

Mandatory CSR Disclosure and its Insurance Effect: Evidence from China

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Received: 23 August 2020

Accepted: 01 November 2020

DOI: <https://doi.org/10.32479/ijefi.10657>

ABSTRACT

China Securities Regulatory Commission (CRSC) requires listed companies to issue CSR report mandatorily from 2008. To examine the effect of mandatory CSR disclosure, we adopt the PSM-DID introduced by the mandatory requirements. We find that mandatory disclosure reduces stock return and increases stock volatility. We further investigate the insurance effect of CSR. After the requirement changes, firms are more regulates its behavior by reducing violation cost in the stock market and increasing environmental protection expenditure, especially in State-Owned Enterprises. It indicates that Insurance Effect of CSR can serve a good role in building a social and environmentally friendly society despite mandatory CSR disclosure hampers its financial performance.

Keywords: Corporate Social Responsibility; Insurance Effect; Mandatory Disclosure

JEL Classifications: G14; G18; G38; L78

1. INTRODUCTION

An increasing popularity of ESG investment and attention to environment has triggered a trend toward demanding firms to disclose their corporate social responsibility (CSR) activities. CSR encompass a variety of issues, such as environmental protection, positive relationship with employees; mutual benefit from communities and so on. The Insurance Effect of CSR refers to the social compensation from CSR devotion. Currently, the insurance effect is popular in academic area. Lins et al. (2017) finds that high-level CSR firms in developed economy are more likely to survive from financial crisis. Xu et al. (2020) find that companies can be saved from negative shocks. However, the insurance effect and its mechanism in emerging economy is still unknown.

As the largest emerging economy in the world, China devotes great amount of effort in building environmentally friendly community by improving CSR level. In 2008, China Securities Regulatory Commission (CSRC) issued the policy that requires listed

companies to disclose CSR report mandatorily. The primary step aims at the firms controlled by State-owned Assets Supervision and Administration Commission (SASAC). The movement enforced listed companies to improve CSR level by paying more attention in environmental protection, more regulate its behavior in stock market. To distinguish to developed economies, China serves as government-oriented countries that companies must in alliance with government, even sacrifices its economic benefit. Mandatory disclosure requirements would hamper the financial performance of the firm. While, the insurance effect would compensate it in another way?

In this paper, we examine the impact of mandatory CSR disclosure on individual stock abnormal return and volatility, as well as its insurance effect. Specifically, we examine the impact of the mandatory CSR disclosure in China starting from 2008. The requirement of mandatory CSR disclosure allows us to examine the casual effect of CSR mandatory disclosure and stock return. mandatory disclosure pressures firms to engage in more CSR

activities and may lead to a decrease in firm performance. To further investigate the insurance effect of the CSR mandate, our study focuses on environmental protection expenditure. If the mandatory disclosure imposed on the firm, the managers would consider shift the benefit to more social friendly activities, such as environmental protection. On the one hand, mandatory CSR disclosure may reduce the firm's misbehavior. For example, the requirement aims to build a positive image toward the society. And firms would restraint itself in the stock market.

By difference-in-difference (DID) methodology, we examine the change in individual stock abnormal return and volatility among mandatory CSR reporting firms (treatment group) with the change among non-mandatory CSR reporting firms (control group) in the Shanghai Stock Exchange and Shenzhen Stock Exchange between 2006 and 2010. More specifically, we use 2006–2008 as the pre-period and 2009–2010 as the post-period. To dismantle the firm-level heterogeneous problem, we run our analyses after a propensity-score-matched (PSM) sample. Our findings indicate that mandatory CSR disclosure reduce the abnormal return and increase transaction volatility. To further investigate the possible mechanism, we explore two ways: increasing environmental protection expenditure and reducing violation costs. We find that firms would increase environmental protection expenditure and reducing violation costs after mandatory disclosure. The results indicate that firms included in the 2008 disclosure mandate experience a decrease in abnormal return. These results hold up to a variety of robustness checks.

Our study makes several contributions to the literature. First, we provide evidence that mandatory CSR reporting affects market reaction. To distinguish from Chen et al. (2017), they find that after the mandatory CSR disclosure requirement, the financial performance is reduced. In the perspective of market reaction, we calculate the abnormal return and volatility, and find that after the CSR mandatory disclosure requirement, the abnormal return is decreasing and volatility is escalating. Our study contributes to the literature by the impact of a broad CSR disclosure mandate on market reaction. Furthermore, by using a DID design and PSM methodology, the results are more robust and provide a causal relationship for CSR mandatory disclosure.

