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Article

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Reputation repair and corporate donations: An investigation of responses to regulatory penalties

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ABSTRACT

According to the risk management and reputation insurance theory of corporate social responsibility, corporate donations can help a company to repair its reputation after a crisis. This study uses a propensity score matching–difference in difference (PSM + DID) methodology to investigate the charitable donation activities of companies that have been subject to regulatory penalties. The analysis of a sample of A-share listed companies in the 2004–2016 period shows that companies significantly increase their charitable donations after regulatory penalties, but this effect weakens over time. Further analysis reveals that non-state-owned companies, companies with higher ownership concentrations, and companies receiving severer penalties are more motivated to make donations after regulatory penalties. By studying the reputation repair behavior of companies that have been subject to regulatory penalties, this study offers further support for the risk management and reputation insurance theory of corporate social responsibility. It also enriches our understanding of companies' active responses to regulatory penalties and provides insights into companies' motives for making charitable donations.

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1. Introduction

After the Wenchuan Earthquake in 2008, the charitable donations made by China's listed companies reached an unprecedented level (Ran et al., 2010; Xu et al., 2011), sparking a wider discussion on companies'

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charitable donations. A charitable donation is one dimension of corporate social responsibility (CSR). CSR is a complex concept with multiple dimensions (Gao et al., 2012). The pyramid model of Carroll (1991) splits CSR into four components: economic responsibilities, legal responsibilities, ethical responsibilities, and charitable (or philanthropic) responsibilities. The first three are mandatory responsibilities: for example, a company's economic responsibilities are part of its basic function. Carroll places charitable responsibilities at the top of the pyramid, as they are optional.

According to traditional CSR theory, a charitable donation is an altruistic behavior that is not related to a company's ability to make a profit (Berman et al., 1999). However, a company, as a rational economic organization, aims to maximize shareholders' value. Accordingly, altruism cannot fully explain donation behavior (Xu et al., 2011; Li et al., 2016). In the strategic donation view (Logsdon et al., 1990), charitable donations are a vital component of a company's overall strategy (Post and Waddock, 1995). Specifically, making charitable donations can help a company to obtain tax preferences (Navarro, 1988), advertise itself (Brown et al., 2006; Shan et al., 2008), establish or maintain political connections (Sánchez, 2000; Jia and Zhang, 2010; Liang et al., 2010; Zhang et al., 2013; Dai et al., 2014), enhance market competitiveness (Mescon and Tilson, 1987; Porter and Kramer, 2002), etc. Furthermore, according to the agency theory, managers can exploit donations for personal rather than shareholders' interests (Werbel and Carter, 2002; Masulis and Reza, 2015).

Recently, a growing number of studies have used the risk management perspective to examine how CSR can address potential reputation loss. Godfrey (2005) shows that CSR enhances and generates moral capital, which protects firms' relationship-based intangible assets. In this view, charitable donations can help to mitigate the potential reputation loss caused by negative shocks. Accordingly, CSR can be considered an *ex-ante* risk management behavior to cope with future negative incidents; it is like insurance on a company's reputation (Bebbington et al., 2008; Minor and Morgan, 2011; Shiu and Yang, 2017; Luo et al., 2018; Hogarth et al., 2018).

The risk management view of CSR considers CSR to be insurance against rainy days. However, a company can also make charitable donations after a negative event to prevent further loss of reputation (Koehn and Ueng, 2010; Gao et al., 2012; Dai et al., 2016; Li et al., 2016; Fu and Ji, 2017). In other words, a charitable donation can be used to repair a damaged reputation. Few studies have used this reputation perspective to examine companies' donation behavior after negative events.

It is unclear whether companies increase charitable donations to repair damaged reputations. With the continuous advances and improvements in China's capital market, the government is continuously working to improve its regulatory system and facilitate the enforcement of regulations. As a result, the immoral behavior (corporate fraud) of a growing number of companies has been detected and punished. The regulatory penalties imposed on companies engaged in corporate fraud (Gu et al., 2016) cause severe damage to the companies' reputations, which is associated with a significantly negative stock price reaction (Chen and Gao, 2005; Yang et al., 2008). Furthermore, the financing capacity and profitability of these companies decline significantly in the long run (Karpoff and Lott, 1993; Graham et al., 2008; Chen et al., 2011; Johnson et al., 2014; Liu and Chen, 2018), which significantly decreases their value. According to the image restoration theory (Benoit, 1995), reputation is an organization's most important asset, and it is strategically important for a company to maximize its reputation (or public image).

This study investigates whether companies use donations to reduce stakeholders' hostility and repair damaged reputations. We use a sample of Chinese A-share non-financial listed companies from the 2004 to 2016 period to examine changes in charitable donations after negative events. Using a propensity score matching-difference in difference (PSM + DID) design to control for self-selection bias, we find a significant increase in donations by companies that have been subject to regulatory penalties. However, this increase is only significant in the first year after the penalty, suggesting that the donation is used as an instrument to repair the damaged reputation. The effect of regulatory penalties on donations is stronger when the penalty is more severe and in non-state-owned companies. In addition, the alignment effect of large shareholders increases companies' motivation and ability to make donations after being subjected to regulatory penalties. We further demonstrate the reputation repair effect of donations by showing a positive association between donations and companies' bank loan financing.

This study makes several contributions. First, the risk management view of CSR considers donations to be insurance investments that should be made *before* negative events occur. Extending this view, we suggest that a

company will also increase donations *after* a negative event to repair a damaged reputation. This study provides empirical support for this argument by showing a significant increase in donations by companies that have been punished for committing fraud. Second, this study enriches our understanding of the economic consequences of regulatory enforcement. Previous studies have focused on the behavior of outside stakeholders (e.g. investors and customers) after regulatory penalties (Chen et al., 2005; Chen and Gao, 2005; Gu et al., 2016). This study extends this line of research by examining how companies respond to reputation-damaging events. Finally, the study provides a new perspective for understanding and evaluating companies' donation behavior.

2. Theoretical analysis and research hypothesis

There is a heated debate about whether CSR improves a company's value (Jones, 1995; Preston and O'Bannon, 1997; Porter and Kramer, 2002; Godfrey, 2005). As a critical part of strategic CSR, charitable donations are assumed to directly or indirectly enhance value (Zucker, 1986; Fombrun and Shanley, 1990; Cornwell and Coote, 2005).

Studies of Western institutions have explored companies' motivations for making charitable donations. Zhang et al. (2010) have identified four types of motivations for donations: strategic, political, altruistic, and managerial utility. Some studies argue that donating is an expression of a company's devotion to others and is not self-serving (Campbell et al., 1999; Cooter and Broughman, 2005), whereas other studies shed light on less altruistic motives. Strategically, a donation can serve as an advertisement or as propaganda, helping a company to gain strategic resources (e.g., market reputation) (Harbaugh, 1998; Strahilevitz, 1999; Porter and Kramer, 2002; Brown et al., 2006). Politically, a donation helps build and increase trust between the company and the government, which in turn helps the company to gain political resources (Sánchez, 2000; Scherer and Palazzo, 2007; Wang and Qian, 2011). For the managerial utility, a company may improve its social image by making donations, which can significantly improve the manager's fame and status (Atkinson and Galaskiewicz, 1988; Galaskiewicz, 1997).

