Do Independent Director-Affiliated Donations Affect Stock Price Crash Risk?

ABSTRACT

This paper investigates whether and how independent director-affiliated corporate donations affect stock price crash risk. Using a sample of 18,389 firm-year observations for 3,206 unique Chinese firms over the 2010-2020 period, we document a significant positive relationship between affiliated corporate donations and future stock price crash risk, even after controlling for various firm characteristics and after addressing potential endogeneity concerns. On average, a one-standard-deviation increase in affiliated donations can lead to a 11.47% increase in future crash risk. Further analysis shows that the positive relation between affiliated corporate donations and future stock price crash risk is more significant for firms with weak corporate governance and severe information asymmetry. In addition, we find that affiliated donations lead to better meeting attendance records but reduced monitoring effectiveness of affiliated independent directors. Overall, our study highlights the important role of affiliated donations in shaping the independence status and monitoring incentives of independent directors.

JEL Classification: G12, G34, J33, M52

Keywords: Independent Directors, Affiliated Corporate Donations, Stock Price Crash Risk, Corporate Governance, China

1. INTRODUCTION

Commonly regarded as corporate watchdogs, the essential roles played by independent directors have long been recognized (e.g., Fama and Jensen, 1983). The Securities and Exchange Commission (SEC) defines directors' independence status based primarily on their (or their immediate family members') employment and financial ties with the firm. However, independent directors may have other indirect connections to the firm that may interfere with their independence. They may have worked together with the CEO of the firm in the past, graduated from the same MBA program, or socially connected outside of their employment networks. There is an expanding body of literature on these indirect ties.

Despite the growing attention, the evidence is still limited and inconclusive. On the one hand, many empirical studies document a negative impact of director-executive ties on corporate governance. For example, Fracassi and Tate (2012) find that the network connections between management and directors tend to weaken the intensity of board monitoring and reduce firm value. Balsam et al. (2017) show that indirect connections between the CEO and independent board members are associated with higher CEO compensation and reduced involuntary CEO turnover. Souther (2018) indicates that internal board networks negatively affect corporate governance and overall monitoring quality. Khedmati et al. (2020) find that CEO-director ties through prior employment, education, and social connections lead to inefficient labor investment and are detrimental to shareholder value. Cai et al. (2021) show that independent director-affiliated corporate donations impair independent directors' monitoring incentives. On the other hand, Schmidt (2015) finds that social ties between the CEO and board members are associated with higher takeover returns when the advising needs are high. Consistent with Schmidt (2015), Hoitash (2011) shows that social ties between independent board members and management tend to add value when the advising role is

essential, because social ties can increase trust and information sharing between management and independent directors. Hoitash and Mkrtchyan (2022) indicate that social connections between non-CEO executives and outside directors are associated with improved internal governance. While these previous studies have generated valuable insights on how various director-executive ties affect internal governance and firm performance, the evidence is limited and inconclusive. Our study adds to this limited body of research.

Motivated by but different from Cai et al. (2021), this paper examines the impact of independent director-affiliated corporate donations on stock price crash risk. As Cai et al. (2021) point out in their study, corporate charitable donations to tax-exempt organizations affiliated with independent directors (i.e., affiliated donations) are large and mostly undetected due to the lack of formal disclosure. Because affiliated donations help fulfill directors' fundraising obligations at their affiliated non-profit organizations, such activities create a conflict of interest and are likely to affect independent directors' monitoring incentives and various corporate governance measures (Cai et al., 2021). Theoretically speaking, there are at least two opposing views on how affiliated donations may affect stock price crash risk. One view is motivated by the resource dependence perspective. Independent directors usually undertake the job on a part-time basis and they often serve on multiple boards (Hauser, 2018; Chen and Guay, 2020). As such, they may be too busy to fulfill their duties, leading to ineffective monitoring and advising. Affiliated donations can alleviate this problem by releasing independent directors from their fundraising duties at the foundations that they are affiliated with. In addition, donation-based ties may help facilitate better communication and mitigate information asymmetry between management and outside directors. Therefore, affiliated donations may lead to lower stock price crash risk. The other view is motivated by the agency perspective. Independent directors are expected to be fully independent and serve as watchdogs of

management. The director-management ties built through affiliated donations may largely impair the monitoring incentives of independent directors (Cai et al., 2021). Thus, affiliated donations may also lead to higher stock price crash risk due to less effective monitoring.

We focus on the Chinese context to examine whether and how independent director-affiliated corporate donations affect stock price crash risk for three reasons. First, unlike most western countries, China is more of a "relation-based" rather than "rule-based" society. In a society that values immensely on personal relationships, we should expect more significant impact of director-executive ties (affiliated donations in the context of this study) on various corporate governance measures. Second, the Chinese stock market is more volatile relative to developed capital markets, which provides us with an ideal laboratory in investigating how affiliated donations affect stock price crash risk. Lastly, as a typical relation-based society and the largest emerging economy in the world, the Chinese context may also enable researchers to better understand the evolution of other emerging economies and relation-based societies around the world.

Drawing on a panel sample of hand-collected affiliated donations data consisting of 3,206 firms over the period from 2010 to 2020, we document evidence consistent with the agency perspective that independent director-affiliated corporate donations significantly impair the monitoring effectiveness of independent directors, resulting in higher stock price crash risk. Our results are robust even after controlling for various influential firm characteristics documented in the empirical literature. On average, a one-standard-deviation increase in affiliated donations can lead to an increase of 11.47% in future stock price crash risk. Our results are robust to alternative crash risk measures and different endogeneity tests and are unlikely to be driven by other alternative explanations. Further investigation indicates that the positive relation between affiliated corporate donations and stock price crash risk is more

significant for firms with weak corporate governance and severe information asymmetry. In addition, we find that affiliated donations lead to better meeting attendance and more management-friendly behavior of independent directors.

This study contributes to the literature in many aspects. First, it complements and extends prior research on affiliated donations as an important channel through which independent directors' monitoring incentives can be compromised (Cai et al., 2021). Second, despite the substantial body of literature on board independence, it is still unclear whether board independence helps mitigate firm risk and whether the relationship is moderated by various director-executive ties. This study highlights independent director-affiliated donations as an important determinant of stock price crash risk. Finally, this study adds to the emerging literature of corporate social responsibility (CSR). Over the past decade, the concept of CSR has made substantial inroads to becoming a mainstream practice, resulting in a remarkable surge of corporate charitable donations. However, the CSR literature does not differentiate between affiliated and unaffiliated donations. Because affiliated donations have a material impact on the dependence of outside directors, they should merit special attention. In addition to its contributions to the academic literature, our study also offers important practical implications. Given that independent director-affiliated corporate donations play a significant role in shaping the monitoring effectiveness of outside directors, special attention must be paid to such activities. Moreover, regulators should mandate the disclosure of affiliated donations. Such disclosure would help inform shareholders about independent directors' potential conflicts of interest, leading to a more accurate understanding of director independence.

The remainder of the paper is organized as follows. Section 2 reviews the literature and develops our testing hypotheses. Section 3 describes the data and methodology. Section 4 empirically uncovers the link between affiliated donations and stock price crash risk, addresses

endogeneity concerns, and rules out alternative explanations. Section 5 further examines how affiliated donations affect stock price crash risk, with a special focus on the moderating roles of corporate governance and information transparency. Section 6 concludes.

2. RELATED LITERATURE AND HYPOTHESIS DEVELOPMENT

Stock price crash risk has been a subject of extensive research in the literature. Based on a model with incomplete transparency and stock price informativeness, Jin and Myers (2006) find that stock price crashes when accumulated negative firm-specific information suddenly becomes publicly available. Following Jin and Myers (2006), the empirical literature has identified numerous determinants of stock price crash risk, including agency problems (Kim et al., 2011a; Kim et al., 2011b; Callen and Fang, 2015), information transparency (Hutton et al., 2009; Kim and Zhang, 2014; DeFond et al., 2015), governance mechanism (Callen and Fang, 2013; An and Zhang, 2013; Xu et al., 2013; Zhang et al., 2016; Lobo et al., 2020), social factors (Li and Chan, 2016; Li et al., 2017), and CEO characteristics (Kim et al., 2011b; Kim et al., 2016; Andreou et al., 2017). Our study explores the determinants of stock price crash risk from a complementary and unique perspective. In particular, we examine whether and how independent director-affiliated corporate donations affect stock price crash risk.

The importance of corporate boards as a key governance mechanism has long been recognized in agency theory, and independent directors are particularly important for the effective functioning of the board (Fama and Jensen, 1983). Consistent with the agency perspective, the positive link between board independence and corporate outcomes has been widely documented (e.g., Byrd and Hickman, 1992; Cotter et al., 1997; Dahya et al., 2008; Aggarwal et al., 2009). More recently, several studies provide additional empirical support for the value of independent directors by isolating the impact of independent directors. For

example, Nguyen and Nielsen (2010) investigate stock price reactions to sudden deaths of independent directors and confirm the positive contributions of independent directors to shareholder value. Masulis and Zhang (2019) exploit exogenous events that substantially distract independent directors and find a negative link between distracted independent directors and firm value/performance. Quan and Zhang (2021) examine the impact of corporate relocation events on the monitoring effectiveness of independent directors and find that firms with more distant independent directors are more likely to engage in earnings management and other opportunistic behaviors.

More recently, an emerging stream of literature explores the value of independent directors by focusing more closely on a particular subset of independent directors with various informal ties to management. For example, previous studies find that director independence is affected by employment ties (Fracassi and Tate, 2012; Balsam et al., 2017), educational ties (Souther, 2018; Khedmati et al., 2020), and social ties (Hwang and Kim, 2009; Schmidt, 2015) to the CEO as well as other corporate executives. In addition, Coles et al. (2014) show that co-opted independent directors are less effective in monitoring. Attention has also been paid to independent directors who have expressed overly positive assessments of the firm as sell-side analysts previously (Cohen et al., 2012). Along the same line of research, Cai et al. (2021) find that corporate donations affiliated with independent directors tend to impair independent directors' monitoring incentives. Motivated by but different from Cai et al. (2021), we examine the role of independent director-affiliated corporate donations in determining stock price crash risk.

Theoretically speaking, affiliated donations can affect stock price crash risk in two different ways. On the one hand, affiliated donations can reduce stock price crash risk through more effective advising, better communication, and mitigated information asymmetry.

Independent directors usually undertake the job on a part-time basis and they often serve on multiple boards (Hauser, 2018; Chen and Guay, 2020). As such, they may be too busy to fulfill their duties, leading to ineffective monitoring and advising. Affiliated donations can alleviate this problem by releasing independent directors from their fundraising duties at the foundations that they are affiliated with. This argument is in line with the resource dependence theory. In addition, firms can establish social ties with independent directors through affiliated donations, leading to increased information sharing (Adams and Ferreira, 2007). As they point out in their study, corporate boards serve two primary roles, namely, the advising role and the monitoring role, and a management-friendly, less independent board may be optimal when the advising role is more critical. Consistent with the information sharing view, Cao et al. (2015) find that independent directors who are socially connected to their firms' senior executives earn significantly higher returns than unconnected independent directors in stock sales transactions. Therefore, affiliated donations may result in more effective advising and mitigated information asymmetry between management and outside directors, leading to reduced stock price crash risk.

