



CEO Turnover and Financial Distress Recovery: Evidence from China

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Abstract: This paper investigates whether CEO replacement is a successful tool that can help distressed firms recover. This paper uses non-financial data of Chinese firms. Distressed Chinese firms are proxied by special treatment (ST) firms. Successful recovery or CEO replacement means the new CEO helps ST firms recover within three years after firms are declared ST; otherwise, it is a failed CEO replacement. Results show that ST firms undergo frequent CEO turnover. Furthermore, on average, CEO replacement is successful because ST firms function normally when the new CEOs take over the job. The effect of replacement is stronger for state-owned enterprises than non-state-owned ones.

Key words: Distressed firms, ST firms, CEO turnover, state-owned enterprises

JEL: G30; M12

1. Introduction

The recovery of distressed firms from difficulties has gained significant attention. Distressed firms commonly take various actions to rescue the company. Gilson (1989) shows that most distressed firms replace their top managers to survive. Whitney (1987) documents that managers of distressed firms typically change their auditor to bring fresh perspectives. Reducing the number of employees to reduce costs is also a strategy often adopted by distressed firms. DeAngelo (1990) documents that 67% of firms that experience three consecutive years of loss cut dividends in their first year of distress. Moreover, distressed firms may also sell assets or re-organize debt structure to survive.

The present study examines whether CEO replacement can help Chinese distressed firms recover. A distressed firm in China is referred to as a special treatment (ST) firm, which is defined as a firm with negative profits for two consecutive years or have net assets per share that are lower than its per-share stock face value.¹⁰The China Securities Regulation Commission (CSRC) affixes the term ST before the names of distressed companies to warn investors that these ST firms are experiencing serious financial difficulties or certain abnormalities. Given that ST leaves a stigma, stock prices drop and sales decline once the term is placed before a company name. Thus, removing the ST hat becomes an important task for top executives.

We examine whether CEO replacement can help ST firms to remove the ST hat. The removal of unqualified top executives after adverse financial performance is often thought as an important step of a distressed firm. Hence, studies typically demonstrate a strong link between distress and management replacement. Denis and Denis (1995) confirmed that forced changes in top management are preceded by large and significant declines in operating performance and followed by significant improvements in operating performance. Gilson and Vetsuypens (1993) examined 77 publicly traded firms that filed for bankruptcy or privately restructured their debt from 1981 to 1987; they found that almost one-third of the CEOs in these firms were replaced. Huson and Robert (2004) found that a firm's financial performance tends to deteriorate prior to top management turnover and improves thereafter. Departing CEOs usually use terms like "early retirement" or "resignation for family reasons" to indicate that their resignations are voluntary. Gilson (1989) concludes that the majority of top executive turnovers during financial distress are associated with the financial condition of a company. He found that around 52% of the executives resigned during the financial trouble period, and the percentages are significantly higher than that in the normal period. Thus, we first investigate whether CEO turnover is higher for ST than non-ST firms.

Then, we investigate whether CEO replacement can improve the financial distress firms. While a significant number of studies in the literature show that top managerial turnover is followed by improvement (Kaplan, 1994; Denis and Denis, 1995; Kang and Shivdasani, 1995; Huson et al., 2004), however, limited studies have used Chinese data to review the effects of CEO replacement on the recovery of distressed firms. This finding is attributed to the fact that the CEO layoffs may not be desirable for the Chinese government. Thus, most

¹⁰Some countries have adopted a similar definition. For example, the Iranian companies whose retained losses are more than 50% of their capital are labeled as financial distress according to commercial law of 141 act of Tehran Stock Exchange (Rafiei, 2011).

studies do not examine this issue. However, CEO replacement is more common in ST firms than in non-ST firms. Moreover, China has a clear definition of success in replacement, which is that an incoming CEO helps an ST firm take off the ST hat. Our results demonstrate successful replacement.

Last, we identify whether successful CEO replacement differs in state-owned enterprises (SOEs) and non-SOEs. Most top managers of SOEs are appointed by the government. This situation can help bailout firms. Given that all incoming CEOs are eager to show their competency for the job, new CEOs for SOEs have more resources to bring ST firms from distress. However, incoming CEOs in non-SOEs have no such advantage. Thus, we posit that the effect is stronger for SOE than non-SOEs. Our results show that CEO replacement is successful for SOEs but not for non-SOEs.