A growing number of scholars are becoming interested in the donation behavior of Chinese companies. Unlike Western countries, which have well-constructed market economic systems, China is a transforming economy where substantial amounts of resources are still controlled by the government. Given the institutional constraints, Chinese companies have multiple motives for making donations, such as establishing or maintaining political connections (Jia and Zhang, 2010; Liang et al., 2010; Zhang et al., 2013; Dai et al., 2014), gaining debt financing benefits (Li et al., 2015), or avoiding policy uncertainty (Zhong, 2007; Tang et al., 2014).

Several recent studies have proposed reputation repair as a motive for charitable donations. Studies have shown that companies increase donations after failures in employee responsibility (Gao et al., 2012), environmental protection or production security (Chen et al., 2008), or when they make financial restatements (Koehn and Ueng, 2010), suffer performance decline or loss (Li et al., 2016), or litigation risk (Dai et al., 2016; Fu and Ji, 2017). Corporate fraud is much more damaging to a company's reputation than these negative events, as corporate fraud includes operational misbehavior, information disclosure violations, and misconduct in the capital market (e.g. stock price manipulation). Moreover, regulatory penalties for fraud affect investors' evaluations of a company's quality and reputation (Feroz et al., 1991; Chen and Gao, 2005; Yang et al., 2008). Thus, understanding the interaction between regulatory penalties and companies' donation behavior has theoretical and practical value.

There are two possible ways that charitable donations can repair the reputations of companies that have received regulatory penalties due to fraud. First, a donation has a signaling effect on the market. Stakeholders (e.g., banks, customers, and suppliers) hold the resources that companies need to develop (Donaldson and Preston, 1995), and they will have doubts about the financial condition of companies that have committed fraud. This will damage the partnerships between a company and its stakeholders, resulting in reduced profits (Karpoff and Lott, 1993; Johnson et al., 2014) and bank loans (Chen et al., 2011; Liu and Chen, 2018) and increased financing costs (Klein and Leffler, 1981; Chen et al., 2011). As donations represent an outflow of cash, donations cannot be implemented unless there are disposable cash resources (Li et al., 2016); therefore, making a donation after a regulatory penalty can be a signal that the company is in a good financial condition

with a positive attitude to future performance (Shapira, 2012; Lys et al., 2015). This, in turn, improves stakeholders' confidence in the company's future performance and protects the company's reputation.

Second, according to the risk management view, a donation can form and improve a company's moral capital. As they are voluntary, charitable donations can generate stronger social effects than other CSR activities. Godfrey (2005) documents that CSR activities generate positive moral capital, which work as insurance on firms' relationship-based intangible assets and increase the value of the company. A number of studies (Godfrey, 2005; Bebbington et al., 2008; Godfrey et al., 2009) have provided evidence that making donations during negative events helps to conceal the events or divert the public's attention away from the company's misconduct or lack of CSR (Campbell, 2007; Koehn and Ueng, 2010), and then helps to repair the damaged reputation (Godfrey et al., 2009; Koehn and Ueng, 2010; Fu and Ji, 2017). Studies also show that when faced with a negative event, higher donations are associated with lower stock price reductions (Godfrey et al., 2009; Minor and Morgan, 2011; Shiu and Yang, 2017).

Based on the above analysis, we propose the following hypothesis.

Hypothesis 1. Companies that receive a regulatory penalty for fraudulent activities will make more charitable donations than companies that have not been penalized.

3. Research design

3.1. Empirical model and variable definitions

Building on Luong et al. (2017), we use a PSM + DID methodology to investigate the donation behavior of companies that have been given regulatory penalties. First, we use a propensity score matching method to match each donation observation from a company that has been penalized for fraud ($Fraud = 1$), with an observation from a company that has never been penalized ($Fraud = 0$). In such a way, we obtain a matched treatment group and control group. Then, we set a time variable, $Post$, that equals one in the year following each regulatory penalty event. For each company in the control group, the value of $Post$ is the same as its matching treatment group company. We use the following pooled OLS model to identify the relationship between regulatory penalty and donation:

$$Dona_{it} = \beta_0 + \beta_1 Post_{it} + \beta_2 Fraud_{it} + \beta_3 Fraud_{it} \times Post_{it} + \sum Controls_{it-1} + \sum Ind + \sum Year + \varepsilon_{it}. \quad (1)$$

In Model (1), the dependent variable $Dona_{it}$ measures the charitable donation of firm i in year t as the natural logarithm of the amount of the company's donation. $Post_{it}$ is the post-regulatory penalty time variable. $Fraud_{it}$ is a binary variable that distinguishes a fraud company ($Fraud = 1$) from a non-fraud company ($Fraud = 0$). $Controls$ is a set of control variables, including firm size ($Size$), asset-liability ratio (Lev), sales expenses to assets ($Sales Fee$), patent applications ($Patent$), board size ($Board Size$), cash holding ($Cash$), return on assets (ROA), growth potential ($TobinQ$), if state-owned (SOE), firm age (Age), GDP per capita ($GDPPC$, 10,000 Yuan per person), board independence ($Board Inde$), and duality of the president and CEO ($Dual$). In addition, industry and year fixed effects are controlled in Model 1. See Table 1 for detailed variable definitions.

Further, to control potential individual firm factors, we refer to Beck et al. (2010) and adopt the following model to examine companies' donations after being given a regulatory penalty:

$$Dona_{it} = \beta_0 + \beta_1 Fraud_{it} \times Post_{it} + \sum Controls_{it-1} + \sum Firm + \sum Year + \varepsilon_{it}. \quad (2)$$

3.2. Data source and sample selection

Our initial sample consists of China's A-share non-financial listed companies from the 2004 to 2016 period. Donation data are from the CSMAR database. To eliminate the variation caused by multi-regulatory penalties, we delete companies that have been penalized for fraud more than once. We also delete firm-year

Table 1
Variable definitions.

<i>Dona</i>	Company donation; equals the natural logarithm of (donation amount + 1)
<i>Post</i>	Equals 1 if the observation is after (not including) the year of the regulatory penalty, and otherwise 0. For companies that were not penalized, <i>Post</i> is the same value as their matched penalized company
<i>Fraud</i>	If a company is penalized in any year, all of the observations of that company are equal to 1. If the company has never been penalized, all of the observations of that company are equal to 0
<i>Size</i>	The natural logarithm of a company's total assets at the end of the year
<i>Lev</i>	Leverage; equals the total liabilities divided by total assets at the end of the year
<i>Sales Fee</i>	Sales expense; equals sales expenses divided by total assets at the end of the year
<i>Patent</i>	Patent application; equals the natural logarithm of (number of patent applications + 1)
<i>Board Size</i>	The natural logarithm of the number of board members.
<i>Cash</i>	Cash holdings; equal to the cash and cash equivalents divided by (total assets- cash and cash equivalents)
<i>ROA</i>	Return on assets; equal to the net profit divided by total assets at the end of the year
<i>TobinQ</i>	Tobin's Q measures a company's growth potential as equal to the market value divided by book value of assets at the end of the year
<i>SOE</i>	A dummy variable that equals 1 if the firm is state-owned, and 0 otherwise
<i>Age</i>	Firm age; equal to the natural logarithm of (years since IPO + 1)
<i>GDPPC</i>	GDP per capita, which equals 10,000 Yuan per person
<i>Dual</i>	Board duality; equals 1 if the board president and the CEO is the same person, and otherwise 0
<i>Board Inde</i>	Board independence; equals the number of independent directors divided by the number of board members

observations that are missing data on donations, and observations that are missing data on firm-specific control variables. Our final research sample consists of 6349 observations. All of the continuous variables are winsorized at their 1% and 99% quantiles.