On the other hand, affiliated donations may lead to increased stock price crash risk. One argument is that affiliated donations would make independent directors less independent, and thus impair their monitoring incentives and effectiveness. Previous studies document evidence supporting this argument. For example, Carcello et al. (2011) find that CEO involvement in the director selection process reduces the effectiveness of the audit committee. Using a sample of S&P 1500 firms, Fracassi and Tate (2012) show that network ties between independent directors and the CEO tend to weaken the intensity of board monitoring. Khanna et al. (2015) find that appointment-based connections in executive suites and boardrooms increase the risk of corporate fraud. Khedmati et al. (2020) examine the impact of CEO-director ties on labor

investment efficiency. Using an aggregate measure of CEO-director ties, they find that CEOs who have strong ties with independent board members are associated with inefficient labor investment. Zaman et al., (2021) examine the effect of co-opted boards on corporate misconduct and find that firms with more co-opted directors experience a greater number of financial penalties and associated costs. These studies suggest that affiliated donations may largely weaken the monitoring effectiveness of independent directors, and hence, result in increased stock price crash risk.

Because no definite conclusion can be drawn regarding the relationship between affiliated donations and stock price crash risk, we construct two competing hypotheses, where *H1a* underscores the advising role of independent directors and *H1b* highlights the monitoring role of independent directors:

H1a. All else being equal, independent director-affiliated corporate donations are negatively associated with stock price crash risk.

H1b. All else being equal, independent director-affiliated corporate donations are positively associated with stock price crash risk.

Observing a significant relationship between affiliated donations and stock price crash risk, a natural question to ask is how, and through which channel, affiliated donations affect stock price crash risk. To address this question, we further examine the moderating influences of corporate governance and information transparency on the relationship between affiliated donations and stock price crash risk. If affiliated donations affect stock price crash risk through the monitoring role of independent directors, the internal governance and information transparency of the firm should play a significant role in shaping the relationship between affiliated donations and stock price crash risk. Because good corporate governance and information transparency can largely mitigate agency problems (Jensen and Meckling,1976;

Watts, 1986), the relationship between affiliated donations and stock price crash risk should be more pronounced for firms with weak corporate governance and poor information transparency if affiliated donations indeed impair the monitoring effectiveness of independent directors. Moreover, Jin and Myers (2006) show that corporate transparency or information opacity helps predict stock price crashes because accumulated negative firm-specific information can suddenly become publicly known. Empirically, a large number of empirical studies have documented the links between stock price crash risk and various firm attributes relating to corporate information environment (e.g., Hutton et al., 2009; Kim and Zhang, 2016; Kim et al., 2016; Kim et al., 2019). These studies also suggest that the relationship between affiliated donations and stock price crash risk should be more significant in an environment with low information transparency.

To examine whether affiliated donations affect stock price crash risk through monitoring, we develop the following hypotheses to test the moderating roles of corporate governance and information transparency:

H2. The relationship between affiliated donations and stock price crash risk is more pronounced for firms with weak corporate governance.

H3. The relationship between affiliated donations and stock price crash risk is more pronounced for firms with less information transparency.

For a more in-depth analysis, we further explore the direct impact of affiliated donations on the behavior of independent directors. Obviously, it is important for independent directors to attend the board meetings and to express their opinions on behalf of shareholders. However, because independent directors usually undertake the job on a part-time basis and often have directorship on multiple boards (Hauser, 2018; Chen and Guay, 2020), independent directors are often too busy to fulfill their duties. The potential upside of affiliated donations is to release

independent directors from their fundraising duties at the foundations so that they can focus more on the firms where they serve as independent directors. However, the downside is that this form of social connections is likely to make independent directors less independent, impairing their role as watchdogs. The following hypotheses are derived to test the direct impact of affiliated donations on the behavior of independent directors, where *H4* focuses on the impact of affiliated donations on the advising role of independent directors and *H5* focuses on the impact of affiliated donations on the monitoring role of independent directors:

H4. In the presence of affiliated donations, independent directors are more likely to fulfill their advising duties and to devote more time to attending board meetings.

H5. In the presence of affiliated donations, independent directors are less likely to fulfill their monitoring duties and to express non-affirmative opinions at the board meetings.

3. DATA AND METHODOLOGY

3.1 Data and Sample

We hand-collect donation data from three sources: the official websites of 4,290 different foundations, financial statements of all A-share listed firms, and the official website of CNINFO[1]. We compile a dataset which includes detailed information on a total of 86,454 donation records with a minimum donation of 0.5 million RMB over the 2010-2020 period. To gain additional confidence, we also cross-check our donation data with CNRDS (Chinese Research Data Services Platform)[2], which provides information on a smaller number of 19,113 corporate donations over the 2010-2019 period.

We use the following two-step procedure to identify the link between donations and

[1] CNINFO (cninfo.com.cn) is the platform designated by the Shenzhen Stock Exchange for listed firms to disclose information.
[2] CNRDS is an open platform providing high-quality data for academic research. See more details at https://www.cnrds.com.

listed firms: First, we obtain top management team information on 4,290 foundations from CNRDS, and we collect independent director information on all A-share listed firms from CSMAR (China Stock Market & Accounting Research Database). In cases where managerial information on foundations is incomplete or missing in CNRDS, we manually correct the information from three sources: the website of foundation center,[3] the official website of "Charity in China",[4] and the official websites of individual foundations. Second, following Wasi and Flaaen (2015) and Cai et al. (2021), we rely on a fuzzy matching procedure augmented with human checking to merge our donation data with listed firms. More specifically, we search among the universe of publicly listed firms, their subsidiaries, and joint venture firms where donating firms have significant equity shareholdings (more than 10%) to influence corporate decisions. After these processes, we identify a total of 19,836 donations made by 2,866 publicly listed firms, among which we identify 1,028 affiliated donations made by 527 listed firms.

We construct our empirical sample using the following procedures. First, we start with all A-share firms listed in the Shenzhen Stock Exchange and the Shanghai Stock Exchange over the 2010-2020 period. Second, we identify whether these firms make donation contributions to the foundations using our hand-collected donation data, either in the name of these listed firms themselves, their subsidiary, or their joint venture partners. Third, we use financial data from CSMAR to construct our dependent and independent variables. Following the literature, we exclude financial firms and firms with fewer than 30 trading weeks of stock return data in a year (Xu et al., 2014). We also require firms to have all necessary information required for our empirical analysis. Our final sample includes 18,389 firm-year observations

[3] The website of foundation center can be accessed through http://www.foundationcenter.org.cn.
[4] The official website of Charity in China can be accessed through https://cszg.mca.gov.cn.

for 3,206 unique firms over the 2010-2020 period. In our sample, 2,005 independent directors are identified as being affiliated with foundations in the year corporate donations are made.

Table 1 presents the distribution of our sample by year (Panel A) and by industry (Panel B). As indicated in Panel A, our final sample includes 1,028 affiliated donations over the sample period, ranging from the lowest number of donations of 55 in 2010 to the highest number of donations of 170 in 2020. The average proportion of firms with affiliated donations is 5.59%, ranging from the lowest of 4.35% in 2017 to the highest of 7.28% in 2014. An interesting finding in Panel B is that transportation is the most represented industry in our sample, with a total of 11,903 (64.73%) firm-year observations, suggesting that firms in the transportation industry are more likely to make charitable donations in China. Healthcare and education sectors are the two least represented industries, with 47 and 18 firm-year observations, respectively.

*** *Insert Table 1 about here* ***

3.2 Measuring Affiliated Donations

We follow Cai et al. (2021) in measuring variables associated with affiliated donations. In particular, *Tie* is measured as a dummy variable, which equals 1 if a firm donates to at least one foundation affiliated with one or more of its independent directors in a given year and 0 otherwise. The amount of affiliated donations (*Amount*) is calculated by the natural logarithm of 1 plus all donations (>=0.5 million) made to the foundations affiliated with a firm's independent directors in a given year.

3.3 Measuring Stock Price Crash Risk

Following the prior literature (Kim and Zhang, 2016; Kim et al., 2011a, 2011b), we

construct two widely-used measures of stock price crash risk. For both measures, we first use weekly stock returns to estimate the following regression model:

$$r_{j,k} = \alpha + \beta_{1j} r_{m,k-2} + \beta_{2j} r_{m,k-1} + \beta_{3j} r_{m,k} + \beta_{4j} r_{m,k+1} + \beta_{5j} r_{m,k+2} + \varepsilon_{j,k} \quad (1)$$

where $r_{j,k}$ is the stock return for firm *j* in week *k*; $r_{m,k-2}$, $r_{m,k-1}$, $r_{m,k}$, $r_{m,k+1}$, and $r_{m,k+2}$ are market returns in week *k*-2, *k*-1, *k*, *k*+1, and *k*+2, respectively; $\varepsilon_{j,k}$ is the residual for firm *j* in week *k*. We compute $W_{j,k}$, the firm-specific weekly return for firm *j* in week *k*, using the natural logarithm of 1 plus the residual term $\varepsilon_{j,k}$:

$$W_{j,k} = ln(1 + \varepsilon_{j,k}) \quad (2)$$

The first measure of stock crash risk is the negative conditional return skewness (*NCSKEW*) proposed by Chen et al. (2001), which has been used by many follow-up studies. *NCSKEW* of a given firm in a given year is calculated using the following equation:

$$NCSKEW_{j,t} = -\left[n(n-1)^{3/2} \sum W_{j,k}^3\right] / \left[(n-1)(n-2)(\sum W_{j,k}^2)^{3/2}\right] \quad (3)$$

where *n* is the number of trading weeks for firm *j* in year *t*. A higher value of *NCSKEW* means a stock is more "crash prone".

The second measure is the down-up volatility (*DUVOL*), which aims to capture the asymmetric volatility between negative and positive firm-specific weekly returns, calculated as follows:

$$DUVOL_{j,t} = log\{\left[(n_u - 1) \sum_{Down} W_{j,k}^2\right] / \left[(n_d - 1) \sum_{Up} W_{j,k}^2\right]\} \quad (4)$$

where n_u and n_d are the number of up and down weeks, respectively. A higher value of *DUVOL* indicates a greater level of crash risk.

3.4 Control Variables

Following previous studies (Chen et al. 2001; Kim et al., 2011a; Kim et al., 2012; Li and Zeng, 2019; Xu et al., 2020; Wu and Lai, 2020; Fang et al., 2021; Hoitash and Mkrtchyan,

2022), we consider a number of control variables in our regression analysis. We include firm-specific weekly returns over the previous year (*RET*), standard deviation of firm-specific weekly returns over the previous year (*SIGMA*), and lagged *NCSKEW* because Chen et al. (2001) show that -these variables can affect the skewness of stock prices. Following Kim et al. (2011a) and Kim et al. (2012), we also include firm size (*SIZE*), leverage (*LEV*), and profitability (*ROA*). We consider research and development expenditure (*RDratio*) in our empirical analysis because Wu and Lai (2020) show that firms with intensive intangible assets can affect stock price crash risk through increased information asymmetry. In addition, we take into account other firm characteristics such as negative earnings (*LOSS*), state ownership (*SOE*), institutional ownership (*INS*), the de-trended average monthly stock turnover (*TURNOVER*), the free cash flow to total asset ratio (*Cashflow*), and auditor reputation (*Big4*). We further include a number of board characteristics as additional controls, such as CEO duality (*Duality*), busyness of independent directors (*BusyDirector*), board independence (*IndDirector*), and board size (*Boardsize*), because previous studies show that these board characteristics affect the monitoring effectiveness of outside directors (Hoitash and Mkrtchyan, 2022). To minimize potential impacts arising from unobservable factors, we also control for potential year and firm fixed effects. Appendix A provides a full list of variables used in this study and their definitions.