The remainder of the paper is organized as follows. Section 2 provides a definition of financial distressed firms worldwide. An institutional background of the ST system in mainland China is also given. Section 3 develops the hypotheses. Section 4 describes the econometric model. Section 5 presents the data source and empirical results. Section 6 concludes the paper.

2. Financial distressed firms, ST, Recovery and CEO turnover

2.1 Conventional definition of distressed firms

Financial distress is a situation in which an enterprise experiences certain kinds of financial difficulties. The consequences are overdraft of bank deposits and liquidation of interests of creditors. Altman (1968) and Beaver (1966) defined financial distress as the inability to pay debts and even entrance into statutory bankruptcy proceeding. Doumpou and Zopounidis (1999) explained financial distress as the inability to repay important obligatory payments and the situation of negative net asset value or when an enterprise's total liabilities exceed its total assets. Ross et al. (2002) summarized previous studies and concluded that financial difficulties consist of the following four conditions: (1) business failure, that is, a company cannot pay the outstanding debt after liquidation; (2) legal bankruptcy, that is, a company or its creditors apply to the court for a declaration of bankruptcy; (3) technical bankruptcy or when a company cannot fulfill the contract on schedule to repay principal and interest; and (4) accounting bankruptcy, in which a company's book net assets are negative.

2.2 ST and *ST in China

In April 22, 1998, the Shanghai Stock Exchange and Shenzhen Stock Exchange

announced that the stock trading of listed companies with financial trouble or other abnormal condition would experience special treatment, and “ST” would also be affixed to their stock name (e.g., ST system, ST share, and ST firms). And in May 2003, the Shanghai Stock Exchange and Shenzhen Stock Exchange introduced the warning system of listing termination, marked as *ST, which is also included in ST framework. Thus, the generally defined ST firms include ST and *ST post to 2003. Also, for some stocks, because parts of shares of some firms are jointly owned by the community, these shares in the past were not outstanding. In 2005, the government started the share reform to transfer the non-outstanding shares into outstanding shares year by year. Hence, they are denoted as SST and S*ST, where the affix S denotes firms have not finished the share reform. Finally, our ST firms include ST, *ST, SST and S*ST firms. More formal definitions for ST and *ST are provided in Appendix A.

The listed companies should follow the following three regulations once they are marked as ST. First the daily price limit is 5% rather than 10% for the normal listed firms.¹¹ Second, the “ST” or “*ST” title must be affixed to the stock name. Finally, their interim report of listed company must be audited.¹²

2.3 Recovery: Taking off the ST hat

Firms have recovered from distress if they are allowed to remove the ST stigma. Firms have to satisfy the following six criteria to enable them to remove the “ST” hat: no losses for two consecutive years, a positive shareholders' equity, normal operation of the main business, no unqualified or negative opinions obtained from audit reports, no further accounting errors and false statements during the correction period, and no negative events that severely affect production and business operation. See Appendix B for a detailed description on how to take off the ST.

2.4. Forced CEO turnover

We distinguish forced and non-forced CEO turnovers and adopt forced CEO turnover as our sample to assess the effectiveness of the corporate control exercised by shareholders. Also, forced CEO turnover reflects the disciplinary efforts of shareholders. The forced turnover include those whose stated reasons are transferring job, resignation, dismissal,

¹¹See Shen and Wang (1995) for the meaning of price limits.

¹²The PT system has been implemented in mainland China before February 25, 2002. “PT” is the abbreviation for “Particular Transfer” and is designed to provide circulation channels for the suspension of listed stocks. Based on the regulation of the company and securities laws, a listed company that incurred three consecutive years of losses will be suspended. The Shanghai Stock Exchange and Shenzhen Stock Exchange adopted “PT” for the suspension stocks since July 9, 1999. This system was terminated in February 25, 2002.

expiration of contract and veto by the shareholder meeting (Chang et al., 2009). Additionally, we exclude those cases that involve legal disputes because these turnovers are not directly initiated by state shareholders as a result of their normal monitoring activities.

