricted stock grants, long-term incentive payments and other annual compensation: From ExecuComp
CFO Compensation	Consists of salary, bonus, the Black-Scholes value of option grants, restricted stock grants, long-term incentive payments and other annual compensation: From ExecuComp
Executive age diversity (State)	Standard deviation of top 5 executives' ages within the each FF 48 industry during the fiscal year: From Compustat.
Institutional Holdings	Percentage ownership of institutional investors. Source: Risk Metrics and Thompson Financial.
Per. Ind. Directors	Percent of board members for whom this directorship is their only directorship: From ISS
Busy Board	Indicator variable equals one if a majority of the directors each holds 3 or more directorships: From ISS
Large Board	Indicator variable equals one if the number of directors on the board in the fiscal year exceeds the industry median number of directors.
R&D Intensity	Research and Development divided by total assets: From Compustat
Cap. Exp. Intensity	Capital Expenditure divided by total assets: From Compustat
Cash holdings	Cash and Cash Equivalent Holdings divided by total assets: Compustat
Young Firm	Indicator variable equals one if firm age is below the median for all firm ages and zero if firm age is above the median for all firm ages.
High Tech Industry	Indicator variable equals one if a firm's four digit SIC code falls into the high-tech industry definition from the American Electronics Association

Table 3. 1 Firm Level Summary Statistics

This table presents summary statistics for our sample. The sample consists of S&P 1500 firms from fiscal year 1992 to 2011. All variables are described in the Appendix.

Panel A	Count	Mean	Std. dev	Median
CEO Age	12,183	55.13	7.775	55
CFO Age	12,183	49.87	6.984	50
Age Gap	12,183	5.186	8.721	5
Generation Gap	12,183	0.369	0.483	0
Age Gap over 20	12,183	0.062	0.242	0
Age Gap Quantile	12,183	2.463	1.122	2
Gender Gap	12,183	0.100	0.300	0
Abs. Age Gap	12,183	8.148	6.048	7
CEO Compensation ($1,000)	12,183	4,571	9,472	2,420
CFO Compensation ($1,000)	12,183	1,593	2,181	997.9
CEO Ownership	12,183	0.032	0.081	0.004
CFO Ownership	12,183	0.002	0.0161	0.000
CEO turnover	8,628	0.086	0.281	0
CFO turnover	8,628	0.254	0.435	0
Tobin's Q	11,631	2.019	1.511	1.595
Adjusted Tobin's Q	11,631	0.438	1.421	0.086
Log Assets	11,631	7.088	1.514	6.918
Stock Return	11,631	0.037	0.506	0.085
Market to Book	11,631	4.252	54.43	2.367
Leverage	11,631	0.140	0.143	0.105
Stock volatility	11,631	0.110	0.122	0.069
R&D Intensity	7,602	0.050	0.069	0.024
Cap. Exp. Intensity	7,602	0.093	2.690	0.038
Financial Leverage	7,602	0.471	0.253	0.465
Cash holdings	7,602	0.189	0.186	0.124
Per. Ind. Directors	9,058	0.715	0.164	0.750
Busy Board	9,058	0.172	0.377	0
Large Board	9,058	0.364	0.481	0

Panel B		CFO Generation		
		Traditionalists *1900 - 1945*	Baby Boomer *1946 -1964*	Generation-X *1965 – 1980*
CEO Generation	Traditionalists *1900 - 1945*	1,332	2,734	178
	Baby Boomer *1946 -1964*	535	7,119	1,161
	Generation-X *1965 – 1980*	6	333	120

Table 3. 2 Age Gap and Firm Valuation

This table reports the estimated coefficients from the OLS regressions of age gap between the CEO and the CFO on firm financial performance. The dependent variable is a firm's adjusted Tobin's q which is calculated as firm's Tobin's adjusted at the Fama-French 48 industry level by year and by industry median Tobin's Q. Age gap is CEO's age minus CFO's age in the fiscal year. Column 1 includes year fixed effects and industry fixed effects. Column 2 includes year fixed effects and firm fixed effects. We define all other independent variables in the Appendix. We include t-statistics in parentheses. Statistical significance at the 1%, 5%, and 10% level is indicated by ***, **, and *, respectively.