3.5 Methodology

To examine the empirical relation between affiliated donations and stock price crash risk, we conduct the following regression:

$$NCSKEW_{j,t+1}(or\ DUVOL_{j,t+1}) = \beta_0 + \beta_1 Tie_{j,t}(or\ Amount_{j,t}) + \sum \beta_j (Control\ variables)_{j,t} + \sum Firm + \sum Year + \varepsilon_{j,t} \quad (5)$$

The dependent variable is stock price crash risk, measured as *NCSKEW* or *DUVOL*.

The independent variable is affiliated donations, defined as the propensity to donate (*Tie*) and donation amount (*Amount*). *Control variables* is a vector of control variables as defined in Section 3.4. All regressions control for year and firm fixed effects. To ensure a rigorous analysis, close attention has been paid to multicollinearity, where none of the VIF statistics is greater than 2.0.

4. MAIN RESULTS

4.1 Descriptive Statistics

Table 2 presents descriptive statistics for all variables used in this study, including the alternative measures of stock price crash risk, the measures of affiliated donations, and other firm-specific variables specified in the previous section.

*** *Insert Table 2 about here* ***

As Table 2 indicates, the mean (median) firm-specific return skewness *NCSKEW* is -0.289 (-0.245), and the mean (median) down-to-up volatility *DUVOL* is -0.192 (-0.191). These two measures of stock price crash risk appear to vary in a wide range (the standard deviation of *NCSKEW* is 0.719 and the standard deviation of *DUVOL* is 0.476). Regarding our key independent variables, the mean of *Tie* is 0.0559, and the mean (median) of *Amount* is 0.7623 (0.000). On average, about 39% of our sample firms are state-owned and most of the firms are profitable. The mean ROA is 0.043, and only 7.56% of our sample firms have reported negative earnings.

4.2 Correlation Analysis

Table 3 presents correlation analysis on the variables used in this study. First, the

Pearson correlation coefficient for *NCSKEW* and *DUVOL* is 0.879, significant at the 1% level, indicating that there is a strong link between these two measures of crash risk. This result is not surprising as most empirical studies rely on these two variables to capture stock price crash risk. Second, Table 3 provides evidence of a positive relation between affiliated donations (both the propensity to donate and donation amount) and crash risk (both *NCSKEW* and *DUVOL* measures), lending preliminary support to hypothesis *H1b*. Note, however, that this unconditional correlation analysis does not control for other firm characteristics, and it is important to test whether the positive relation between affiliated donations and crash risk is driven by other firm-specific factors. Third, Table 3 also reveals that both crash risk measures, *NCSKEW* and *DUVOL*, are correlated with a number of firm characteristics. Thus, it is important to include these firm-specific variables as control variables in the multivariate regression analysis.

**** Insert Table 3 about here ****

4.3 Results for the Baseline Specification

Table 4 presents the regression results for Equation (5). The *t*-values are calculated using robust standard errors clustered by firm. Consistent with our expectations, we find evidence of a significant positive relationship between affiliated donations and future stock price crash risk across all four model specifications. In the regression where the dependent variable is *NCSKEW* (column 1), the coefficient estimate on *Tie* is 0.359 (*t*-stat = 12.640), which implies that a one-standard-deviation increase in *Tie* can lead to an increase of 0.07 in *NCSKEW*, approximately an increase of 11.47% in the standard deviation of *NCSKEW*. Thus, this impact is not only statistically significant but also economically meaningful. The

regression on *DUVOL* yields similar results in column (2). The coefficient estimate on *Tie* is 0.219 (*t*-stat = 11.876), implying that a one-standard-deviation increase in *Tie* can lead to an increase of 0.06 in *DUVOL* in absolute term and 10.56% in relative term. The results in columns (3) and (4) confirm the findings presented in columns (1) and (2), suggesting that both *NCSKEW* and *DUVOL* tend to increase with the amount of affiliated donations (*Amount*). Overall, these findings provide strong support to our central argument that affiliated donations lead to an increase in future stock price crash risk. We also find stock price crash risk is positively related to profitability (*ROA*), negative earnings (*LOSS*), institutional ownership (*INS*), average firm-specific weekly returns (*RET*), and free cash flow (*Cashflow*). Besides, the busyness of independent directors (*BusyDirector*) is negatively associated with stock price crash risk, suggesting that they are also reliable predictors of future crash risk.

*** *Insert Table 4 about here* ***

4.4 Robustness Checks on Alternative Measures

In this section, we examine whether our findings are robust to alternative measures of stock price crash risk. In particular, we consider four alternative measures: (1) *Crash1* is a dummy variable that equals 1 if a firm experiences one or more crash weeks in a given year and 0 otherwise, where crash weeks are defined as those with firm-specific weekly returns below their mean weekly returns by more than 3.09 standard deviations (Hutton et al., 2009); (2) *Crash2* is the number of crash weeks based on the definition of Hutton et al. (2009); (3) *Crash3* is a dummy variable that equals 1 if a firm experiences one or more crash weeks and 0 otherwise, where crash weeks are defined as those with firm-specific weekly returns below their mean weekly returns by more than 3.20 standard deviations (Kim et al., 2011); (4) *Crash4*

is the number of crash weeks based on the definition of Kim et al. (2011). We repeat our multivariate regressions using these four alternative measures of stock price crash risk with the same set of control variables. The results in Table 5 indicate a positive relation between affiliated donations and all alternative measures of stock price crash risk, suggesting that our main findings are robust to alternative crash risk specifications.

*** *Insert Table 5 about here* ***

4.5 Robustness Checks on Endogeneity

Our empirical analysis so far documents a robust and statistically significant, positive relationship between affiliated donations and future stock price crash risk. However, our findings might be driven by the omitted-variable problem associated with unobservable factors. In addition, our analysis may also suffer from potential reverse causality. When the stock price crash risk of the firm is high, the company may seek channels to establish connections with independent directors so as to meet increased advising needs. In this section, we use three approaches to test potential endogeneity: (1) propensity score matching (PSM), (2) change model, and (3) the instrumental variable (IV) approach.

First, since firms that make affiliated donations may differ from those that make unaffiliated donations in terms of firm characteristics, affiliated donations could be endogenously determined. To control for observed differences, we conduct PSM in which a treatment group composed of affiliated donations is matched with a control group composed of non-affiliated donations. The PSM strategy ensures that there are no significant differences in terms of observed firm-level characteristics between firms in the treatment group and those in the control group. We use the following three different specifications in matching the two

groups: (1) nearest neighbor matching, (2) caliper matching method, and (3) entropy balancing (EB) matching. The EB matching is a matching method that reweights firm-year observations in the control sample by imposing constraints in adjusting the first, second, and third moments of the control variables to achieve a greater extent of covariate balancing between the treatment and control samples (Hainmueller, 2012). The EB method keeps all observations in the treatment and control samples, while the PSM method may throw away a large number of "unmatched" observations. Unlike the PSM method, the EB matching method does not rely on any specific research design to achieve covariate balancing, which mitigates the concern that the post-matching results are sensitive to model specifications (DeFond et al., 2017). Table 6 presents the results, where columns (1) - (4) focus on the full sample, and columns (5) - (8) focus on the subsample of independent directors who assume senior positions at the foundations. We find a significantly positive relationship between affiliated donations and future stock price crash risk across all eight model specifications in all three panels with different matching methods.

*** *Insert Table 6 about here* ***

Second, to further mitigate the concern that firms making affiliated donations may differ from other firms due to reasons not considered in our regression analyses, we examine the changes in stock price crash risk when a firm commences (or terminates) affiliated donations. More specifically, we regress the annual change in stock price crash risk on a dummy variable which equals to 1 in the year when a firm makes an affiliated donation for the first time (*Initiation*) and 0 otherwise. We include the same set of control variables as before. We expect a larger increase in stock price crash risk when firms begin to make affiliated

donations for the first time. Compared to the level of crash risk, the change in crash risk is less sensitive to firm-specific and time-invariant unobservable components. As such, this robustness check would lend further support to our interpretation of a genuine association between affiliated donations and stock price crash risk. In a similar vein, we examine the change in stock price crash risk when a firm terminates all affiliated donations. We construct a dummy variable which takes the value of 1 in the year when a firm ceases making affiliated donations (*Termination*) and 0 otherwise. We regress the change in stock price crash risk on the termination dummy, where a negative coefficient estimate is expected. Table 7 presents the regression results. Consistent with our previous results, the coefficients on *Initiation* in columns (1) and (2) are positive and significant at the 1% level, indicating that stock price crash risk increases substantially after firms start to make affiliated donations. In contrast, the coefficient on *Termination* in columns (3) and (4) are negative and significant at the 1% level, implying that stock price crash risk tends to decline after firms stop making affiliated donations.

*** *Insert Table 7 about here* ***

Third, as an additional robustness check on endogeneity, we employ an instrumental variable approach to investigate the relationship between affiliated donations and stock price crash risk in a two-stage model. For the two-stage model to work, we need an instrumental variable that is highly correlated with affiliated donations but is uncorrelated with stock price crash risk. The instrumental variable under consideration is the number of foundations within a geographic distance of 30 kilometers from the headquarter of the firm. This is a valid instrument because independent directors are more willing to join firms and organizations that are located nearby (Fee et al., 2013; Knyazeva et al., 2013; Yonker, 2017), and our unreported

empirical analysis reveals that firms are more likely to make contributions to local foundations. As such, geographic distance should be highly correlated with affiliated donations. It is a valid instrument also because there is no mechanism through which the number of local foundations can affect a firm's stock price crash risk directly. Table 8 presents the two-stage regression results using this instrumental variable. Because the number of foundations within a distance of 30 kilometers from the firm remains unchanged over time, and because controlling for firm fixed effects would result in a large decline in the number of firm-year observations, we estimate the two-stage model controlling for year and industry fixed effects.

**** Insert Table 8 about here ****

The coefficient estimate on the instrumental variable in the first-stage regression is significantly positive (columns 1), indicating that it is a relevant instrument. The second-stage regression results presented in columns (2) and (3) regarding *NCSKEW* and *DUVOL* show that the coefficient estimates on the propensity to donate (*Tie*) continue to remain positive. We observe very similar findings when we use this instrumental variable in the first- and second-stage regressions to address the endogeneity concern associated with the amount of affiliated donations (*Amount*), where the coefficient estimates on *Amount* remain positive and significant for both crash risk measures. Note that the *F*-statistics obtained from a weak instrument test in the two first-stage regressions are both greater than 10, suggesting that using *Number* as an instrumental variable is unlikely to bias our estimation. These results are consistent with our key finding that affiliated donations tend to increase stock price crash risk.