The title of CEO in China is not explicitly stipulated in Corporate Law, and some companies have started using it only recently. Given that Chinese firms have historically used “general manager” as the title for their top executives, we also adopt this classification. To check the robustness of our results, we also consider the replacement of chairpersons of the supervisory board.

3. Literature and Hypotheses

An important phenomenon in the process of financial distress recovery is the replacement of top executives. A replacement of an executive reflects good internal governance mechanisms in a company, and the dismissal of unqualified CEOs is in accordance with the interests of shareholders and investors. Thain and Goldthorpe (1989) found that one of the most obvious actions adopted in the process of recovery from financial distress is the change of company executives; they believe that in many cases, the current company executives cannot or refuse to take the necessary efficiency measures to reverse the plight. However, the new company executives like to reexamine the plight and take more active measures to help the company recover from distress. Kow (2004) and Clapham (2005) found that the replacement of CEOs helps companies get out of the dilemma probably because the new CEO succession often leads to a new management idea, company strategy, organizational structure, and mode of operation to promote the company and recover from the crisis. Philipp and Zacharias (2008) investigated 267 German firms that suffered financial distress between 1996 and 2004 and found that the replacement of top executives is a prevalent response to financial distress. Thus, we believe that the replacement of CEO could effectively help ST firms remove themselves from financial distress.

Based on the foregoing analysis, we propose hypothesis 1:

Hypothesis 1: The replacement of CEO of ST firms is helpful for the firm’s recovery from financial distress.

The influence of CEO replacement on the recovery from financial distress of ST firms may differ from the ownership of enterprises. The relationship may be more significant for SOEs because when an SOE incurs severe losses, it becomes a burden for the state shareholder and state-owned bank creditors. State-shareholders have incentives to minimize

losses to deliver sufficient ex-post financial performance to pursue their multiple objectives. SOEs that incurred considerable losses face pressure to improve performance. Being a CEO of a SOE in China inherently makes one part of China's elite and is perceived to have strong management ability and rich social resources. This perception is beneficial to a firm's recovery from financial distress. Compared with SOEs, non-SOEs lack a natural relationship with the government and thus obtain less attention and bailout from the government. Hence, we expect that the link between recovery from financial distress and CEO turnover in SOEs is more sensitive than that in non-SOEs.

We state our second hypothesis based on these observations:

Hypothesis 2: CEO replacement is more effective for the recovery of SOE than non-SOE ST firms.

4. Econometric Model

4.1 Model

We examine the effect of CEO replacement on financial distress recovery. We define "recovery period" as the next three years after firms become ST. Thus, a successful recovery (hereafter recovery) denotes that ST firms take off the ST hat during recovery periods, and failed recovery (hereafter non-recovery) means that they do not take off the ST hat during recovery periods. Three years has been chosen as the recovery period because the average time before the ST hat is taken off is 2.67 years. Our model is specified as follows.

$$\text{Logit}(\text{RECOVERY}_i = 1) = \alpha_0 + \beta_1 \times \text{CEO_TO}_i + \beta_2 \times D_{\text{SOE}i} + \text{Control} + \varepsilon_i$$

where *RECOVERY*_{*i*} is a dummy variable, which is equal to 1 if a firm successfully recovers (i.e., take ST hat off) and 0 otherwise. *CEO_TO* is a dummy variable that is equal to 1 if there was a forced CEO turnover during the recovery period, and 0 otherwise. *D_{SOE}* is a dummy variable which equals to 1 if it is a SOE, and 0 otherwise.

Our control variables include *FREEASSET*, *EOS*, *OWN1*, *HOLDING*, and *SIZE*. *FREEASSET* is free asset and measured by the difference between the total tangible assets and total liabilities divided by the total tangible assets. Casey et al. (1986), Campbell (1996), and Routledge and Gadenne (2004) found the amount of free assets as a significant predictor of corporate recovery from financial distress. *EOS* is the efficiency-oriented strategies such as downsizing and is measured by the change rate of tangible assets.¹³ Robbins and Pearce

¹³Change of tangible assets is defined as: $\Delta \text{tangible assets}_{t+1} / \text{tangible assets}_t$, where Δ is a difference operator. *t*

(1992) and Chowdhury and Lang (1996) concur that efficiency-oriented strategies play a critical role in the turnaround process and downsizing is a critical factor in such strategy. OWN1 denotes the stake of the largest shareholder of ST firms. HOLDING is a dummy variable that is equal to 1 if the controlling shareholder changed in the recovery period, and 0 otherwise. SIZE is defined as the natural log of a firm's total assets to control the effects of size. LEV represents the total debts that account for the total assets of ST firms.