4. Descriptive analysis

4.1. Characteristics of penalized firms

In Table 2, we report the characteristics of our sample observations. Panel A of Table 2 gives the distribution of the sample by year, and Panel B gives the distribution by penalty type. Panel A shows that in the pre-2010 period penalties are relatively rare, but they increase in the post-2011 period. On average, about 50 companies (2.54%) are penalized each year. Panel B shows that about 73% of the penalized firms have an *other* penalty type, leaving about one quarter with a specific penalty type. The *other* penalty category primarily refers to non-administrative penalties such as proposed rectification, rectification reports, and enhanced learning. Specific penalties are administrative penalties imposed by supervisory bodies. They have a relatively higher deterrence power and a higher penalty effect.

4.2. Descriptive statistics

Fig. 1 shows the trend in the total amount of donations (CNY, Yuan) over the sample period. There is a big increase in 2008 (the year of the Wenchuan earthquake).¹ After 2008, the total amount of donations stabilizes at a higher level than before the earthquake.

Table 3 reports the correlation coefficients and descriptive statistics for the variables in Models 1 and 2. The correlation between regulatory penalty (*Post*) and donation (*Dona*) is positive but not significant, revealing that after a penalty for fraud, firms are likely to increase their charitable donations. To clarify the relation between *Post* and *Dona*, it is necessary to examine the differences between the control and treatment groups. The correlations between the other variables have absolute values under 0.5, suggesting there is no serious

¹ To eliminate the impact of extreme events on companies' donations, we follow previous studies and delete observations from 2008 and re-run the analysis. Our results remain similar.

Table 2
Characteristics of penalized firms.

Panel A: Distribution by year				Panel B: Distribution by penalty type			
Year	Number of listed companies	Frequency of regulatory penalty	Percentage of regulatory penalty (%)	Type of regulatory penalty	Number of listed companies	Frequency (%)	Cumulative frequency (%)
2004	1048	15	1.43	Other	501	72.93	72.93
2005	1051	16	1.52	Criticism	86	12.52	85.44
2006	1114	3	0.26	Confiscation	2	0.29	85.74
2007	1192	11	0.92	Confiscation & Other	1	0.15	85.88
2008	1230	14	1.13	Confiscation & Fines	1	0.15	86.03
2009	1471	15	1.01	Fines	29	4.22	90.25
2010	1705	18	1.05	Fines & Other	6	0.87	91.12
2011	1877	55	2.93	Fines & Confiscation	3	0.44	91.56
2012	1983	123	6.2	Warning	2	0.29	91.85
2013	2022	110	5.44	Warning & Fines	19	2.77	94.61
2014	2129	66	3.1	Warning & Fines & Other	2	0.29	94.91
2015	2299	80	3.47	Blame	34	4.95	99.85
2016	2574	118	4.58	Blame & Fines	1	0.15	100
Average	1669	50	2.54	Total	687	100	

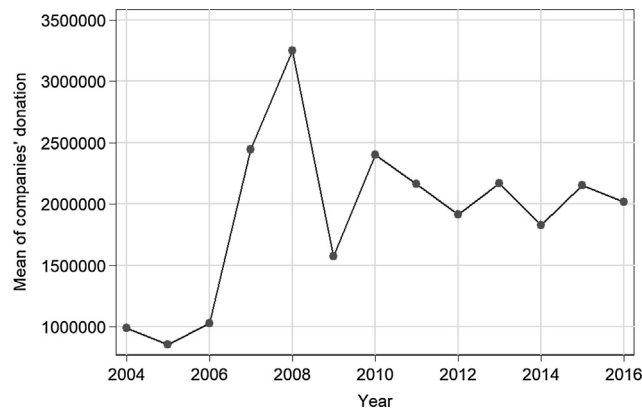


Fig. 1. Total amount of donations (CNY, Yuan) over the sample period.

collinearity problem among our variables. The descriptive statistics in Table 3 show reasonable results for all of the variables.

4.3. Univariate analysis before PSM

We compare the median differences between donations before and after a company was penalized for fraud. Panels A and B, Table 4 show the results for the logarithm of and total amount of donations, respectively. The results indicate that the median donation in a year after a penalty for fraud is significantly larger than in the year the penalty was given. Moreover, in the two- to three-year period after the penalty, the median donation continues to increase, although this change is not significant. Table 4 shows similar results when the median donation amounts are compared with the medians of a year before the penalty: the median donation one year after the penalty is significantly larger, and the median donation two and three years after the penalty are larger, but not significantly. These results suggest that when a company is subject to regulatory penalties, it increases its charitable donations. However, this increase is usually short-term, suggesting that the donations are made for instrumental reasons.

Table 3
Correlation coefficients and descriptive statistics.

	<i>Dona</i> (1)	<i>Post</i> (2)	<i>Size</i> (3)	<i>Lev</i> (4)	<i>Sales Fee</i> (5)	<i>Patent</i> (6)	<i>Board Size</i> (7)	<i>Cash</i> (8)	<i>ROA</i> (9)	<i>TobinQ</i> (10)	<i>SOE</i> (11)	<i>Age</i> (12)	<i>GDPPC</i> (13)	<i>Dual</i> (14)	<i>Board Inde</i> (15)
(1)	1.000														
(2)	0.002	1.000													
(3)	0.273***	0.028**	1.000												
(4)	0.102***	0.045***	0.530***	1.000											
(5)	0.126***	0.021*	−0.057***	−0.078***	1.000										
(6)	0.129***	0.016	0.376***	0.130***	0.114***	1.000									
(7)	0.086***	−0.052***	0.268***	0.196***	0.007	0.040**	1.000								
(8)	−0.072***	−0.115***	−0.281***	−0.497***	0.036***	−0.056***	−0.088***	1.000							
(9)	0.138***	−0.077***	−0.064***	−0.420***	0.235***	0.050**	0.005	0.251***	1.000						
(10)	−0.058***	−0.021*	−0.381***	−0.458***	0.166***	−0.113***	−0.166***	0.265***	0.440***	1.000					
(11)	−0.023*	−0.045***	0.358**	0.363***	0.003	0.050**	0.265***	−0.178***	−0.147***	−0.239***	1.000				
(12)	0.062***	0.127***	0.449***	0.483***	0.105***	0.113***	0.140***	−0.462***	−0.213***	−0.275***	0.435***	1.000			
(13)	0.000	0.065***	0.068**	−0.132***	−0.040***	0.049***	−0.174***	−0.004	0.029**	0.118***	−0.217***	−0.043***	1.000		
(14)	−0.019	−0.020	−0.183***	−0.202***	0.014	0.039***	−0.179***	0.158***	0.066***	0.133***	−0.257***	−0.241***	0.111***	1.000	
(15)	0.004	0.036***	0.031**	−0.017	0.012	0.067***	−0.445***	0.009	−0.026**	0.045***	−0.060***	−0.039***	0.063***	0.109***	1.000
Obs.	6349	6349	6349	6349	6349	6349	6349	6349	6349	6349	6349	6349	6349	6349	6349
Mean	11.147	0.134	21.812	0.387	0.047	2.584	2.280	0.351	0.052	2.366	0.357	1.626	5.347	0.283	0.369
Std.	4.390	0.341	1.210	0.201	0.053	1.255	0.170	0.441	0.049	1.919	0.479	0.871	2.338	0.451	0.052
Min	0.000	0.000	18.812	0.050	0.000	0.693	1.792	0.003	−0.327	0.150	0.000	0.000	0.432	0.000	0.182
Max	17.123	1.000	26.487	1.603	0.278	8.412	2.773	2.408	0.202	12.115	1.000	3.178	10.796	1.000	0.571