4.6 Subsample Analysis on Firms Making Charitable Donations

In our baseline specification, we follow Cai et al. (2021) and compare firms with

affiliated donations to those without. However, it is likely that firms do not make affiliated donations simply because they do not make charitable donations at all. Given that there are significant differences between firms that make charitable donations and firms that do not, using firms that do not have affiliated donations as the control group may bias our results. Indeed, this concern is valid because 2,348 out of 3,746 firm-year observations in Cai et al. (2021) are based on firms that do not make charitable contributions, and 8,854 out of 18,394 firm-year observations in our sample are based on firms that do not make charitable donations more than RMB 0.5 million. We explore whether or not our finding continues to hold by estimating Equation (5) using a more comparable subsample of 9,540 firms that actually make donations. Regression results in Table 9 continue to deliver strong evidence of a positive relation between affiliated donations and future stock price crash risk.

*** *Insert Table 9 about here* ***

4.7 Alternative Explanations

For a more rigorous analysis, we further conduct two additional tests to rule out alternative explanations in this section. First, the social ties between the CEO (chairman) and independent directors developed at the foundations may possibly account for our findings. To address this possibility, we include an additional control variable to account for such social ties (*Relation*). As Panel A in Table 10 indicates, the association between affiliated donations and stock price crash risk continues to be economically and statistically significant. Our results suggest that the effect of affiliated donations on stock price crash risk is not a reflection of common charitable interests or social ties between the CEO (chairman) and independent directors.

Second, another possible explanation is that the characteristics of independent directors may drive the results. In order to rule out this possible explanation, we construct a subsample of firms that have at least one independent director serving on two corporate boards in the same year, where only one firm makes affiliated donations. We repeat our regressions using this subsample controlling for director fixed effects, in addition to industry and year fixed effects. The results presented in Panel B of Table 10 continue to support a significant positive relation between affiliated donations and stock price crash risk.

*** *Insert Table 10 about here* ***

5. FURTHER ANALYSIS

Our empirical analysis thus far documents robust evidence of a positive relation between affiliated donations and stock price crash risk. In this section, we perform a number of additional tests to examine the moderating role of corporate governance and information transparency in shaping the relationship between affiliated donations and stock price crash risk, as well as the impact of affiliated donations on the behavior of independent directors.

5.1 Corporate Governance

In this study, we use internal control and auditor quality to proxy for corporate governance. Following Lennox and Wu (2021) and Gunn et al. (2022), we use the DIB China index to measure the quality of internal control. DIB Internal Control and Risk Management Database is the leading database on internal control and risk management for listed companies in China, and it has been widely used in the literature.[5] In particular, we add two additional dummy variables in the regressions. *LowIncontrol* is a dummy variable, which equals to 1 if a

[5] The DIB Internal Control and Risk Management Database can be accessed through www.dibdata.cn.

firm's internal control is lower than the industry median in a given year, as measured by the DIB China index, and 0 otherwise. *Big4* is a dummy variable, which equals to 1 if a firm is audited by one of the big four auditing firms and 0 otherwise. Table 11 presents the regression results, with *t*-statistics calculated using heteroscedasticity-robust standard errors.

**** Insert Table 11 about here ****

Consistent with hypothesis *H2*, we find that the positive relation between affiliated donations and stock price crash risk is more significant for firms with poor internal control, as indicated by the positive and significant coefficient estimates on interaction terms *Tie*LowIncontrol* and *Amount*LowIncontrol*. The positive relation between affiliated donations and stock price crash risk is less pronounced for firms audited by Big 4 auditing firms, as evidenced by the negative and significant coefficient estimates on *Tie*Big4* and *Amount*Big4*. Taken together, these findings suggest that affiliated donations increase stock price crash risk due to weakened monitoring effectiveness of independent directors, and the impact is more sufficient for firms with weak corporate governance.

5.2 Information Transparency

In this study, we use analyst coverage (Kim and Zhang, 2016), financial restatement, and financial reporting quality (Hutton et al., 2009; Kim and Zhang, 2014) to proxy for information transparency. We obtain information on analyst coverage, financial restatement, and financial reporting quality from CNRDS. We define *LowAnalyst* as a dummy variable, which equals to 1 if a firm's analyst coverage in the current year is lower than the industry median and 0 otherwise. We define *Restatement* as a dummy variable, which equals to 1 if a firm announces a financial restatement in a given year and 0 otherwise. We define *Opaque* as

a dummy variable, which equals to 1 if the quality of its financial reporting in the current year is evaluated as poor and 0 otherwise. We examine whether the positive relation between affiliated donations and stock price crash risk is more pronounced for firms with low information transparency. Table 12 presents the regression results, with *t*-statistics calculated using heteroscedasticity-robust standard errors.

*** *Insert Table 12 about here* ***

Consistent with hypothesis *H3*, Table 12 shows that information transparency significantly moderates the relationship between affiliated donations and stock price crash risk. For the regressions using analyst coverage to proxy for information transparency, the coefficient estimates on the two interaction terms, *Tie*LowAnalyst* and *Amount*LowAnalyst*, are both significantly positive (columns 1-4). We find similar evidence for financial restatement, indicated by the positive and significant coefficient estimates on the two interaction terms *Tie*Restatement* and *Amount*Restatement* (columns 4-8). We also observe similar results when we use *Opaque* to proxy for information transparency, evidenced by the positive and significant coefficient estimates on the two interaction terms, *Tie*Opauqe* and *Amount*Opaque* (columns 9-12). These findings suggest that affiliated donations increase firms' stock price crash risk more dramatically when the information transparency within the firm is low.

5.3 Independent Director Behavior

To measure independent director behavior, we obtain data from CNRDS on their attendance records and opinions expressed during board meetings. We define *Absent* as the ratio of the average number of times that an independent director of a firm does not attend

board meetings in person over a year, divided by the number of board meetings scheduled. To better assess their due diligence practices, we classify opinions that independent directors generally express into two broad categories, affirmative and non-affirmative, and *NUM* is the number of non-affirmative opinions expressed by independent directors. More specifically, non-affirmative opinions include a wide range of dissenting opinions such as "abstention", "reserved opinions", "unable to express opinions", and "raising objections". We aim to examine whether affiliated donations lead to increased independent director engagement by regressing *Absent* and *NUM* on affiliated donations. Table 13 presents the regression results, with *t*-statistics calculated using heteroscedasticity-robust standard errors.

**** Insert Table 13 about here ****

As Table 13 indicates, both the coefficient estimates on *Tie* and *Amount* are significantly negative when *Absent* is the dependent variable, suggesting that affiliated donations appear to improve the meeting attendance of independent directors. However, both the coefficient estimates on *Tie* and *Amount* are significantly negative when *NUM* is the dependent variable, indicating that affiliated donations tend to impair the monitoring incentives of independent directors, and they are less likely to raise different voices. Overall, we find that affiliated donations lead to better attendance records and more friendly behavior of independent directors. These director-level findings lend concrete support to the view that independent director-affiliated donations can increase stock price crash risk through weakened monitoring incentives and effectiveness.

6. CONCLUSION

Using a large sample of Chinese firms over the 2010-2020 period, this paper shows that corporate donations to foundations affiliated with independent directors tend to reduce the monitoring effectiveness of independent directors. In particular, we document robust evidence of higher stock price crash risk among firms making affiliated donations. On average, a one-standard-deviation increase in affiliated donations is associated with an increase of about 11.47% in stock price crash risk. Our results are robust to various endogeneity tests, including different propensity score matching methods, change models, and the two-stage model. In addition, we find that the effect of affiliated donations on stock price crash risk is more pronounced when firms have lower internal control quality and weak external monitoring. Our results also hold after we control for measures associated with alternative hypotheses, such as director-CEOs (chairman) social ties developed in the foundations and the characteristics of independent directors. Our further analysis shows that, while affiliated donations encourage independent directors to devote more time and energy to the firms, they tend to impair the monitoring incentives of independent directors, as evidenced by fewer objection opinions raised at the board meetings.

The present paper adds to both the corporate governance and finance literature by highlighting the role of affiliated donations as an important determinant of stock price crash risk. Overall, our results suggest that affiliated donations may be an important channel through which independent directors' monitoring incentives can be compromised. The findings of this paper also have important practical implications for investors and regulators. Over recent years, the growing popularity of CSR leads to a remarkable surge of corporate donations. However, the literature does not differentiate between affiliated and unaffiliated donations. Because affiliated donation is usually not easy to detect, and because firms are not required to disclose

specific donation information in the annual report, such activity may be largely neglected by external investors and regulators. As our results indicate, the internal relationship established between management and independent directors through affiliated donations may significantly impair the independence of independent directors, thus having a negative impact on internal governance, and ultimately leading to increased stock price crash risk. Therefore, investors must pay close attention to affiliated donations to discover such hidden internal connections between independent directors and the firm, as well as their potential impact on internal governance. Besides, regulators should mandate the disclosure of affiliated donations. Such disclosure would help inform shareholders about independent directors' potential conflicts of interest, leading to a more accurate understanding of director independence.

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TABLE 1: Sample Distribution

This table presents the distribution of sample firms by year (Panel A) and by sector (Panel B).

Panel A: Sample Distribution by Years

Year	Firms with affiliated donations		Firms without affiliated donations		Full Sample	
	No. of Obs.	%	No. of Obs.	%	No. of Obs.	%
2010	55	5.46	952	94.54	1,007	5.48
2011	60	5.32	1,067	94.68	1,127	6.13
2012	60	4.42	1,296	95.58	1,356	7.37
2013	92	6.09	1,419	93.91	1,511	8.22
2014	109	7.28	1,388	92.72	1,497	8.14
2015	88	6.16	1,341	93.84	1,429	7.77
2016	78	5.15	1,438	94.85	1,516	8.24
2017	75	4.35	1,650	95.65	1,725	9.38
2018	120	5.70	1,984	94.30	2,104	11.44
2019	121	5.10	2,252	94.90	2,373	12.90
2020	170	6.19	2,574	93.81	2,744	14.92
Total	1,028	5.59	17,361	94.41	18,389	100.00

Panel B: Industry distribution

Industry	Total	%
Agriculture(A)	280	1.52
Mining and Construction(B)	540	2.94
Real estate(J/K)	990	5.38
Transportation(C)	11,903	64.73
Computer(G)	537	2.92
Civil engineering construction(E)	529	2.88
Environmental governance (N)	197	1.07
Comprehensive(M/S)	301	1.64
Health(Q)	47	0.26
Video recording production(R)	215	1.17
Wholesale and retailing(F/H)	1,112	6.05
Power production(D)	617	3.36
Services (L/I)	1,103	6.00
Education (P)	18	0.10
Total	18,389	100.00

Table 2: Summary Statistics

This table reports the summary statistics of main variables used in our empirical tests. Our main sample consists of 18,389 firm-year observations over the period 2010-2020. The number of observations, mean, standard deviation, minimum value, median, maximum value are reported from left to right, in sequence for each variable. Detailed definitions of all variables are described in Appendix A.