	(1)	(2)
Dependent variable	Adjusted Tobin's Q	Adjusted Tobin's Q
Age gap	-0.006***	-0.006***
	(-2.68)	(-2.84)
Firm size	-0.134***	-0.339***
	(-4.82)	(-5.28)
Stock return	0.842***	0.730***
	(6.20)	(6.20)
Leverage	-2.510***	-1.417***
	(-14.58)	(-11.00)
Volatility	1.150***	0.742***
	(3.49)	(3.02)
CEO ownership	0.223	0.517
	(1.08)	(1.51)
CFO ownership	1.740	1.401
	(0.69)	(1.14)
CEO tenure	0.012	0.055**
	(0.43)	(2.43)
CFO tenure	-0.039	-0.037***
	(-1.57)	(-2.92)
Gender gap	-0.004	0.043
	(-0.06)	(0.55)
Log CEO compensation	0.040	0.046*
	(1.52)	(1.88)
Log CFO compensation	0.172***	0.044*
	(4.86)	(1.80)
Institutional Holdings	0.056	0.027
	(0.62)	(0.39)
Year FE	Yes	Yes
Industry FE	Yes	No
Firm FE	No	Yes
Observations	11,160	11,160
R-squared	0.2102	0.6587

Table 3. 3 Generational Gap and Relative Age Gap

This table shows the estimated coefficients from OLS regressions of age gap between the CEO and the CFO on firm's performance. Adjusted Tobin's Q is firm's Tobin's Q adjusted at the Fama-French 48 industry level by year and by subtracting the industry median Tobin's Q from the firm's Tobin's Q. Age gap is CEO's age minus CFO's age in the fiscal year. Generation gap is an indicator variable that equals one if the CEO and CFO are not in the same generation. Three generations terms are followed as Traditionalists (1900 – 1945), Baby Boomer (1946 –1964), and Generation-X (1965 – 1980). Age gap > 20 is an indicator variable that equals one if Age Gap > 20. Age Gap Quartile is a categorical variable that indicates the bottom quartile value if Age Gap < -2, the second quartile value if -1 < Age Gap < 6, the third quartile value if 6 < Age Gap < 12, and the top quartile value if Age Gap > 11. We define all other independent variables in the Appendix. We include t-statistics in parentheses. Statistical significance at the 1%, 5%, and 10% level is indicated by ***, **, and *, respectively.

Dependent variable	(1) Adjusted Tobin's Q	(2) Adjusted Tobin's Q	(3) Adjusted Tobin's Q	(4) Adjusted Tobin's Q
Generation gap	-0.094**			
	(-2.28)			
Age gap > 20		-0.184***		
		(-2.71)		
Age Gap Quartile 2			-0.057	
			(-1.32)	
Age Gap Quartile 3			-0.088*	
			(-2.02)	
Age Gap Quartile 4			-0.194***	
			(-3.33)	
Relative Age Gap				-0.612***
				(-2.77)
Firm size	-0.340***	-0.339***	-0.337***	-0.339***
	(-5.36)	(-5.37)	(-5.30)	(-5.29)
Stock return	0.731***	0.730***	0.730***	0.730***
	(6.19)	(6.19)	(6.21)	(6.20)
Leverage	-1.412***	-1.414***	-1.414***	-1.420***
	(-10.71)	(-10.78)	(-10.92)	(-11.05)
Volatility	0.740***	0.745***	0.743***	0.742***
	(3.03)	(3.05)	(3.00)	(3.02)
CEO ownership	0.509	0.540	0.521	0.509
	(1.53)	(1.56)	(1.55)	(1.48)
CFO ownership	1.530	1.477	1.414	1.416
	(1.27)	(1.22)	(1.15)	(1.15)
CEO tenure	0.041**	0.044**	0.060**	0.053**
	(2.11)	(2.27)	(2.66)	(2.33)
CFO tenure	-0.037***	-0.038***	-0.038***	-0.037***
	(-2.90)	(-2.97)	(-2.91)	(-2.91)
Gender gap	0.033	0.034	0.046	0.044

	(0.42)	(0.43)	(0.58)	(0.56)
Log CEO compensation	0.047*	0.045*	0.046*	0.047*
	(1.94)	(1.90)	(1.87)	(1.89)
Log CFO compensation	0.045*	0.045*	0.044*	0.044*
	(1.87)	(1.84)	(1.82)	(1.80)
Institutional Holdings	0.025	0.022	0.027	0.027
	(0.37)	(0.32)	(0.39)	(0.39)
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Observations	11,160	11,160	11,160	11,160
R-squared	0.6586	0.6586	0.6590	0.6586

Table 3. 4 High-Tech Industry and Firm Age

This table shows estimated coefficients from OLS regressions of age gap between the CEO and the CFO on a firm's performance in high-tech industry and when firm is younger. Adjusted Tobin's Q is made at the Fama-French 48 industry level by year and by subtracting the industry median Tobin's Q from the firm's Tobin's Q. Age gap is CEO's age minus CFO's age in the fiscal year. High-tech ind is a dummy variable equaling one if a firm's four digit SIC code falls into the high-tech industry definition from the American Electronics Association. Young firm is an indicator variable equals one if firm age is below the 25th percentile for all firm ages and zero otherwise. All control variables in Table 2 are included in the analysis. We define all other independent variables in the Appendix. T-statistics are shown in parentheses. Statistical significance at the 1%, 5%, and 10% level is indicated by ***, **, and *, respectively.