Note: *** and ** indicate significance at the 1% and 5% levels, respectively.

Table 4

Donations before and after a regulatory penalty.

Panel A: Natural logarithm of (donation amount + 1)

t	−1	0	+1	+2	+3
Median	11.905	11.918	12.429	12.003	12.055
Compared with the year of the regulatory penalty			(+1)−(0) 0.511***	(+2)−(0) 0.09	(+3)−(0) 0.085
Compared with one year before the regulatory penalty			(+1)−(−1) 0.524***	(+2)−(−1) 0.098	(+3)−(−1) 0.150

Panel B: Donation amount

t	−1	0	+1	+2	+3
Median	148000.000	150000.000	249997.500	163200.000	171892.300
Compared with the year of the regulatory penalty			(+1)−(0) 99997.500**	(+2)−(0) 13200.000	(+3)−(0) 21892.330
Compared with one year before the regulatory penalty			(+1)−(−1) 101997.500***	(+2)−(−1) 15200.000	(+3)−(−1) 15200.000

Note: *** and ** indicate significance at the 1% and 5% levels, respectively.

5. Empirical analysis

5.1. PSM process

We use the PSM method to match each observation of a company that has been penalized with an observation from the same year from an unpenalized company. Specifically, we use the nearest neighbors matching process with 1 to 3 matching to meet the balance hypothesis, which is discussed below. The result is paired treatment and control groups. Then, we set the *Post* of companies in the control group to have the same value as their matched treatment companies.

5.1.1. Balancing assumption

We follow Gu et al. (2016) and choose a set of matching variables. Their differences before and after the PSM process are listed in Table 5. As shown in Table 5, before the PSM, there are significant differences between the treatment and control groups for almost all of the variables, whereas these differences become insignificant after the PSM process, suggesting that the balancing assumption is well satisfied.

5.1.2. Common support assumption

Figs. 2 and 3 display the kernel density function before and after the PSM process, respectively. Fig. 2 shows clear differences in the kernel density functions of the treatment and control groups, indicating that the results may be biased if the whole sample is analyzed without a matching process. Fig. 3 shows that after the matching process, the kernel density functions of the two samples almost completely coincide, indicating that there is no obvious difference between the treatment and control groups after the PSM process. These results suggest that the common support assumption is well satisfied.

5.1.3. Parallel trend assumption

Before the DID analysis, it is necessary to ensure that the trends in donations in the treatment and control groups are parallel. Fig. 4 displays the trend in donations before and after the fraud penalties in the treatment and control groups after the PSM process. The trends in the donations of the treatment and control groups before any penalties are basically the same. After a penalty, the trend in the control group is stable, whereas in the treatment group there is a sharp increase in the first year after the penalty, followed by a pullback in the second year after the penalty. After two years, the treatment group and control group again have similar trends in donations. Fig. 4 supports the instrumental donation argument, which suggests that companies

Table 5
Balancing assumption of the PSM.

Variable	Definition	Period	Treatment	Control	Bias	Bias reduced	T-value
<i>OwnCon</i>	Ownership concentration; the total squares of the three largest shareholders' shareholdings	Before	0.162	0.178	−12.9		−2.91
		After	0.162	0.163	−1	92.3	−0.17
<i>Dual</i>	Board duality; equals 1 if the board director and the CEO is the same person, and otherwise 0	Before	0.264	0.220	10.2		2.44
		After	0.264	0.272	−2.1	79.8	−0.33
<i>Insti</i>	Shareholdings ratio of institution	Before	0.212	0.217	−2.6		−0.6
		After	0.212	0.214	−1	59.9	−0.18
<i>Topmanah</i>	Shareholdings ratio of top managers	Before	0.076	0.055	15.4		3.92
		After	0.076	0.079	−2.2	85.6	−0.35
<i>SalaryBoard3</i>	Natural logarithm of the total salary of the top three board members	Before	13.840	13.781	4.2		0.89
		After	13.840	13.828	0.8	79.9	0.15
<i>Sharetop1</i>	Shareholdings ratio of the largest shareholder	Before	34.973	36.834	−12.4		−2.82
		After	34.973	35.067	−0.6	95	−0.11
<i>Board Size</i>	Natural logarithm of the number of board members	Before	2.262	2.286	−13.5		−3.14
		After	2.262	2.256	3.2	76.7	0.54
<i>Board Inde</i>	Number of independent directors divided by total number of board members	Before	0.370	0.367	6		1.39
		After	0.370	0.371	−0.1	98	−0.02
<i>Size</i>	Company assets; equals the natural logarithm of total assets at the end of the year	Before	21.833	21.995	−12.7		−2.85
		After	21.833	21.860	−2.1	83.3	−0.37
<i>Lev</i>	Leverage; equals total liabilities divided by total assets at the end of the year	Before	0.447	0.427	9.1		2.19
		After	0.447	0.447	0.1	98.7	0.02
<i>ROE</i>	Return on equity; equals the net profit divided by total equity at the end of the year.	Before	0.052	0.078	−19		−5.04
		After	0.052	0.058	−4.2	77.8	−0.63
<i>Growth</i>	Growth rate of net profit	Before	−0.847	−0.096	−16.8		−4.71
		After	−0.847	−0.670	−4	76.4	−0.6
<i>SOE</i>	Equals 1 if the company is state-owned, and 0 otherwise	Before	0.353	0.491	−28.1		−6.41
		After	0.353	0.341	2.5	91.1	0.44

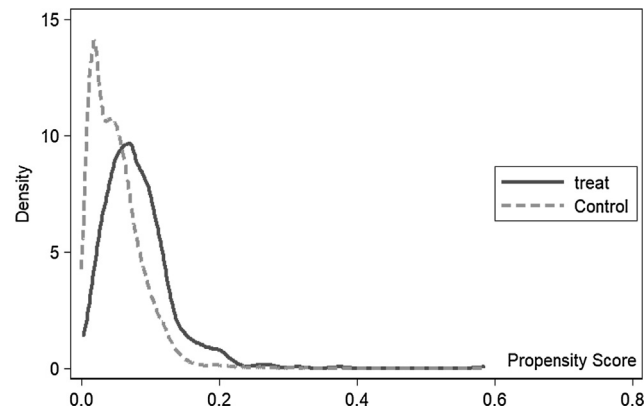


Fig. 2. Kernel density functions before PSM.