Variable	Obs.	Mean	SD	Min	Median	Max
$NCSKEW_{t+1}$	18,389	-0.289	0.719	-2.419	-0.245	1.687
$DUVOL_{t+1}$	18,389	-0.192	0.476	-1.350	-0.191	1.035
$NCSKEW_t$	18,389	-0.277	0.705	-2.374	-0.240	1.802
$DUVOL_t$	18,389	-0.184	0.476	-1.338	-0.189	1.111
Tie_t	18,389	0.056	0.230	0.000	0.000	1.000
$Amount_t$	18,389	0.762	3.135	0.000	0.000	13.816
$SIZE_t$	18,389	22.267	1.272	19.810	22.081	26.120
LEV_t	18,389	0.439	0.207	0.053	0.435	0.902
ROA_t	18,389	0.043	0.055	-0.191	0.039	0.227
$LOSS_t$	18,389	0.076	0.264	0.000	0.000	1.000
$RDratio_t$	18,389	0.031	0.038	0.000	0.024	0.206
$SIGMA_t$	18,389	0.063	0.027	0.020	0.057	0.217
SOE_t	18,389	0.389	0.488	0.000	0.000	1.000
INS_t	18,389	0.071	0.102	0.000	0.027	0.502
$TURNOVER_t$	18,389	0.529	0.464	0.042	0.388	3.211
RET_t	18,389	0.004	0.012	-0.025	0.002	0.078
$Cashflow_t$	18,389	0.194	0.223	0.009	0.123	1.544
$Big4_t$	18,389	0.056	0.230	0.000	0.000	1.000
$Duality_t$	18,389	0.253	0.435	0.000	0.000	1.000
$BusyDirector_t$	18,389	0.292	0.254	0.000	0.333	1.000
$IndDirector_t$	18,389	0.375	0.053	0.333	0.357	0.571
$Boardsize_t$	18,389	8.695	1.715	5.000	9.000	15.000

Table 3: Pairwise Correlations

This table presents pairwise Pearson correlations for all variables used in our main empirical analyses. ***, ***, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Variable		A	B	C	D	E	F	G	H	I	J
NCSKEW	A	1.000									
DUVOL	B	0.879***	1.000								
Tie	C	0.089***	0.079***	1.000							
Amount	D	0.088***	0.078***	0.999***	1.000						
SIZE	E	-0.083***	-0.107***	0.055***	0.056***	1.000					
LEV	F	-0.061***	-0.077***	0.026***	0.026***	0.515***	1.000				
ROA	G	0.077***	0.075***	-0.011	-0.011	-0.064***	-0.404***	1.000			
LOSS	H	-0.006	-0.004	0.032***	0.032***	-0.037***	0.174***	-0.606***	1.000		
RDratio	I	0.022***	0.032***	-0.031***	-0.031***	-0.243***	-0.358***	0.056***	0.015**	1.000	
SIGMA	J	0.019***	0.018**	-0.017**	-0.016**	-0.247***	-0.059***	-0.030***	0.033***	0.120***	1.000
SOE	K	-0.074***	-0.079***	0.057***	0.057***	0.355***	0.310***	-0.118***	0.031***	-0.287***	-0.129***
INS	L	0.161***	0.155***	0.006	0.005	0.055***	-0.068***	0.318***	-0.131***	0.058***	0.010
TURNOVER	M	0.038***	0.045***	-0.039***	-0.039***	-0.391***	-0.171***	0.021***	-0.008	0.132***	0.552***
RET	N	0.036***	0.022***	-0.001	-0.001	-0.118***	-0.009	0.094***	-0.039***	0.028***	0.590***
Cashflow	O	0.054***	0.066***	0.009	0.010	-0.204***	-0.361***	0.206***	-0.072***	0.158***	0.007
Big4	P	-0.028***	-0.036***	0.036***	0.037***	0.342***	0.109***	0.037***	-0.028***	-0.070***	-0.087***
Duality	Q	0.031***	0.032***	-0.018***	-0.018***	-0.169***	-0.147***	0.050***	-0.017***	0.178***	0.077***
BusyDirector	R	-0.022***	-0.021***	0.016***	0.016***	0.078***	0.059***	0.009	-0.011	-0.002	-0.020***
IndDirector	S	-0.003	-0.000	0.012	0.012*	0.026***	-0.004	-0.016**	0.011	0.068***	0.009
Boardsize	T	-0.025***	-0.029***	0.042***	0.042***	0.265***	0.153***	0.005	-0.018**	-0.164***	-0.105***

Variable		K	L	M	N	O	P	Q	R	S	T
SOE	K	1.000									
INS	L	-0.046***	1.000								
TURNOVER	M	-0.210***	-0.050***	1.000							
RET	N	-0.028***	0.153***	0.373***	1.000						
Cashflow	O	-0.058***	0.117***	0.090***	-0.028***	1.000					
Big4	P	0.133***	0.037***	-0.122***	-0.021***	-0.044***	1.000				
Duality	Q	-0.284***	0.035***	0.126***	0.022***	0.057***	-0.055***	1.000			
BusyDirector	R	0.010	0.006	-0.053***	-0.001	-0.031***	-0.006	-0.020***	1.000		
IndDirector	S	-0.036***	0.011	0.022***	-0.012*	0.013*	0.041***	0.103***	-0.033***	1.000	
Boardsize	T	0.078***	0.047***	-0.130***	-0.013*	-0.031***	0.103***	-0.173***	-0.010	-0.464***	1.000

Table 4: Affiliated Donations and Stock Price Crash Risk

This table presents regression results on the relationship between affiliated donations and stock price crash risk. The dependent variables are the two measures of stock price crash risk: NCSKEW and DUVOL. The independent variables are propensity to make affiliated donations (*Tie*) and the donation amount (*Amount*). Firm fixed effects and year fixed effects are controlled in all regressions. *t*-statistics in parentheses are calculated using heteroscedasticity-robust standard errors. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1) $NCSKEW_{t+1}$	(2) $DUVOL_{t+1}$	(3) $NCSKEW_{t+1}$	(4) $DUVOL_{t+1}$
Tie_t	0.359***	0.219***		
	(12.640)	(11.876)		
$Amount_t$			0.026***	0.016***
			(12.542)	(11.829)
$NCSKEW_t$	-0.109***		-0.109***	
	(-13.093)		(-13.095)	
$DUVOL_t$		-0.115***		-0.115***
		(-14.613)		(-14.614)
$SIZE_t$	0.033**	0.005	0.033**	0.005
	(2.112)	(0.504)	(2.110)	(0.502)
LEV_t	-0.085	-0.059	-0.085	-0.059
	(-1.234)	(-1.285)	(-1.231)	(-1.282)
ROA_t	0.512***	0.284**	0.512***	0.285**
	(2.875)	(2.367)	(2.876)	(2.367)
$LOSS_t$	0.123***	0.075***	0.123***	0.075***
	(4.129)	(3.893)	(4.129)	(3.893)
$RDratio_t$	-0.273	-0.288	-0.274	-0.289
	(-0.747)	(-1.215)	(-0.751)	(-1.219)
$SIGMA_t$	-0.403	-0.176	-0.405	-0.177
	(-1.144)	(-0.769)	(-1.149)	(-0.774)
SOE_t	0.019	-0.007	0.018	-0.007
	(0.378)	(-0.221)	(0.375)	(-0.224)
INS_t	0.889***	0.616***	0.889***	0.616***
	(12.344)	(12.426)	(12.352)	(12.432)
$TURNOVER_t$	-0.016	-0.001	-0.016	-0.001
	(-0.766)	(-0.079)	(-0.767)	(-0.079)
RET_t	3.513***	2.040***	3.514***	2.041***
	(4.570)	(4.054)	(4.572)	(4.056)
$Cashflow_t$	0.122***	0.102***	0.122***	0.102***
	(3.170)	(4.036)	(3.164)	(4.031)
$Big4_t$	0.018	0.034	0.018	0.035
	(0.288)	(0.831)	(0.290)	(0.833)
$Duality_t$	-0.017	-0.018	-0.017	-0.018
	(-0.809)	(-1.257)	(-0.805)	(-1.254)
$BusyDirector_t$	-0.067**	-0.033	-0.067**	-0.033
	(-2.222)	(-1.626)	(-2.221)	(-1.625)
$IndDirector_t$	-0.092	0.019	-0.090	0.020
	(-0.470)	(0.148)	(-0.464)	(0.153)
$Boardsize_t$	-0.003	-0.002	-0.003	-0.002
	(-0.409)	(-0.324)	(-0.407)	(-0.322)
Intercept	-0.875**	-0.278	-0.875**	-0.278
	(-2.566)	(-1.186)	(-2.565)	(-1.186)
Firm Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Observations	18,389	18,389	18,389	18,389
Adj. R^2	0.078	0.082	0.078	0.082

Table 5: Robustness Checks

This table presents robust checks on the relation between affiliated donations and stock price crash risk. The dependent variables are *Crash1*, *Crash2*, *Crash3* and *Crash4*. *Crash1* is a dummy variable, which takes the value of 1 if the company experiences one or more crash weeks in a given year and 0 otherwise, where crash weeks are defined as those with firm-specific weekly returns below their mean weekly returns by more than 3.09 standard deviations (Hutton et al., 2009). *Crash2* is the number of crash weeks in a given year as defined in *Crash1*. *Crash3* is calculated in a way similar to *Crash1*, except for using 3.20 standard deviations as the threshold (Kim et al., 2011). *Crash4* is the number of crash weeks in a given year as defined in *Crash3*. Firm and year fixed effects are controlled in all regressions. *t*-statistics in parentheses are calculated using heteroscedasticity-robust standard errors. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	$Crash1_{t+1}$	$Crash1_{t+1}$	$Crash2_{t+1}$	$Crash2_{t+1}$	$Crash3_{t+1}$	$Crash3_{t+1}$	$Crash4_{t+1}$	$Crash4_{t+1}$
Tie_t	0.301***		0.300***		0.301***		0.301***	
	(6.128)		(6.127)		(5.789)		(5.790)	
$Amount_t$		0.022***		0.022***		0.022***		0.022***
		(6.125)		(6.124)		(5.769)		(5.770)
$Crash1_t$	0.003	0.002						
	(0.058)	(0.056)						
$Crash2_t$			0.001	0.001				
			(0.028)	(0.027)				
$Crash3_t$					-0.050	-0.050		
					(-0.967)	(-0.968)		
$Crash4_t$							-0.043	-0.043
							(-0.856)	(-0.857)
$SIZE_t$	-0.057***	-0.057***	-0.057***	-0.057***	-0.062***	-0.062***	-0.062***	-0.062***
	(-3.828)	(-3.831)	(-3.828)	(-3.831)	(-3.912)	(-3.915)	(-3.911)	(-3.913)
LEV_t	0.045	0.045	0.045	0.045	0.047	0.047	0.047	0.047
	(0.521)	(0.519)	(0.520)	(0.518)	(0.511)	(0.509)	(0.513)	(0.511)
ROA_t	0.298	0.298	0.298	0.298	0.222	0.222	0.223	0.223
	(0.915)	(0.915)	(0.914)	(0.914)	(0.641)	(0.641)	(0.644)	(0.644)
$LOSS_t$	0.127**	0.127**	0.127**	0.127**	0.118*	0.118*	0.118*	0.118*
	(2.188)	(2.187)	(2.188)	(2.187)	(1.901)	(1.901)	(1.902)	(1.902)
$RDratio_t$	-1.262***	-1.263***	-1.262***	-1.263***	-1.275***	-1.276***	-1.274***	-1.275***
	(-3.282)	(-3.284)	(-3.282)	(-3.284)	(-3.102)	(-3.104)	(-3.101)	(-3.103)