Table 1 summarizes the definitions and corresponding data source variables.

5. Data Source and Empirical Results

5.1 Data Source

The data of ST firms from 2002 to 2013 are obtained from the China Securities Markets and Accounting Research (CSMAR) database. However, we reserve three years for those ST firms that recovered. Hence, ST firms after 2010 are not considered in the estimation. The total sample comprises 224 firms, which includes 145 companies that successfully recovered from financial distress within three years ("recovery" firms) and 67 companies that fail to recover from financial distress within three years ("non-recovery" firms).

Our sample excludes financial service firms, delisted companies, and firms that have been considered ST more than once. CEO information is collected by reading annual reports or summaries of top management resumes published on finance web pages (i.e., Sina Finance, Beijing Gildata RESSET Data Tech Co. Ltd., and the China Center for Economic Research (CCER)). Financial ratios are collected from the CSMAR database.

5.2 Descriptive statistics

Table 2 presents the number and percentage of ST firms and their recovery and non-recovery across 14 industries based on the Chinese SEC code issued in 2012. The largest number of ST firms is in manufacturing (108) followed by real estate (37). The least number of ST firms is in telecom (1) and scientific research and technology (1). The largest percentage of successful recovery is in manufacturing and real estate sectors with recovery rates of around 74% and 51%, respectively.

Table 3 presents the total number of ST firms and the years of recovery from 2002 to 2013. The total number of ST firms is 212, in which the numbers of recovered and non-recovered firms are 145 and 67, respectively. Among the recovery firms, 65 successfully

and $(t + 1)$ represent the year when the company becomes ST firm and the following year.

recovered from financial distress in the following year, whereas 41 and 39 firms recovered in the next two and three years, respectively. Hence, the average recovery ratio is 68.4% (=145/212).

Table 4 documents the extent of CEO turnover and non-turnover of ST firms during their respective recovery periods. From 2002 to 2010,¹⁴ 147 (69%) firms underwent at least one CEO replacement after they become ST. About 65 (31%) firms did not undergo any CEO replacement. Among firms that underwent CEO replacement, 86 firms (40.57%), 53 firms (25%), and 11 firms (5.19%) undergo one, two, and three CEO turnovers during the recovery periods, respectively. Only one firm⁶ experienced turnovers four times during the recovery period, amounting to a total of 229 turnovers and 108% average turnover rates (i.e., $229/212=108\%$). Following Chang (2009), firms with multiple CEO turnovers are counted only once. If a firm undergoes two or more turnovers, only one turnover is recorded. This method of calculating consolidated sample reduces the number of turnovers from 229 to 147 and the average annual turnover rate is reduced from 108% (full sample) to 69% (consolidated sample).

Table 5 summarizes the distribution of turnover reasons for the full and consolidated samples. In the full sample, the most common reason is job change (40.62%), followed by resignation (26.04%), and contract expiration (15.27%). None of the turnover reasons is due to legal dispute. The results using the consolidated sample have similarities with the distribution of turnover reasons.

The descriptive statistics of our main variables is presented in Table 6. The variables are winsorized at the top and bottom 1% to exclude the outliers. The left-hand side of Table 6 reports the summary statistics of the total sample. The right-hand side reports the mean of the two ownership category subsamples and the *t*-values to examine the mean difference.

The average recovery ratio is 68.4% for the total sample, which implies that 68.4% of ST firms recover from financial distress during the next three years. However, the recovery percentages are 73.2% and 58.6% for SOEs and non-SOEs firms, respectively. These percentages imply that the ST firms owned by the state have a higher likelihood to recover. ST firms have a high debt ratio at about 74%. The debt ratios are 67.2% and 87.9% for SOE and non-SOE, respectively. Hence, ST firms owned by the state have a lower debt ratio than non-SOEs.

¹⁴The calculation ended in 2010 because of the three-year recovery periods.