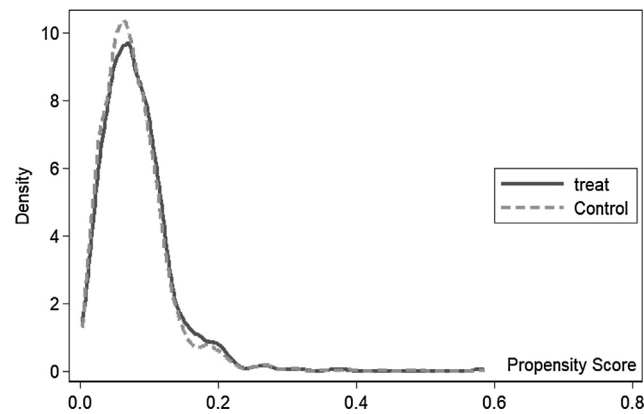


Fig. 3. Kernel density functions after PSM.

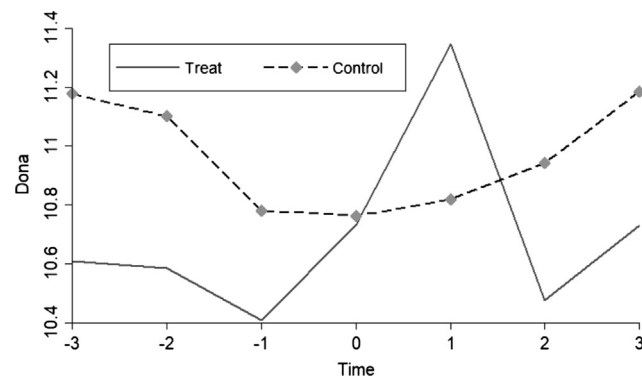


Fig. 4. Donation trends in the treatment and control groups. The Y-axis presents the natural logarithm of the amount of the company's donation; The X-axis presents the time variable before or after the regulatory penalty.

attempting to repair a damaged reputation only increase donations for a short period (one year) after the penalty before returning to a normal level.

Next, we follow Beck et al. (2010) and set a series of time dummies: two years before the penalty (*before2*), one year before the penalty (*before1*), the penalty year (*current*), one year after the penalty (*after1*), two years after the penalty (*after2*), and three years after the penalty (*after3*). Next, we summarize the net effect of the time variables on donations. As shown in Fig. 5, in the years before a penalty, there is no significant change in

donations, but in the first year after the penalty, there is an increase in donations. Fig. 5 shows some support for the parallel trend assumption and for a causal relation between regulatory penalties and donations.

We also implement other parallel trend tests proposed by Beck et al. (2010). The untabulated results show parallel trends in the treatment and control group before the penalties.

5.2. Univariate analysis after PSM

Using the PSM sample, we compare the median differences in donations before and after regulatory penalties. Table 6, Panels A and B show the results for the logarithm of and original amounts of donations, respectively. Panel A shows a significant increase in donations only in the first year after the penalty; Panel B shows no significant increases. Panels A and B both show a significant increase from one year before the penalty to one year after the penalty; however, there is no significant change in subsequent years. These results suggest that after being penalized for fraud, a company increases its charitable donation, but only in the short term, indicating the instrumental role of such donations.

5.3. DID results for the PSM sample

Table 7 reports the results of Models 1 and 2 for the PSM sample. We investigate trends in donations one year, two years, and three years around a penalty event (but not the year of the penalty). The coefficients of the

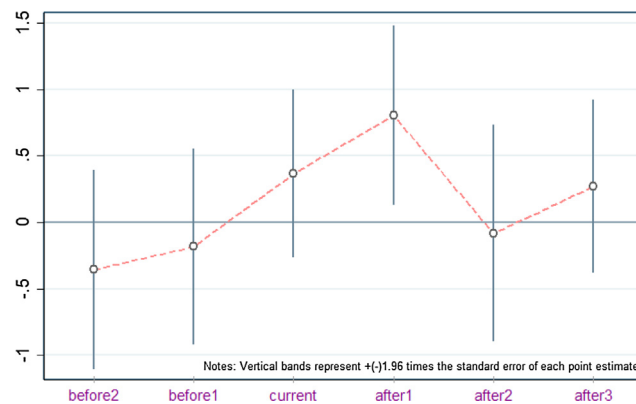


Fig. 5. Dynamic effect of regulatory penalties on donations.

Table 6
Donations before and after a regulatory penalty in the PSM sample.

Panel A: Natural logarithm of (donation amount + 1)

t	-1	0	+1	+2	+3
Median	-0.405	-0.275	0.099	-0.195	-0.129
Compared with the year of the regulatory penalty			(+1)–(0) 0.374**	(+2)–(0) 0.081	(+3)–(0) 0.081
Compared with one year before the regulatory penalty			(+1)–(–1) 0.505***	(+2)–(–1) 0.211	(+3)–(–1) 0.276

Panel B: Donation amount

t	-1	0	+1	+2	+3
Median	160000.000	179525.000	201536.400	194367.200	200000.000
Compared with the year of the regulatory penalty			(+1)–(0) 22011.430	(+2)–(0) 14842.195	(+3)–(0) 20475.000
Compared with one year Before the regulatory penalty			(+1)–(–1) 41536.430**	(+2)–(–1) 34367.195	(+3)–(–1) 40000.000

Note: *** and ** indicate significance at the 1% and 5% levels, respectively.

Table 7
DID results for the PSM sample.