$SIGMA_t$	2.349***	2.347***	2.349***	2.347***	2.380***	2.378***	2.380***	2.379***
	(3.212)	(3.210)	(3.212)	(3.210)	(3.073)	(3.071)	(3.074)	(3.072)
SOE_t	-0.081***	-0.081***	-0.081***	-0.081***	-0.113***	-0.113***	-0.112***	-0.112***
	(-2.676)	(-2.676)	(-2.676)	(-2.676)	(-3.454)	(-3.453)	(-3.453)	(-3.452)
INS_t	0.208	0.208	0.208	0.208	0.136	0.137	0.136	0.136
	(1.528)	(1.529)	(1.528)	(1.529)	(0.934)	(0.936)	(0.933)	(0.935)
$TURNOVER_t$	0.108***	0.108***	0.108***	0.108***	0.120***	0.120***	0.119***	0.120***
	(3.086)	(3.088)	(3.088)	(3.090)	(3.205)	(3.207)	(3.199)	(3.202)
RET_t	4.580***	4.577***	4.581***	4.579***	4.741***	4.738***	4.737***	4.734***
	(2.673)	(2.672)	(2.674)	(2.672)	(2.609)	(2.607)	(2.607)	(2.605)
$Cashflow_t$	0.142**	0.142**	0.143**	0.142**	0.172***	0.172***	0.172***	0.171***
	(2.401)	(2.399)	(2.401)	(2.399)	(2.741)	(2.739)	(2.742)	(2.740)
$Big4_t$	-0.024	-0.024	-0.024	-0.024	-0.019	-0.019	-0.018	-0.018
	(-0.395)	(-0.396)	(-0.395)	(-0.396)	(-0.281)	(-0.281)	(-0.281)	(-0.281)
$Duality_t$	0.023	0.023	0.023	0.023	-0.008	-0.008	-0.008	-0.008
	(0.765)	(0.766)	(0.765)	(0.766)	(-0.265)	(-0.264)	(-0.265)	(-0.265)
$BusyDirector_t$	-0.089*	-0.089*	-0.089*	-0.089*	-0.083	-0.083	-0.083	-0.083
	(-1.785)	(-1.785)	(-1.786)	(-1.786)	(-1.568)	(-1.568)	(-1.567)	(-1.567)
$IndDirector_t$	-0.185	-0.185	-0.185	-0.185	-0.111	-0.111	-0.112	-0.111
	(-0.678)	(-0.677)	(-0.678)	(-0.677)	(-0.382)	(-0.381)	(-0.384)	(-0.382)
$Boardsize_t$	-0.008	-0.008	-0.008	-0.008	-0.010	-0.010	-0.010	-0.010
	(-0.905)	(-0.903)	(-0.905)	(-0.903)	(-0.976)	(-0.973)	(-0.978)	(-0.976)
Intercept	0.439	0.440	0.439	0.440	0.469	0.470	0.467	0.468
	(1.334)	(1.336)	(1.334)	(1.337)	(1.329)	(1.331)	(1.326)	(1.327)
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	18,389	18,389	18,389	18,389	18,389	18,389	18,389	18,389
lnsig2u	-3.856***	-3.855***	-3.848***	-3.847***	-3.559***	-3.559***	-3.587***	-3.587***
	(-5.964)	(-5.968)	(-5.999)	(-6.002)	(-6.351)	(-6.350)	(-6.247)	(-6.246)

Table 6: Propensity Score Matching

This table reports the regression results using propensity score matching methods. Panel A uses the nearest neighbor matching method. Columns (1)-(4) use the full sample to generate propensity scores, while columns (5)-(8) use the subsample of independent directors who serve in the foundations to match propensity scores. Panel B uses the caliper match method with a caliper of 0.01. Columns (1)-(4) use the full sample to match propensity scores, while columns (5)-(8) use the sample of independent directors who serve in the foundations to match propensity scores. Panel C uses the entropy balancing matching method. Columns (1)-(4) use the full sample to match propensity scores, while columns (5)-(8) use the sample of independent directors who serve in the foundations to match propensity scores. Firm and year fixed effects are controlled in all regressions. *t*-statistics in parentheses are calculated using heteroscedasticity-robust standard errors. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Nearest Neighbor Matching

	Full sample				Independent directors serving in the foundations			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	$NCSKEW_{t+1}$	$DUVOL_{t+1}$	$NCSKEW_{t+1}$	$DUVOL_{t+1}$	$NCSKEW_{t+1}$	$DUVOL_{t+1}$	$NCSKEW_{t+1}$	$DUVOL_{t+1}$
Tie_t	0.374***	0.237***			0.525***	0.319***		
	(4.615)	(4.416)			(9.606)	(8.710)		
$Amount_t$			0.027***	0.017***			0.038***	0.023***
			(4.530)	(4.359)			(9.492)	(8.682)
Intercept	-0.625	0.053	-0.619	0.056	0.676	1.293	0.660	1.284
	(-0.379)	(0.049)	(-0.376)	(0.052)	(0.408)	(1.113)	(0.399)	(1.107)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,056	2,056	2,056	2,056	2,056	2,056	2,056	2,056
Adj. R^2	0.093	0.103	0.092	0.102	0.176	0.165	0.175	0.165

Panel B：Caliper Matching

	Full sample				Independent directors serving in the foundations			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	NCSKEW	DUVOL	NCSKEW	DUVOL	NCSKEW	DUVOL	NCSKEW	DUVOL
Tie	0.396***	0.253***			0.484***	0.300***		
	(8.189)	(7.621)			(9.043)	(8.836)		
Amount			0.029***	0.018***			0.035***	0.022***
			(8.142)	(7.621)			(8.937)	(8.795)

Intercept	2.495**	2.549***	2.498**	2.553***	-2.294	-0.459	-2.296	-0.460
	(2.050)	(2.840)	(2.055)	(2.846)	(-1.513)	(-0.443)	(-1.514)	(-0.444)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,946	2,946	2,946	2,946	2,275	2,275	2,275	2,275
Adj. R^2	0.125	0.134	0.125	0.134	0.168	0.154	0.167	0.154

Panel C：Entropy Balancing Matching

	Full sample				Independent directors serving in the foundations			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	$NCSKEW_{t+1}$	$DUVOL_{t+1}$	$NCSKEW_{t+1}$	$DUVOL_{t+1}$	$NCSKEW_{t+1}$	$DUVOL_{t+1}$	$NCSKEW_{t+1}$	$DUVOL_{t+1}$
Tie_t	0.344***	0.206***			0.469***	0.278***		
	(16.341)	(14.240)			(15.000)	(13.533)		
$Amount_t$			0.025***	0.015***			0.034***	0.020***
			(16.051)	(14.160)			(14.892)	(13.495)
Intercept	-0.915	-0.230	-0.918	-0.231	-1.720	-0.244	-1.731	-0.250
	(-1.620)	(-0.581)	(-1.633)	(-0.582)	(-1.491)	(-0.312)	(-1.500)	(-0.324)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	18,389	18,389	18,389	18,389	3,574	3,574	3,574	3,574
Adj. R^2	0.384	0.382	0.383	0.382	0.473	0.463	0.473	0.462

Table 7: Changes in Stock Price Crash Risk around Initiation and Termination of Affiliated Donations

This table examines the change in stock price crash risk around the initiation and termination of affiliated donations. The dependent variable is the annual change in stock price crash risk. *Initiation* equals 1 if a firm makes its first affiliated donation in a given year and 0 otherwise. *Termination* equals 1 if a firm stops making affiliated donations in a given year and 0 otherwise. Firm and year fixed effects are controlled in all regressions. *t*-statistics in parentheses are calculated using heteroscedasticity-robust standard errors. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)
	$CNCSKEW_{t+1}$	$CDUVOL_{t+1}$	$CNCSKEW_{t+1}$	$CDUVOL_{t+1}$
$Initiation_t$	0.550***	0.319***		
	(9.510)	(8.370)		
$Termination_t$			-0.565***	-0.335***
			(-9.637)	(-8.500)
$SIZE_t$	0.020	0.020	0.023	0.022
	(0.977)	(1.463)	(1.127)	(1.584)
LEV_t	0.032	0.016	0.057	0.030
	(0.324)	(0.239)	(0.589)	(0.468)
ROA_t	0.826***	0.555***	0.812**	0.546***
	(2.615)	(2.643)	(2.557)	(2.595)
$LOSS_t$	0.088*	0.062*	0.092*	0.064**
	(1.755)	(1.949)	(1.841)	(2.026)
$RDratio_t$	0.344	0.405	0.385	0.428
	(0.649)	(1.109)	(0.727)	(1.173)
$SIGMA_t$	3.858***	2.200***	3.858***	2.200***
	(5.068)	(4.553)	(5.080)	(4.555)
SOE_t	0.038	0.013	0.021	0.003
	(0.598)	(0.336)	(0.332)	(0.081)
INS_t	0.040	0.120	0.047	0.123
	(0.389)	(1.586)	(0.448)	(1.631)
$TURNOVER_t$	0.223***	0.182***	0.218***	0.179***
	(4.722)	(5.882)	(4.603)	(5.789)
RET_t	7.302***	5.073***	7.476***	5.175***
	(4.399)	(4.520)	(4.508)	(4.612)
$Cashflow_t$	0.005	-0.004	0.009	-0.002
	(0.074)	(-0.094)	(0.125)	(-0.047)
$Big4_t$	0.015	0.033	0.006	0.028
	(0.180)	(0.636)	(0.073)	(0.537)
$Duality_t$	0.002	0.005	0.003	0.005
	(0.078)	(0.246)	(0.084)	(0.253)
$BusyDirector_t$	-0.079**	-0.058**	-0.074*	-0.055**
	(-1.979)	(-2.148)	(-1.858)	(-2.046)
$IndDirector_t$	-0.423	-0.067	-0.342	-0.020
	(-1.488)	(-0.354)	(-1.200)	(-0.106)
$Boardsize_t$	-0.007	-0.001	-0.003	0.002
	(-0.623)	(-0.081)	(-0.243)	(0.264)

Intercept	-0.848* (-1.865)	-0.831*** (-2.659)	-0.952** (-2.097)	-0.891*** (-2.851)
Firm Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Observations	13,704	13,704	13,704	13,704
Adj. R^2	0.059	0.059	0.059	0.059