⁶The firm is a Shanghai medicine investment management company.

5.3 Recovered ST firms

We compare CEO turnover and financial ratios of both recovery and non-recovery firms (Table 7). Both types of firms have high frequencies of CEO turnover at 71% and 56.7%, respectively. This difference is significant. Recovery firms replace their CEOs more frequently than non-recovery firms. Hence, CEO replacement is an effective step for firm recovery from distress. Recovered firms have more free assets than non-recovery ST firms (0.361 versus -0.093). The former have smaller leverage and larger asset size than the latter. Therefore, firms with more frequent CEO turnovers, more free assets, larger size, and lower debt ratio are likely to recover from financial distress. The difference in the efficiency-oriented strategy adopted by the two types of firms is statistically significant at 1% level.

5.4 Regression results

Table 8 presents the estimation results, where *RECOVERY* is used as the dependent variable. Three types of samples are considered, namely, consolidated, SOE, and non-SOE samples. The constant term, industry, and year dummies are included in the regressions, but are not reported for the sake of brevity. The *t*-values in parentheses are estimated based on a white consistent heteroscedasticity error.

In the consolidated sample, the coefficients for CEO turnover are statistically significant at 5%, which is consistent with Hypothesis 1. Furthermore, the coefficients are significantly positive when the SOE sample is used, but insignificant when the non-SOE sample is used. This finding supports Hypothesis 2, which suggests that CEO turnovers improve the financial performance of SOE distressed firms, but not that of non-SOEs distressed firms. This finding may be attributed to the fact that when CEOs appointed by government encounter financial distress, they know the future policies and where and how to obtain financial subsidiaries. By contrast, CEOs of non-SOEs are less familiar with the resources and where to get help.

The coefficients of control variables are consistent with our expectation. The coefficients of *FREEASSET* are significantly positive for consolidated sample and SOE and non-SOE samples, which indicate that free assets help firms recover from distress. The coefficients of *EOS* are significantly positive regardless of samples, which indicate that efficiency-oriented strategies facilitate recovery. The coefficients of size are significantly positive, which indicate that larger firms easily recover.

5.5 Robustness Test

Two robust tests are conducted. First, we expand our sample to include both forced and voluntary CEO turnovers. Second, we focus on only chairperson replacement and disregard CEO replacement. The chairpersons are often thought to be more powerful than CEOs in Chinese firms. Thus, their replacement may improve the financial condition of firms more effectively. However, new chairpersons may be incompetent for the position because they may be simply retired from the government or military service and lack expertise in the field. Third, CEO turnover includes the replacement of CEOs and chairpersons.

Our results remain qualitatively the same and are robust to these three alterations in the CEO sample and dependent variables.

6. Conclusion

Our study examines the effectiveness of ST firms in China to remove the ST stigma by employing new CEOs. Our results show that CEO replacement is a frequent method used by ST firms, and CEO turnover plays a beneficial role in helping ST firms recover. The new CEO often leads firms to new managerial concepts, marketing strategies, and cutting-edge technology that can rescue ST firms.

Furthermore, incoming CEOs are particularly helpful for SOE distressed firms, but not for non-SOE distressed firms. Distressed firms with large asset sizes, increased free assets, and low debt ratio are prone to recovery from financial distress.

Future research can consider whether political connection helps ST firms recover.

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Appendix A: Definition of ST and *ST

Stock exchange specifies that the name of stock abbreviation will be affixed with "ST" title if one of the following circumstances happens:

- 1) The audit results show that its shareholders' equity is less than the registered capital in the most recent fiscal year, that is, the net assets per share (NAPS) is less than the book value of the shares. Chinese??
- 2) Inexpressible opinions or negative opinions of the audit report are issued by certified public accountants (CPAs) in the most recent fiscal year.
- 3) The deducted part of the relevant departments cannot be confirmed by CPAs. The audited shareholder rights are less than that of the registered capital in the most recent fiscal year write it in Chinese for me.
- 4) The company production and operation activities are suspended because of the loss of infrastructure led by natural disasters and serious accidents. They could not recover within three months.
- 5) According to the court or arbitration institution that documents compensation litigation or arbitration cases, the total amount of compensation is more than 50% of the net asset value of the listed company recently audited.
- 6) The main bank account of the company is frozen, which affects the normal business activities of the listed company.
- 7) The board believes in the necessity to implement special treatment for stock trading because of other anomalies in the company.
- 8) The court accepts bankruptcy and may declare bankruptcy of the listed company in accordance with the law.