	(1)	(2)	(3)	(4)	(5)	(6)
	[−1, +1]		[−2, +2]		[−3, +3]	
	OLS	FE	OLS	FE	OLS	FE
	<i>Dona</i>	<i>Dona</i>	<i>Dona</i>	<i>Dona</i>	<i>Dona</i>	<i>Dona</i>
<i>Fraud</i> × <i>Post</i>	0.964** (0.019)	0.855** (0.021)	0.595* (0.075)	0.517* (0.086)	0.432 (0.135)	0.403 (0.145)
<i>Post</i>	−0.210 (0.457)		−0.109 (0.618)		0.013 (0.946)	
<i>Fraud</i>	−0.175 (0.493)		−0.307 (0.156)		−0.363* (0.065)	
<i>Size</i>	1.092*** (0.000)	0.907 (0.293)	1.054*** (0.000)	0.261 (0.684)	1.068*** (0.000)	0.616 (0.129)
<i>Lev</i>	0.059 (0.943)	−1.501 (0.506)	−0.182 (0.791)	−0.602 (0.700)	−0.091 (0.877)	−0.980 (0.422)
<i>Sales Fee</i>	4.979** (0.015)	20.425* (0.076)	6.914*** (0.000)	10.512 (0.125)	7.488*** (0.000)	6.788 (0.210)
<i>Patent</i>	0.277*** (0.002)	0.344* (0.092)	0.231*** (0.002)	0.204 (0.147)	0.154** (0.019)	0.133 (0.223)
<i>Board Size</i>	0.197 (0.805)	−2.193 (0.338)	0.333 (0.588)	−0.418 (0.770)	0.283 (0.596)	−1.217 (0.287)
<i>Cash</i>	−0.357 (0.206)	−0.085 (0.896)	−0.668*** (0.006)	−0.581 (0.170)	−0.653*** (0.002)	−0.640* (0.067)
<i>ROA</i>	10.899*** (0.001)	3.842 (0.434)	12.866*** (0.000)	4.008 (0.257)	12.138*** (0.000)	5.010 (0.101)
<i>TobinQ</i>	−0.128 (0.184)	−0.277* (0.082)	−0.195** (0.014)	−0.057 (0.605)	−0.214*** (0.002)	−0.028 (0.765)
<i>SOE</i>	−1.335*** (0.000)	−0.576 (0.599)	−1.102*** (0.000)	−1.112 (0.127)	−1.178*** (0.000)	−0.822 (0.102)
<i>Age</i>	−0.331* (0.053)	−0.688 (0.378)	−0.475*** (0.001)	−0.417 (0.353)	−0.406*** (0.001)	−0.755** (0.029)
<i>GDPPC</i>	0.062 (0.260)	0.866 (0.352)	0.037 (0.421)	0.576 (0.221)	0.003 (0.946)	0.249 (0.439)
<i>Dual</i>	0.083 (0.711)	0.048 (0.942)	0.074 (0.688)	0.083 (0.849)	0.069 (0.667)	0.047 (0.891)
<i>Board Inde</i>	−2.098 (0.357)	6.855 (0.243)	−1.308 (0.458)	2.104 (0.540)	−0.510 (0.741)	2.276 (0.384)
_cons	−10.056*** (0.002)	−1.677 (0.929)	−10.116*** (0.000)	8.609 (0.512)	−10.149*** (0.000)	3.117 (0.719)
Year	Control	Control	Control	Control	Control	Control
Industry	Control	–	Control	–	Control	–
Firm	–	Control	–	Control	–	Control
N	1773	1773	2710	2710	3490	3490
r2_a	0.132	0.409	0.135	0.397	0.135	0.351

Note: The p-values are calculated with robust standard errors in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

DID variable $Fraud \times Post$ are significantly positive at the 5% or 10% levels one year and two years around the penalty, indicating that companies significantly increase their donations shortly after a regulatory penalty. The coefficients of $Fraud \times Post$ in the three years around the penalty are positive but not significant, suggesting that the effect of regulatory penalties on donations weakens over time. Further, the significance and the magnitude of $Fraud \times Post$ decreases over time, also suggesting that increasing donations after a regulatory penalty is a short-term behavior. Overall, the results suggest that companies increase donations to repair reputations damaged by regulatory penalties.

6. Mechanism tests

6.1. Effect of ownership type on relations between donations and regulatory penalty

In the Chinese market economy, there are obvious differences in the resource endowments of SOEs and non-SOEs, leading to differences in donation behaviors. Listed SOEs obtain high-quality resources from the state sector, and therefore can better afford regulatory penalties and suffer a relatively slight negative impact from these penalties (Haß et al., 2019). Moreover, the donation behavior of non-SOEs is more likely to be aimed at acquiring access to external resources (Li, 2012; Zhang et al., 2018) and gaining more marginal benefits (Kao et al., 2018). As a result, non-SOEs, due to their relative disadvantage in the capital market, are more motivated to make donations to reduce the negative impact of a regulatory penalty. To test this argument, we investigate the moderating effect of different ownership types. Panels A and B of Table 8 show the results for the non-SOEs and SOEs subsamples, respectively. Similar to Table 7, we report the results for one year, two years, and three years around the penalty (not including the year of the penalty) in columns 1 to 6.

Panel A shows that in the non-SOEs subsample, there are significantly positive coefficients of $Fraud \times Post$ in the three years around the regulatory penalty. Panel B shows that in the SOEs subsample the coefficients on $Fraud \times Post$ are insignificant. These results suggest that non-SOEs are more motivated to repair reputations damaged by regulatory penalty than SOEs, and thus non-SOEs are more likely to increase their donations for a longer time after a regulatory penalty.

6.2. Alignment effect of large shareholders

When a company suffers a reputation loss due to regulatory penalties, managers can make the decision to donate money to charity to repair the company's reputation without shareholders' consent, especially if they have large shareholders' support. In addition, as ownership concentration increases, the interest alignment effect provides greater motivation and ability to repair a damaged reputation through donations. Table 9 reports the moderating effect of interest alignment, as measured by the largest shareholder's holding ratio.² We divide the sample into two groups³ based on high and low largest shareholder's holding ratio and re-run the analyses. The results are shown in Panels A and B of Table 9, respectively. The results reported in column 1 and 2 of Panel B show that the coefficient of $Fraud \times Post$ is only significant in the sample with higher largest shareholder's holding ratio. This indicates that the interest alignment of larger shareholders gives the company a higher incentive to repair the reputation after regulatory penalties.

6.3. Effect of penalty severity

A more serious fraud leads to a severer penalty and is associated with a greater loss of reputation. Therefore, a company given a severe penalty is expected to be more motivated to repair its reputation through charitable donations. As the penalties are generally symbolic (Chen et al., 2005; Song et al., 2011; Li and Ren, 2017), we find it is quite difficult to separate the heterogeneous effects of penalty severity. As shown in Table 2, only about a quarter of the penalized companies are given a specific administrative penalty, and the other

² An alternative measurement of interest alignment, the holding ratio of the top three shareholders, gives the same results.

³ As a robustness test, we divide the sample into three groups by the largest shareholder's holding ratio and only use the highest and lowest groups, in other words, we delete the middle group. The results remain similar.

Table 8
Moderating effect of ownership type.