Table 8: Regression Results Using an Instrumental Variable

This table presents the results from the two-stage model using the number of foundations within a distance of 30 kilometers away from the listed firm as the instrumental variable. Columns (1) and (4) present the first-stage results. The dependent variable is the propensity to make affiliated donations (*Tie*) and the donation amount (*Amount*). Column (2), (3), (5) and (6) present the second-stage regression results using the predicted values of affiliated donations obtained from columns (1) and (4). The dependent variable is stock price crash risk. Industry and year fixed effects are controlled in all regressions. *t*-statistics in parentheses are calculated using heteroscedasticity-robust standard errors. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	First Stage	Second Stage		First Stage	Second Stage	
	Tie_{t+1}	$NCSKEW_{t+1}$	$DUVOL_{t+1}$	$Amount_{t+1}$	$NCSKEW_{t+1}$	$DUVOL_{t+1}$
$Number_t$	0.000***			0.003***		
	(20.314)			(20.261)		
Tie_t		0.254***	0.114*			
		(2.642)	(1.772)			
$Amount_t$					0.019***	0.008*
					(2.642)	(1.770)
$NCSKEW_t$	-0.002	0.046***		-0.031	0.046***	
	(-0.941)	(5.930)		(-0.931)	（5.938）	
$DUVOL_t$			0.036***			0.036***
			(4.751)			(4.750)
$SIZE_t$	0.003	-0.031***	-0.029***	0.047	-0.031***	-0.029***
	(1.411)	(-5.033)	(-7.022)	(1.488)	(-5.031)	(-7.027)
LEV_t	-0.018	0.057	0.028	-0.233	0.056	0.027
	(-1.443)	(1.514)	(1.123)	(-1.393)	(1.518)	(1.110)
ROA_t	0.050	0.431***	0.258***	0.685	0.431***	0.258***
	(1.080)	(3.251)	(2.921)	(1.081)	(3.253)	(2.911)
$LOSS_t$	0.042***	0.106***	0.071***	0.569***	0.106***	0.071***
	(4.602)	(4.102)	(4.201)	(4.611)	(4.103)	(4.200)
$RDratio_t$	-0.165***	0.049	0.052	-2.222***	0.048	0.052**
	(-2.951)	(0.271)	(0.440)	(-2.912)	(0.273)	(0.441)
$SIGMA_t$	0.042	-0.055	-0.048	0.652	-0.057	-0.049
	(0.483)	(-0.181)	(-0.243)	(0.540)	(-0.184)	(-0.240)
SOE_t	0.012***	-0.070***	-0.042***	0.160***	-0.070***	-0.042***
	(2.771)	(-5.502)	(-4.981)	(2.751)	(-5.500)	(-4.980)
INS_t	0.021	0.932***	0.608***	0.269	0.933***	0.608***
	(1.080)	(18.470)	(17.080)	(1.041)	(18.488)	(17.081)
$TURNOVER_t$	-0.004	0.004	0.007	-0.055	0.005	0.007
	(-1.013)	(0.281)	(0.712)	(-0.971)	（0.270）	(0.701)
RET_t	0.088	3.318***	1.677***	1.123	3.319***	1.678***
	(0.422)	(4.782)	(3.711)	(0.391)	（4.781）	(3.711)
$Cashflow_t$	0.008	0.071***	0.060***	0.117	0.071***	0.060***
	(0.981)	(2.692)	(3.432)	(1.023)	(2.681)	(3.431)
$Big4_t$	-0.014	-0.018	-0.010	-0.190	-0.018	-0.011
	(-1.533)	(-0.791)	(-0.662)	(-1.513)	(-0.793)	(-0.661)
$Duality_t$	0.001	0.005	-0.000	0.018	0.005	-0.000
	(0.350)	(0.371)	(-0.049)	(0.340)	(0.373)	(-0.042)
$BusyDirector_t$	0.016**	-0.040*	-0.016	0.214**	-0.040*	-0.016
	(2.534)	(-1.934)	(-1.181)	(2.511)	(-1.931)	(-1.180)

$IndDirector_t$	0.128*** (3.321)	-0.141 (-0.282)	-0.039 (-0.532)	1.736*** (3.297)	-0.141 (-1.281)	-0.039 (-0.530)
$Boardsize_t$	0.006*** (4.933)	-0.006* (-1.663)	-0.003 (-1.101)	0.084*** (4.873)	-0.006* (-1.662)	-0.003 (-1.103)
Intercept	-0.204*** (-3.994)	0.550*** (3.821)	0.496*** (5.200)	-2.824*** (-4.030)	0.250 (1.261)	0.496*** (5.212)
Industry effect	Yes	Yes	Yes	Yes	Yes	Yes
Year effect	Yes	Yes	Yes	Yes	Yes	Yes
Observations	18,389	18,389	18,389	18,389	18,389	18,389
Adj. R^2	0.065	0.080	0.080	0.064	0.080	0.080
Minimum eigenvalue statistic		995.366	995.091		987.701	997.428
F-statistic (coefficient estimate for IV = 0)	11.05			11.01		

Table 9: Subsample Analysis on Firms Making Donations

This table presents the regression results on the relationship between affiliated donations and stock price crash risk using a subsample of firms making donations. The dependent variables are the two measures of stock price crash risk, NCSKEW and DUVOL. The independent variables are propensity to make affiliated donations (*Tie*) and the donation amount (*Amount*). Firm fixed effects and year fixed effects are controlled in all regressions. *T*-statistics in parentheses are calculated using heteroscedasticity-robust standard errors. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1) $NCSKEW_{t+1}$	(2) $DUVOL_{t+1}$	(3) $NCSKEW_{t+1}$	(4) $DUVOL_{t+1}$
Tie_t	0.349***	0.213***		
	(9.676)	(9.017)		
$Amount_t$			0.025***	0.016***
			(9.583)	(8.967)
$NCSKEW_t$	-0.100***		-0.100***	
	(-7.854)		(-7.853)	
$DUVOL_t$		-0.115***		-0.115***
		(-9.661)		(-9.659)
$SIZE_t$	0.045	0.009	0.045	0.009
	(1.637)	(0.487)	(1.638)	(0.488)
LEV_t	-0.131	-0.096	-0.131	-0.096
	(-1.142)	(-1.232)	(-1.144)	(-1.233)
ROA_t	-0.986***	-0.861***	-0.988***	-0.862***
	(-3.586)	(-4.625)	(-3.594)	(-4.632)
$LOSS_t$	-0.011	-0.010	-0.011	-0.010
	(-0.229)	(-0.340)	(-0.233)	(-0.344)
$Rdratio_t$	0.001	-0.002	0.001	-0.002
	(0.134)	(-0.604)	(0.132)	(-0.605)
$SIGMA_t$	-0.556	0.023	-0.555	0.023
	(-1.088)	(0.067)	(-1.087)	(0.068)
SOE_t	-0.016	-0.057	-0.017	-0.058
	(-0.187)	(-1.139)	(-0.191)	(-1.143)
INS_t	0.007***	0.005***	0.007***	0.005***
	(6.461)	(6.305)	(6.459)	(6.303)
$TURNOVER_t$	-0.086**	-0.045*	-0.086**	-0.045*
	(-2.230)	(-1.781)	(-2.237)	(-1.787)
RET_t	0.148***	0.108***	0.148***	0.108***
	(7.258)	(7.731)	(7.262)	(7.734)
$Cashflow_t$	0.190***	0.155***	0.189***	0.155***
	(2.714)	(3.481)	(2.704)	(3.471)
$Big4_t$	0.018	0.021	0.019	0.021
	(0.237)	(0.420)	(0.240)	(0.424)
$Duality_t$	-0.015	-0.018	-0.015	-0.018
	(-0.443)	(-0.836)	(-0.441)	(-0.834)
$BusyDirector_t$	-0.076*	-0.048*	-0.076*	-0.048*
	(-1.760)	(-1.672)	(-1.756)	(-1.669)
$IndDirector_t$	0.185	0.216	0.187	0.218
	(0.634)	(1.121)	(0.642)	(1.128)
$Boardsize_t$	-0.003	-0.004	-0.003	-0.004
	(-0.240)	(-0.565)	(-0.236)	(-0.562)

Intercept	-1.246** (-2.108)	-0.403 (-0.998)	-1.247** (-2.110)	-0.404 (-1.000)
Firm Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Observations	9,540	9,540	9,540	9,540
Adj. R^2	0.096	0.101	0.096	0.101

Table 10: Tests for Alternative Explanations.

This table presents the regression results for alternative explanations on the relationship between affiliated donations and stock price crash risk. Panel A focuses on CEO-director social ties. In particular, we include a dummy variable, *Relation*, to capture the social ties between the CEO (chairman) and independent directors, which equals 1 if the CEO or chairman serves in the same foundation as the independent director and 0 otherwise. Panel B focuses on the characteristics of independent directors. *Affdonations* is a dummy variable, which takes the value of 1 if the company made affiliated donations and 0 otherwise. Industry, year, and director fixed effects are controlled in all regressions. *t*-statistics in parentheses are calculated using heteroscedasticity-robust standard errors. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: CEO-Director Social Ties

	(1) $NCSKEW_{t+1}$	(2) $DUVOL_{t+1}$	(3) $NCSKEW_{t+1}$	(4) $DUVOL_{t+1}$
Tie_t	0.359***	0.219***		
	(13.152)	(12.084)		
$Amount_t$			0.026***	0.016***
			(12.542)	(11.829)
$Relation_t$	-0.068	-0.031	-0.067	-0.031
	(-0.446)	(-0.312)	(-0.506)	(-0.330)
Intercept	-0.880***	-0.280	-0.879**	-0.280
	(-2.639)	(-1.267)	(-2.575)	(-1.193)
Control variables	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Observations	18,389	18,389	18,389	18,389
Adj. R^2	0.117	0.112	0.078	0.082

Panel B: Characteristics of Independent Directors

	(1) $NCSKEW_{t+1}$	(2) $DUVOL_{t+1}$
$Affdonations_t$	0.447***	0.268***
	(11.717)	(10.677)
Intercept	-0.514	-0.399
	(-0.704)	(-0.816)
Control variables	Yes	Yes
Industry Fixed Effects	Yes	Yes
Year Fixed Effects	Yes	Yes
Director Fixed Effects	Yes	Yes
Observations	1,330	1,330
Adj. R^2	0.206	0.199

Table 11: The Moderating Role of Corporate Governance

This table presents the regression results regarding the moderating role of corporate governance in shaping the relation between affiliated donation and stock price crash risk. Columns (1) - (4) focus on internal control, where *LowIncontrol* is a dummy variable, which equals to 1 if a firm's internal control is lower than the industry median in a given year and 0 otherwise. Columns (5) - (8) focus on audit quality, where *Big4* is a dummy variable which equals to 1 if the firm is audited by one of the Big 4 auditing firms and 0 otherwise. Firm and year fixed effects are controlled in all regressions. *t*-statistics in parentheses are calculated using heteroscedasticity-robust standard errors. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	Internal Control				Big 4 Auditing Firm			
	（1）	（2）	（3）	（4）	（5）	（6）	（7）	（8）
	$NCSKEW_{t+1}$	$DUVOL_{t+1}$	$NCSKEW_{t+1}$	$DUVOL_{t+1}$	$NCSKEW_{t+1}$	$DUVOL_{t+1}$	$NCSKEW_{t+1}$	$DUVOL_{t+1}$
Tie_t*$LowIncontrol_t$	0.103**	0.066**						
	(2.294)	(2.050)						
$Amount_t$*$LowIncontrol_t$			0.022***	0.013***				
			(8.715)	(7.333)				
Tie_t*$Big4_t$					-0.205**	-0.219***		
					(-2.322)	(-3.726)		
$Amount_t$*$Big4_t$							-0.015**	-0.016***
							(-2.304)	(-3.694)
Tie_t	0.298***	0.180***			0.375***	0.236***		
	(8.821)	(7.381)			(12.627)	(12.389)		
$Amount_t$			0.022***	0.013***			0.027***	0.017***
			(8.715)	(7.333)			(12.528)	(12.337)
$Incontrol_t$	0.042***	0.030***	0.042***	0.030***				
	(3.310)	(3.528)	(3.302)	(3.523)				
Intercept	-0.887***	-0.287	-0.888***	-0.287	-0.899***	-0.303	-0.899***	-0.303
	(-2.609)	(-1.223)	(-2.611)	(-1.224)	(-2.630)	(-1.290)	(-2.629)	(-1.288)
Baseline Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	18,384	18,384	18,384	18,384	18,389	18,389	18,389	18,389
Adj. R^2	0.079	0.083	0.079	0.083	0.078	0.082	0.078	0.082