- 9) The board meeting cannot be convened and the decision of the board cannot be formed.
- 10) The main debtor of the company is declared bankrupt by the court, and the company faces a major financial risk because of failure to make full provision for bad debts.
- 11) The stock exchange recognizes other circumstances.

The stock exchange specifies that the name of stock abbreviation will be prefixed with the "*ST" title if one of the following circumstances happens:

- 1) Consecutive losses occur in the last two years based on the audited net profit disclosed in the annual report in the last two years.
- 2) Consecutive losses occur in the last two years because of the retroactive adjustment of the former annual financial reports. The adjustment is ordered by the CSRC or the company that actively corrects major accounting errors or false records in the financial reports.
- 3) Major accounting errors or false records in the financial reports are not corrected within the prescribed period of time as ordered by the CSRC.
- 4) Annual report or semi-annual report is not disclosed within the statutory time limit in accordance with the law.
- 5) During the day between the recovery of stock retrading and the disclosure of the annual report company after recovery.
- 6) The stock exchange recognizes other circumstances.

Appendix B: Requirements for removing ST

The following six criteria can help remove the ST hat.

- 1) No two consecutive years losses are indicated in the annual report, including the retroactive adjustments of the former annual report.
- 2) The shareholders' equity is positive in the recent fiscal year, that is, NAPS is positive. Moreover, the more than 1 RMB of NAPS is not required by the new rules.
- 3) The normal operation of the main business is shown in the latest annual report. The net profit is positive after deducting non-recurring gains and losses.
- 4) Inexpressible or negative opinions of audit reports are not issued by CPAs in the recent fiscal financial report.
- 5) No significant accounting errors and false statements are shown during the correction period ordered by the CSRC.
- 6) No significant event severely affects production and business operation (i.e., frozen main bank account, dissolution, or bankruptcy).

Table 1 Variable Definitions and Data Source

Variable	Definition	Source
<i>RECOVERY</i>	A dummy variable which equals one if a firm successfully recover from financial distress in the next three years after having been special treatment	CSMAR
<i>CEO_TO</i>	a dummy variable that equals one if there was a forced general manager turnover during the recovery period	CSMAR
<i>SOE</i>	a dummy variable which equals one if the sample is a state-owned enterprise	CCER
<i>FREEASSET</i>	(total tangible assets - total liabilities)/total tangible assets.	CSMAR
<i>EOS</i>	(tangible assets _{t+1} - tangible assets _t) / tangible assets _t , where t and (t + 1) respectively represents the year when the company become ST firms and the next year.	CSMAR
<i>OWN1</i>	the stake of the largest shareholder	CCER
<i>HOLDING</i>	a dummy variable which equals one if the controlling shareholder has changed in the recovery period	CCER
<i>SIZE</i>	Natural log of the total assets	CSMAR
<i>LEV</i>	The leverage of ST firms	CSMAR

Note: CSMAR: China Securities Markets and Accounting Research Database, CCER: China Center for Economic Research Database.

Table 2 Number of ST firms and their recovery by industries

Industry	ST firms	Recovery firms	Non-recovery firms	Percentage of Recovery (%)
Agriculture production	2	2	0	100
Mining	9	6	3	66.7
Manufacturing	108	80	28	74.1
Power, oil & water	15	10	5	66.7
Heavy construction	3	3	0	100
Wholesale trade & retail	16	10	6	62.5
Transportation	3	2	1	66.7
Telecom	1	0	1	0
Real estate	37	19	18	51.35
Leasing & business	2	2	0	100
Scientific research & technology	1	0	1	0
Environment & public facilities	5	4	1	80
Culture & entertainment	4	1	3	25
Social service	6	6	0	100
Total	212	145	67	68.4

Note: This table contains the sample distribution by industry consisting of 212 Chinese listed firms that have been special treatment by the stock exchange between 2002 and 2010. The years 2010-2013 are reserved to estimate the recovery of ST firms.