	(1) OLS <i>Dona</i>	(2) FE <i>Dona</i>	(3) OLS <i>Dona</i>	(4) FE <i>Dona</i>	(5) OLS <i>Dona</i>	(6) FE <i>Dona</i>
<i>Panel A: Non-SOEs subsample</i>						
	[−1, +1]		[−2, +2]		[−3, +3]	
<i>Fraud</i> × <i>Post</i>	1.113** (0.015)	1.042** (0.013)	0.839** (0.026)	0.708** (0.043)	0.622* (0.061)	0.578* (0.073)
<i>Post</i>	−0.439 (0.184)		−0.216 (0.403)		−0.075 (0.746)	
<i>Fraud</i>	0.059 (0.838)		−0.066 (0.795)		−0.186 (0.428)	
N	1286	1286	1938	1938	2465	2465
r ² _a	0.134	0.384	0.131	0.373	0.125	0.327
<i>Panel B: SOEs subsample</i>						
	[−1, +1]		[−2, +2]		[−3, +3]	
<i>Fraud</i> × <i>Post</i>	0.310 (0.751)	0.266 (0.773)	−0.518 (0.479)	−0.078 (0.906)	−0.386 (0.525)	−0.118 (0.844)
<i>Post</i>	0.426 (0.454)		0.327 (0.441)		0.304 (0.403)	
<i>Fraud</i>	−0.739 (0.220)		−0.821* (0.070)		−0.716* (0.068)	
N	487	487	772	772	1025	1025
r ² _a	0.128	0.463	0.154	0.450	0.169	0.413
Other Control Variables	Control	Control	Control	Control	Control	Control
Year	Control	Control	Control	Control	Control	Control
Industry	Control	–	Control	–	Control	–
Firm	–	Control	–	Control	–	Control

Note: The p-values are calculated with robust standard errors in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

three-quarters only get slight penalties in the *other* category. We divide the sample into subsamples of specified penalties and other penalties and re-run the regression. We expect that the increase in donations after a penalty is more common in companies that have received specific penalties, as they entail a more severe reputation loss.

Table 10 reports the results of the above analyses. Panel A shows that in the specific penalty subsample all of the coefficients of the DID variable *Fraud* × *Post* (except the one year around regression using FE) are significantly positive. Panel B shows that in the *other* penalties subsample, the coefficients of the DID variable *Fraud* × *Post* are all insignificant. These results suggest that companies that suffer severer penalties are more likely to increase charitable donations.

6.4. Consequences of donations

We argue that making charitable donations is a type of goodwill gesture aimed at repairing a company's reputation. We further expect that such donations will have a positive effect on a company's financing behavior. Dai et al. (2016) demonstrate the reputation enhancement effect of donations by showing a positive relation between donations and debt financing. We investigate the effect of donations on companies' bank loan contracts to show the role of donations in repairing damaged reputations. The results are shown in Table 11. Columns 1 and 2 show the positive effect of donations (*Dona*), the negative effect of penalty (*Post*), and the positive effect of the interaction (*Dona* × *Post*) on achieving short-term bank loans. Columns 3 and 4 show similar effects of *Dona*, *Post*, and *Dona* × *Post* on companies' credit loans. Thus, donations not only help com-

Table 9
Moderating effect of the largest shareholder's holding ratio.

	(1) OLS <i>Dona</i>	(2) FE <i>Dona</i>	(3) OLS <i>Dona</i>	(4) FE <i>Dona</i>	(5) OLS <i>Dona</i>	(6) FE <i>Dona</i>
<i>Panel A: Companies with low largest shareholder's holding ratio</i>						
	[-1, +1]		[-2, +2]		[-3, +3]	
<i>Fraud</i> × <i>Post</i>	0.619 (0.270)	0.287 (0.610)	0.704 (0.132)	0.496 (0.233)	0.490 (0.214)	0.262 (0.507)
<i>Post</i>	0.104 (0.782)		-0.234 (0.437)		-0.021 (0.939)	
<i>Fraud</i>	-0.525 (0.155)		-0.720** (0.020)		-0.455* (0.097)	
N	922	922	1401	1401	1787	1787
r2_a	0.180	0.504	0.166	0.472	0.162	0.411
<i>Panel B: Companies with high largest shareholder's holding ratio</i>						
	[-1, +1]		[-2, +2]		[-3, +3]	
<i>Fraud</i> × <i>Post</i>	1.533** (0.013)	1.080* (0.085)	0.560 (0.241)	0.101 (0.837)	0.449 (0.292)	0.439 (0.316)
<i>Post</i>	-0.659 (0.130)		-0.161 (0.618)		-0.104 (0.713)	
<i>Fraud</i>	-0.002 (0.996)		-0.069 (0.825)		-0.417 (0.150)	
N	851	851	1309	1309	1703	1703
r2_a	0.111	0.350	0.124	0.341	0.130	0.325
Other Control Variables	Control	Control	Control	Control	Control	Control
Year	Control	Control	Control	Control	Control	Control
Industry	Control	–	Control	–	Control	–
Firm	–	Control	–	Control	–	Control

Note: The p-values are calculated with robust standard errors in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

panies to achieve bank loans, but also to mitigate the negative effect of regulatory penalties on achieving bank loans. That is, increasing donations can improve a company's reputation and help repair the reputation damage induced by regulatory penalties. The results given in Table 11 provide additional support for our argument that donations can be used to repair reputations.

7. Robustness tests

7.1. Placebo test

If increases in charitable donations are responses to regulatory penalties, then there should not be any significantly positive associations in a randomly chosen year. To perform such a placebo test, we choose either three years before or three years after the actual event year as the pseudo regulation year, and re-run the regression. The results are shown in Table 12. As shown in columns 1 to 3, in the three years before the pseudo-shock year the coefficient on the DID variable *Dona* × *Post* are all negative but insignificant. The results for three years after the pseudo regulation year, given in columns 4 to 5, show the coefficients of *Dona* × *Post* are not significant two years or three years around the pseudo regulation year, but are significantly negative at the 10% level one year around the pseudo regulation year. These results provide additional evidence for a causal relation between donations and regulatory penalties, as they suggest that a pseudo regulation event has no impact on companies' donations.

Table 10
Moderating effect of penalty severity.

	(1) OLS <i>Dona</i>	(2) FE <i>Dona</i>	(3) OLS <i>Dona</i>	(4) FE <i>Dona</i>	(5) OLS <i>Dona</i>	(6) FE <i>Dona</i>
<i>Panel A: Specific penalties subsample</i>						
	[−1, +1]		[−2, +2]		[−3, +3]	
<i>Fraud</i> × <i>Post</i>	1.538*	0.302	1.951***	1.386*	1.862***	1.476*
	(0.090)	(0.727)	(0.009)	(0.082)	(0.002)	(0.051)
<i>Post</i>	−0.187		−0.171		−0.005	
	(0.667)		(0.617)		(0.985)	
<i>Fraud</i>	−0.550		−0.835*		−0.622	
	(0.341)		(0.076)		(0.124)	
N	563	563	855	855	1118	1118
r2_a	0.160	0.433	0.156	0.382	0.165	0.365
<i>Panel B: Other penalties subsample</i>						
	[−1, +1]		[−2, +2]		[−3, +3]	
<i>Fraud</i> × <i>Post</i>	0.422	0.640	0.142	0.327	0.136	0.333
	(0.297)	(0.107)	(0.671)	(0.285)	(0.644)	(0.243)
<i>Post</i>	0.284		0.216		0.221	
	(0.258)		(0.294)		(0.247)	
<i>Fraud</i>	0.088		−0.147		−0.229	
	(0.740)		(0.514)		(0.267)	
N	1962	1962	2962	2962	3806	3806
r2_a	0.150	0.397	0.150	0.401	0.149	0.374
Other Control Variables	Control	Control	Control	Control	Control	Control
Year	Control	Control	Control	Control	Control	Control
Industry	Control	–	Control	–	Control	–
Firm	–	Control	–	Control	–	Control

Note: The p-values are calculated with robust standard errors in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Table 11
Effect of donations on bank loans.