	(1)	(2)
Dependent variable	Adjusted Tobin's Q	Adjusted Tobin's Q
Age gap	-0.004**	-0.003
	(-1.96)	(-1.39)
High-tech industry	0.186**	
	(2.04)	
Age gap * High-tech industry	-0.009***	
	(-2.84)	
Young firm		-0.005
		(-0.07)
Age gap * Young firm		-0.006**
		(-1.96)
Controls	Yes	Yes
Year FE	Yes	Yes
Firm FE	Yes	Yes
Observations	11,160	11,160
R-squared	0.6587	0.6588

Table 3. 5 2SLS regressions

This table shows the results of the two stage least squares regressions of age gap between the CEO and the CFO on a firm's performance. Adjusted Tobin's Q is the dependent variable which is the market value of assets divided by book value of assets. The industry adjustment is at the Fama-French 48 industry level by year and by subtracting the industry median Tobin's Q from the firm's Tobin's Q. Executive age diversity (State) is the standard deviation of top 5 executives' ages within the each FF 48 industry during the fiscal year. All control variables in Table 2 are included. We define all other independent variables in the Appendix. Clustered standard errors are at the Fama-French 48 industry level and t-statistics are shown in parentheses. Statistical significance at the 1%, 5%, and 10% level is indicated by ***, **, and *, respectively.

	(1)	(2)
	First stage	Second stage
Dependent variable	Age gap	Tobin's Q
Executive age diversity (State)	0.490**	
	(2.09)	
Instrumented age gap		-0.114**
		(-2.28)
Controls	Yes	Yes
Year fixed effects	Yes	Yes
Firm fixed effects	Yes	Yes
Observations	11,160	11,160
R-squared	0.1552	0.2062
F-statistic for the weak IV test: 4.36		

Table 3. 6 Corporate Policies

This table shows the estimated coefficients from OLS regressions of age gap between CEO and CFO on firm policies. R&D Intensity is the research and Development divided by total assets. Cap. Exp. Intensity is the Capital Expenditure divided by total assets. Cash holdings is cash and cash Equivalent holdings divided by total assets. Age Gap is CEO age minus CFO age in the fiscal year. All control variables in Table 2 are included. We define all other independent variables in the Appendix. Standard errors are clustered at the Fama-French 48 industry and t-statistics are shown in parentheses. Statistical significance at the 1%, 5%, and 10% level is indicated by ***, **, and *, respectively.

VARIABLES	(1) R&D intensity	(2) Capital Exp. intensity	(3) Cash holdings
Age gap	-0.001***	-0.003*	-0.001*
	(-3.44)	(-1.77)	(-1.70)
Log assets	-0.018***	0.135	-0.021***
	(-3.78)	(1.03)	(-4.12)
Stock return	-0.006***	-0.104	-0.014***
	(-2.89)	(-0.73)	(-8.46)
Leverage	-0.025*	-1.033	-0.141***
	(-1.94)	(-1.49)	(-8.22)
Stock volatility	0.011	1.457	-0.028**
	(0.86)	(1.30)	(-2.28)
CEO ownership	-0.012	0.289**	0.023
	(-0.73)	(2.15)	(0.95)
CFO ownership	0.063	-0.677	-0.159
	(1.21)	(-0.42)	(-0.94)
Gender gap	0.001	0.012	0.001
	(0.91)	(0.61)	(0.41)
Log CEO tenure	0.001*	-0.012	-0.003***
	(1.73)	(-0.41)	(-2.79)
Log CEO tenure	-0.003	-0.200	0.011
	(-1.11)	(-1.18)	(1.56)
Institutional Holdings	-0.001	0.075	-0.000
Constant	0.182***	-0.423	0.266***
	(5.40)	(-0.72)	(6.92)
Year FE	Yes	Yes	Yes
Firm fixed FE	Yes	Yes	Yes
Observations	7,092	11,101	11,158
R-squared	0.0784	0.0061	0.0609