ST: It denotes the “special treatment” of firms, which is introduced by Shanghai Stock Exchange and Shenzhen Stock Exchange in China to warn the investors of the financial trouble or other abnormal condition of the listed companies, and “ST” is affixed to their stock name.

Recovery: A ST firm is classified as a recovery firm, if it removes the ST title and become a normal listed firm in the next three years. It is also called successfully recovered from financial distress.

Non-recovery: A ST firm fails to recover from financial distress in the next three years.

Table 3 Number of recovered firms in the next years

Year been Special Treatment	ST firms	Recover in			Non-recovery firms
		first year	Second year	Third year	
2002	25	6	7	6	6
2003	30	9	7	2	12
2004	16	8	2	2	4
2005	17	2	5	4	6
2006	30	8	4	8	10
2007	28	12	4	3	9
2008	17	4	0	1	12
2009	18	7	2	7	2
2010	31	9	10	6	6
Total	212	65	41	39	67
(in %)	(100)	(30.7)	(19.3)	(18.4)	(31.6)

Note: This table reports the recovery situation in the next three years of ST firms after they have been special treatment by the stock exchange between 2002 and 2010. The years 2010-2013 are reserved to estimate the recovery of ST firms.

ST: It denotes the “special treatment” of firms, which is introduced by Shanghai Stock Exchange and Shenzhen Stock Exchange in China to warn the investors of the financial trouble or other abnormal condition of the listed companies, and “ST” is affixed to their stock name.

Recovery: A ST firm is classified as a recovery firm, if it removes the ST title and become a normal listed firm in the next three years. It is also called successfully recovered from financial distress.

Non-recovery: A ST firm fails to recover from financial distress in the next three years.

Table 4 Numbers and percentages of CEO turnover across years

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Number of ST firms	25	30	16	17	30	28	19	16	31	17	26	20
Full sample: Number of CEO turnovers	29	35	14	24	28	29	21	18	31	18	20	21
Full sample: Percentage of CEO turnover (%)	116.0	116.7	87.5	141.2	93.3	103.6	110.5	112.5	100	105.8	76.9	105
Consolidated sample: Number of CEO turnovers	19	18	11	15	21	20	12	10	21	13	17	14
Consolidated sample: percentage of CEO turnover (%)	76.0	60.0	68.8	88.2	70.0	71.4	63.2	62.5	67.7	76.5	65.3	70.0

Note: This table reports CEO turnovers in the recovery period of ST firms from 2002 to 2013.

Full sample: Firms with multiple turnovers are counted its actual turnover number.

Consolidated sample: Firms with multiple CEO turnovers are counted only once.

Table 5 Reasons of CEO turnover for ST firms

Reasons	Full sample		Consolidated sample	
	Number	Percentage of sample (%)	Number	Percentage of sample (%)
1. Change of job	117	40.62	97	37.45
2. Retirement	3	1.04	3	1.15
3. Contract expiration	44	15.27	43	16.60
4. Change in controlling shareholders	2	0.69	2	0.77
5. Resignation	75	26.04	72	27.80
6. Dismissal	6	2.08	6	2.31
7. Health	4	1.39	4	1.54
8. Personal reasons	13	4.51	13	5.01
9. Corporate governance reform	3	1.04	3	1.15
10. Legal disputes	0	0	0	0
11. No reason given	9	3.12	7	2.70
12. Completion of acting duties	12	4.16	9	3.47
Total number of observations	288	100	259	100

Note: This table reports the frequencies of the stated reasons for CEO turnovers in the recovery period of ST firms from 2002 to 2013. The full sample refers to the total number of CEO turnovers, including multiple turnovers during the recovery period. The consolidated sample is obtained by consolidating multiple same changes in the recovery period into one single change.