	(1) <i>Short Loan</i>	(2) <i>Short Loan</i>	(3) <i>Credit Loan</i>	(4) <i>Credit Loan</i>
<i>Dona</i>	0.001**	0.001*	0.004*	0.003
	(0.016)	(0.057)	(0.066)	(0.157)
<i>Post</i>		−0.024*		−0.175*
		(0.080)		(0.075)
<i>Dona</i> × <i>Post</i>		0.002*		0.014*
		(0.064)		(0.092)
Other Control Variables	Control	Control	Control	Control
Year	Control	Control	Control	Control
Firm	Control	Control	Control	Control
N	4293	4293	4293	4293
r2_a	0.573	0.573	0.199	0.199

Note: The p-values are calculated with robust standard errors in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

7.2. Probability of donation

The above analysis tests the relation between the amount of donations and regulatory penalties. As a robustness test, we investigate the impact of regulatory penalties on the probability of charitable donations.

Table 12
Placebo test.

	(1)	(2)	(3)	(4)	(5)	(6)
	t = −3 as a pseudo-regulation year			t = +3 as a pseudo regulation year		
	[−4, −2]	[−5, −1]	[−6, 0]	[2, 4]	[1, 5]	[0, 6]
	<i>Dona</i>	<i>Dona</i>	<i>Dona</i>	<i>Dona</i>	<i>Dona</i>	<i>Dona</i>
<i>Fraud</i> × <i>Post</i>	−0.698 (0.236)	−0.322 (0.459)	−0.304 (0.430)	−1.001* (0.077)	−0.383 (0.383)	−0.455 (0.232)
Other Control Variables	Control	Control	Control	Control	Control	Control
Year	Control	Control	Control	Control	Control	Control
Firm	Control	Control	Control	Control	Control	Control
<i>N</i>	975	1676	2449	1269	1980	2726
<i>r</i> ² _a	0.397	0.375	0.375	0.421	0.386	0.386

Note: The p-values are calculated with robust standard errors in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Specifically, we change the dependent variable in Model 1 to a dummy variable that indicates whether the company makes any donation (*Dona_D*), and then we conduct a Logit regression using the PSM sample. The results are given in Table 13. For the one year period around the penalty, the DID variable *Dona* × *Post* is significantly positive at the 1% level indicating the increased probability of a donation. However, the significance and the magnitude of *Dona* × *Post* decline over time. These results support the argument that a company is more likely to make a donation shortly after being subject to a regulatory penalty.

7.3. More control variables

To further control for biases created by missing variables, we add the variables from the PSM process to Model 2. CEO turnover may occur after a regulatory penalty; thus, we further control for CEO turnover (*CEO Turn*) in Model 1. The donation behavior in the penalty year may be related to the previous year's behavior; thus, we also control for the one year lagged donation (*L_Dona*). Table 14 reports the results of the regressions with these extra control variables. The results for *Dona* × *Post* are similar to those given in Table 7.

7.4. Eliminating the structural impact of the Wenchuan earthquake

To eliminate the structural shock of the Wenchuan Earthquake on companies' donation behavior, we follow Dai et al. (2014) and delete all of the observations in 2008. Table 15 reports the results of Models 1 and 2 with this alternate sample. The results are similar to those for *Dona* × *Post* shown in Table 7.

Table 13
Probability of donations.

	(1)	(2)	(3)
	[−1, +1]	[−2, +2]	[−3, +3]
	<i>Dona_D</i>	<i>Dona_D</i>	<i>Dona_D</i>
<i>Fraud</i> × <i>Post</i>	1.105*** (0.009)	0.562* (0.056)	0.346 (0.173)
Other Control Variables	Control	Control	Control
Year	Control	Control	Control
Industry	Control	Control	Control
<i>N</i>	1037	1990	2729
<i>r</i> ² _p	0.102	0.086	0.074

Note: The p-values are calculated with robust standard errors in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Table 14
DID results with additional control variables.

	(1) [−1, +1] <i>Dona</i>	(2) [−2, +2] <i>Dona</i>	(3) [−3, +3] <i>Dona</i>
<i>Fraud</i> × <i>Post</i>	0.757** (0.030)	0.595** (0.048)	0.464* (0.094)
<i>L_Dona</i>	−0.455*** (0.000)	−0.310*** (0.000)	−0.271*** (0.000)
<i>CEO Turn</i>	−0.191 (0.496)	0.108 (0.622)	0.080 (0.666)
_cons	−1.677 (0.929)	8.609 (0.512)	3.117 (0.719)
Other control variables in model 2	Control	Control	Control
Other control variables	Control	Control	Control
Year	Control	Control	Control
Firm	Control	Control	Control
N	1773	2710	3490
r2_a	0.409	0.397	0.351

Note: The p-values are calculated with robust standard errors in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Table 15
DID results for sample without Wenchuan earthquake shock.

	(1) [−1, +1] OLS <i>Dona</i>	(2) FE <i>Dona</i>	(3) [−2, +2] OLS <i>Dona</i>	(4) FE <i>Dona</i>	(5) [−3, +3] OLS <i>Dona</i>	(6) FE <i>Dona</i>
<i>Fraud</i> × <i>Post</i>	0.942** (0.024)	0.877** (0.018)	0.591* (0.080)	0.525* (0.086)	0.422 (0.151)	0.435 (0.121)
<i>Post</i>	−0.187 (0.517)		−0.092 (0.680)		0.036 (0.857)	
<i>Fraud</i>	−0.167 (0.518)		−0.302 (0.168)		−0.361* (0.073)	
Other control variables	Control	Control	Control	Control	Control	Control
Year	Control	Control	Control	Control	Control	Control
Industry	Control	–	Control	–	Control	–
Firm	–	Control	–	Control	–	Control
N	1744	1744	2671	2671	3416	3416
r2_a	0.129	0.409	0.133	0.394	0.131	0.351

Note: The p-values are calculated with robust standard errors in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

8. Conclusions

It has been argued that a penalty for fraud motives a listed company to make charitable donations to repair its damaged reputation. This study examines the evidence for this reputation repair motivate. Using a sample of Chinese non-financial A-share listed companies, this study analyzes the relation between regulatory penalties and charitable donations. We also investigate the moderating effects of ownership type, ownership concentration, and penalty severity. The results show there is a significant increase in donations after regulatory penalties. However, this increase only lasts for a short time, indicating that such increases could be a tool for repairing companies' reputations. This effect is stronger for companies that are non-SOEs, have higher ownership concentration, and are subject to severer penalties.

This study helps to broaden our understanding of the risk management theory of CSR by providing empirical evidence that companies will increase charitable donations to repair their reputations after a negative event. This study also enriches the literature on the consequences of regulation and offers insights into the underlying mechanism by analyzing the moderating effects of property type and governance characteristics. Finally, this study enhances our understanding of companies' motivations for making charitable donations.

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