Table 12: The Moderating Role of Information Transparency

This table presents the regression results on the moderating role of information transparency in shaping the relation between affiliated donation and stock price crash risk. Columns (1) - (4) use analyst coverage to proxy for information transparency, where *LowAnalyst* is a dummy variable, which equals to 1 if a firm's analyst coverage is lower than its industry median in a given year and 0 otherwise. Columns (5) - (8) use financial restatement to proxy for information transparency, where *Restatement* is a dummy variable, which equals to 1 during the misstatement period (i.e., the period during which financial reports were materially misstated) and 0 otherwise. Columns (9) - (12) use financial reporting quality to proxy for information transparency, where *Opaque* is a dummy variable, which equals to 1 if the financial reporting quality in a given year is rated as poor and 0 otherwise. Firm and year fixed effects are controlled in all regressions. *t*-statistics in parentheses are calculated using heteroscedasticity-robust standard errors. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	Analyst Coverage				Restatement				Financial Reporting Quality			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	NCSKEW$_{t+1}$	DUVOL$_{t+1}$	NCSKEW$_{t+1}$	DUVOL$_{t+1}$	NCSKEW$_{t+1}$	DUVOL$_{t+1}$	NCSKEW$_{t+1}$	DUVOL$_{t+1}$	NCSKEW$_{t+1}$	DUVOL$_{t+1}$	NCSKEW$_{t+1}$	DUVOL$_{t+1}$
Tie_t*$LowAnalyst_t$	0.124**	0.076**										
	(2.243)	(2.040)										
$Amount_t$*$LowAnalyst_t$			0.009**	0.006**								
			(2.252)	(2.027)								
Tie_t*$Restatement_t$					0.130**	0.080**						
					(2.473)	(2.147)						
$Amount_t$*$Restatement_t$							0.010**	0.006**				
							(2.532)	(2.203)				
Tie_t*$Opaque_t$									0.536***	0.251**		
									(4.191)	(2.520)		
$Amount_t$*$Opaque_t$											0.039***	0.019**
											(4.221)	(2.546)
Tie_t	0.282***	0.168***			0.339***	0.207***			0.395***	0.245***		
	(7.464)	(6.194)			(11.139)	(10.386)			(12.422)	(12.198)		
$Amount_t$			0.021***	0.012***			0.025***	0.015***			0.029***	0.018***
			(7.405)	(6.165)			(11.050)	(10.341)			(12.336)	(12.156)
$Analyst_t$	-0.055***	-0.018	-0.055***	-0.018								
	(-3.194)	(-1.509)	(-3.205)	(-1.516)								
$Restatement_t$					0.024	0.017	0.024	0.017				

					(1.476)	(1.545)	(1.472)	(1.543)				
$Opaque_t$									0.205***	0.127***	0.205***	0.127***
									(3.352)	(3.156)	(3.352)	(3.153)
Intercept	-1.002**	-0.391	-1.000**	-0.390	-0.879***	-0.281	-0.879***	-0.281	-1.417***	-0.646**	-1.416***	-0.646**
	(-2.337)	(-1.347)	(-2.333)	(-1.343)	(-2.580)	(-1.201)	(-2.580)	(-1.200)	(-3.286)	(-2.121)	(-3.285)	(-2.120)
Baseline Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	13,783	13,783	13,783	13,783	18,389	18,389	18,389	18,389	15,076	15,076	15,076	15,076
Adj. R^2	0.092	0.093	0.092	0.093	0.078	0.082	0.078	0.082	0.094	0.101	0.094	0.101

Table 13: Independent Directors Behavior

This table presents the regression results regarding the impact of affiliated donations on independent directors' attendance of board meetings and the number of objections issued by independent directors. *Absent* is defined as the ratio of the average number of times that independent directors of the firm are absent from the board meetings, divided by the total number of scheduled board meetings. *NUM* is the number of non-affirmative responses issued by independent directors during board meetings. Firm and year fixed effects are controlled in all models. *t*-statistics in parentheses are calculated using heteroscedasticity-robust standard errors. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1) Absent $_{t+1}$	(2) Absent $_{t+1}$	(3) NUM $_{t+1}$	(4) NUM $_{t+1}$
Tie_t	-0.005***		-0.018***	
	(-3.685)		(-2.910)	
$Amount_t$		-0.000***		-0.001***
		(-3.656)		(-2.902)
$SIZE_t$	0.001	0.001	0.008	0.008
	(1.338)	(1.338)	(0.973)	(0.973)
LEV_t	-0.005	-0.005	0.049	0.049
	(-1.166)	(-1.167)	(0.928)	(0.927)
ROA_t	-0.019**	-0.019**	-0.252***	-0.252***
	(-1.961)	(-1.961)	(-2.627)	(-2.627)
$LOSS_t$	0.001	0.001	0.006	0.006
	(0.592)	(0.592)	(0.620)	(0.620)
$RDratio_t$	-0.034	-0.034	0.433	0.433
	(-1.515)	(-1.513)	(1.619)	(1.619)
$SIGMA_t$	0.030**	0.030**	0.159	0.159
	(2.071)	(2.073)	(1.143)	(1.144)
SOE_t	0.002	0.002	-0.018	-0.018
	(0.816)	(0.817)	(-1.511)	(-1.511)
INS_t	-0.001	-0.001	0.023	0.023
	(-0.290)	(-0.291)	(0.971)	(0.971)
$TURNOVER_t$	-0.001	-0.001	-0.007	-0.007
	(-1.357)	(-1.357)	(-1.193)	(-1.193)
RETt	-0.095***	-0.095***	-0.446	-0.446
	(-2.839)	(-2.840)	(-1.403)	(-1.403)
$Cashflow_t$	0.001	0.001	0.006	0.006
	(0.658)	(0.659)	(0.403)	(0.404)
$Big4_t$	-0.003	-0.003	-0.025	-0.025
	(-0.703)	(-0.704)	(-1.294)	(-1.295)
$Duality_t$	-0.001	-0.001	-0.009	-0.009
	(-0.889)	(-0.890)	(-1.421)	(-1.421)
$BusyDirector_t$	-0.001	-0.001	-0.022	-0.022
	(-0.678)	(-0.679)	(-1.196)	(-1.196)
$IndDirector_t$	0.006	0.006	0.096	0.096
	(0.496)	(0.495)	(1.246)	(1.245)

$Boardsize_t$	0.001**	0.001**	-0.002	-0.002
	(2.455)	(2.454)	(-0.696)	(-0.696)
Intercept	-0.007	-0.007	-0.164	-0.164
	(-0.305)	(-0.305)	(-0.936)	(-0.936)
Firm Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Observations	17,252	17,252	18,389	18,389
Adj. R^2	0.043	0.043	0.007	0.007

Appendix A: Variable Definitions

Variables	Definition and Measurement
Dependent Variables	
NCSKEW	The negative skewness of a firm's weekly returns over the fiscal year, measured as the negative value of the third moment of firm-specific weekly returns during the year divided by the standard deviation of firm-specific weekly returns raised to the third power (e.g., Chen et al., 2001).
DUVOL	The down-up volatility for a given firm over a given year, measured as the negative value of the third moment of firm-specific weekly returns during the same year over the standard deviation of firm-specific weekly returns raised to the third power (e.g., Kim and Zhang, 2016).
Crash1	A dummy variable that equals 1 if a firm experiences one or more crash weeks over a year and 0 otherwise. Following Hutton et al. (2009), we define crash weeks as those with firm-specific weekly returns below the mean by over 3.09 standard deviations.
Crash2	The number of times that firm-specific weekly returns are below the mean by more than 3.09 standard deviations in a given year.
Crash3	A dummy variable that equals 1 if a firm experiences one or more crash weeks over a year and 0 otherwise. Following Kim et al. (2011), we define crash weeks as those with firm-specific weekly returns below the mean by over 3.20 standard deviations.
Crash4	The number of times that firm-specific weekly returns are below the mean by more than 3.20 standard deviations in a given year.
Key Independent Variables	
Tie	A dummy variable that equals 1 if a firm donates to at least one foundation affiliated with one or more of its independent directors in a given year and 0 otherwise.
Amount	Logarithm of 1 plus all donations (>=0.5 million) made to foundations affiliated with a firm's independent directors in a given year.
Control Variables	
SIZE	Natural logarithm of total assets.
LEV	Total liabilities scaled by total assets.

ROA	Net income scaled by total assets.
LOSS	A dummy variable that equals 1 if the company reports negative net incomes during a year and 0 otherwise
RDratio	Research and development expenditure scaled by total assets.
SIGMA	Standard deviation of firm-specific weekly returns over the 12-month period ending at the fiscal year-end.
SOE	A dummy variable that equals 1 if the company is controlled by the government and 0 otherwise.
INS	Percentage of shares held by institutional investors.
TURNOVER	De-trended average monthly stock turnover in year t.
RET	Mean of firm-specific weekly returns in year t.
Cashflow	Operating income before depreciation minus interest expenses, income taxes, and capital expenditures, scaled by total assets.
Big4	A dummy variable that equals 1 if the auditor is one of the big 4 auditing firms and 0 otherwise.
Duality	A dummy variable that equals 1 if the CEO is also Chairman of the board, and 0 otherwise.
BusyDirector	Percentage of independent directors who serve on three or more boards.
IndDirector	Percentage of independent board members.
Boardsize	Number of directors on the board.

Variables Used in Further Analysis

Initiation	A dummy variable that equals 1 if a firm donates to at least one charity affiliated with at least one independent director for the first time and 0 otherwise.
Termination	A dummy variable that equals 1 if a firm stops donating to all foundations that are affiliated with any independent directors and 0 otherwise.
Number	Number of foundations within 30 km distance of listed companies.
Relation	A dummy variable that equals 1 if the CEO or chairman serves in the same foundation as the independent director and 0 otherwise.
LowIncontrol	A dummy variable that equals 1 if the internal control quality is lower than the industry average and 0 otherwise.
LowAnalyst	A dummy variable that equals 1 if the analyst coverage is lower than the industry average and 0 otherwise.

Restatement	A dummy variable that equals 1 during the misstatement period (i.e., the period during which financial reports were materially misstated) and 0 otherwise.
Opaque	A dummy variable that equals 1 if the financial report in the current year is evaluated as poor and 0 otherwise.
Absent	The ratio of independent directors who do not attend board meetings in person, measured as the average number of absences across independent directors divided by the total number of scheduled board meetings.
NUM	Number of non-affirmative responses issued by independent directors.