Table 6 Basic statistics of variables

	Consolidate sample					Sample of SOE and Non-SOEs		
	Num	Mean	Standard deviation	Min	Max	SOEs (mean)	Non-SOEs (mean)	t-test
<i>RECOVERY</i>	212	0.684	0.466	0.000	1.000	0.732	0.586	2.174**
<i>CEO_TO</i>	212	0.684	0.466	0.000	1.000	0.755	0.643	2.094*
<i>FREEASSET</i>	212	0.218	0.545	-4.464	1.271	0.304	0.043	3.366***
<i>EOS</i>	212	0.021	0.540	-2.173	3.692	0.054	-0.047	1.284
<i>OWNI</i>	212	0.357	0.163	0.077	0.849	0.383	0.303	3.463***
<i>HOLDING</i>	212	0.401	0.491	0.000	1.000	0.394	0.414	0.277
<i>SIZE</i>	212	20.830	1.026	18.593	25.000	20.981	20.525	3.107***
<i>LEV</i>	212	0.740	0.478	0.051	4.083	0.672	0.879	3.023**

Note: This table reports the number of observations, the mean, standard deviation, minimum, and maximum values for the variables used in our models, also provides the mean values for SOEs and non-SOEs.

Num: the number of the observations; Mean: the mean values; Min: minimum values; Max: maximum values

SOE: state-owned enterprises, defined as 25 % ultimately owned by government.

Non-SOEs: non state-owned enterprises, whose actual controller is other department expect for government or government institutions

t-test: the t-values for the mean difference test. The definition of all variables: see Table 1.

*, ** and *** denote significance at the 10%, 5% and 1% levels, respectively.

Table 7 Testing the difference between recovered and not-recovered ST firms

	Recovery firms		Non-recovery firms		t test	Wilcoxon test
	mean	median	mean	median	T value	Z value
<i>CEO_TO</i>	0.710	1.000	0.527	0.000	2.214**	2.213**
<i>D_{SOE}</i>	0.276	0.000	0.403	0.000	1.857*	1.847*
<i>FREEASSET</i>	0.361	0.356	-0.093	0.112	-6.110***	-4.960***
<i>EOS</i>	0.076	0.013	-0.099	-0.139	-2.212**	-3.741***
<i>OWNI</i>	0.379	0.338	0.310	0.287	-2.918***	-2.621***
<i>HOLDING</i>	0.386	0.000	0.433	0.000	0.6417	0.643
<i>SIZE</i>	20.995	20.929	20.474	20.441	-3.535***	-3.320***
<i>LEV</i>	0.623	0.641	0.994	0.821	5.621***	4.261***

Note: This table reports measures of central tendency for mean and median variables for the recovery firms and non-recovery firms. The test of means is the t-statistic for the equality of the mean of recovery firms with mean of the non-recovery firms. The medians test is the wilcoxon Z for the equality of the median of recovery firms with median of the non-recovery firms. The definitions for the variables are outlined in Table 1.

*, ** and *** denote significance at the 10%, 5% and 1% levels, respectively.

Table 8 Effect of CEO turnover on recovery: Logit model

	Dependent variable= <i>RECOVERY</i>		
	Consolidated Sample	SOEs	Non-SOEs
<i>CEO_TO</i>	0.963** (2.178)	1.050** (2.367)	1.537 (1.307)
<i>D_{SOE}</i>	0.107 (0.258)		
<i>FREEASSET</i>	3.937*** (3.927)	3.401*** (3.928)	5.578*** (2.806)
<i>EOS</i>	1.183* (1.833)	1.241* (1.739)	0.756 (0.573)
<i>OWNI</i>	2.193 (1.431)	0.671 (0.323)	3.094 (0.923)
<i>HOLDING</i>	0.530 (1.327)	-0.032 (-0.056)	1.397 (1.403)
<i>SIZE</i>	0.949*** (3.850)	1.412*** (3.534)	0.384 (0.903)
<i>LEV</i>	-0.038 (-0.035)	-0.518 (-0.665)	0.474 (0.262)
<i>N</i>	212	142	70
Pseudo R ²	0.3437	0.3637	0.4694

Note: This table reports the logit regression results of the recovery situation of ST firms on the replacement of CEO turnover, and other control variables. The dependent variable *RECOVERY* is a dummy that equals one if a firm successfully recover from financial distress in the next three years after having been special treatment, and zero otherwise. The independent variable *CEO_TO* is also a dummy that equals one if there was a forced general manager turnover during the recovery period, and zero otherwise. The definitions for the variables are outlined in Table 1.

The *t*-values with White heteroscedasticity error consistent adjustment are presented in the parentheses below the estimates.

*, ** and *** denote significance at the 10%, 5% and 1% levels, respectively.