Second, our study contributes to insurance effect of CSR (Xu et al., 2020; Lins et al., 2017). The insurance of CSR provides a new angle for CSR research. Lins et al. (2018) find that CSR better performed firms are more likely to be saved after 2008 financial crisis. And Xu et al. (2020) find that CSR disclosure can save the firms in China. Specifically, the effect varies among different controlling shareholders. If the firms suffer from economic negative impact, Non-State-owned firms are more likely to be saved; when they suffer from reputational negative impact, stated owned enterprises are more likely to be saved. In this paper, we find the insurance effect from spillover effect and monitor effect. From the perspective of spillover effect, the firms are forced to increase environmental expenditure. From the perspective of monitor effect, the behavior of the companies is restrained by CSR mandatory disclosure and the firms are less likely to violate the disciplines.

The paper is organized as following: Section 2 provides the institutional background; Section 3 shows the literature review and hypothesis; Section 4 exhibits the methodology; Section 5 demonstrates the empirical results; and Section 6 concludes.

2. INSTITUTIONAL BACKGROUND

China, as the largest emerging economy in the world, has strong influence on its listed companies. Government involvement plays a significant role in company's strategy. The requirement from government has mandatory effect on companies' behavior. Companies that voluntarily disclose CSR information as driven by market factors may increase financial performance and thus firm value. However, when firms are mandatorily disclosing their CSR report, their financial performance may hamper. In such situations, firms previously conduct CSR activities and produced CSR disclosure reports as required by government may get more supports from government or they can benefit from CSR engagement in non-financial aspects.

By 2008, CSRC and Shanghai Stock Exchange and Shenzhen Stock Exchange issued the requirement for mandatory CSR disclosure for listed companies. In such way, it enforces the companies to adhere CSR commitment to the society and environment. The requirement asks companies to (1) adhere the 2006 "Guidelines on Social Responsibility of Companies Listed on the Shenzhen Stock Exchange" by the SZSE, (2) black list for high-pollution companies, (3) demonstrating the Research Report on Social Responsibility of China" and (4) awards better CSR performed companies. Such activities enforce the companies to better implement CSR activities.

Particularly, the SSE announced in 2008 that firms listed in its "Corporate Governance Sector," firms were henceforth required to issue a CSR report with their annual report beginning with the 2008 report. On December 31, 2008, the SZSE released a similar announcement pertaining to all firms on its "Shenzhen 100 Index."

3. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

3.1. Shareholder Perspective

CSR engagement may reduce shareholder's value by benefiting manager's interest. Jensen and Meckling (1976) suggest that CSR can potentially be linked to the pursuit of managers' self-interest under agency cost perspective. Prior et al. (2008) find consistent evidence on opportunistic behaviors under agency theory perspective. Jensen (2001) argues that if managers try to fulfill multiple objectives instead of pursuing the single objective of value maximization. Managers must serve many stakeholders; they will abandon unaccountable for the stewardship of the firm's resources.

According to Leuz et al. (2003), CSR may give insiders more impetus to conduct earning management to mask their rent-seeking activities from outsiders. McWilliams and Siegel (2006) suggest that managers will use CSR as career improvement. Prior et al.

(2008) argue that earnings management practices damage interests of stakeholders; Hence, managers who manipulate earnings can deal with stakeholder activism and vigilance by resorting to CSR practices. They explore the thesis that managers manipulate earnings in order to obtain private benefits. Managers may deal with the negative effects from stakeholders and compensate these constituencies through CSR activities (Lev et al., 2012). Linthicum et al. (2010) view CSR activities as a form of reputation-building or maintenance: Managers desire to maintain that reputation are more likely engaging in socially unacceptable activities when they value their companies. Together, we would find the negative relationship between CSR and earning quality and managers are more likely to mislead stakeholders by aggressive earning management.

3.2. Stakeholder Value Maximization Perspective of CSR

The Stakeholder value maximization perspective proposes that CSR disclosure provides value-relevant information to their stakeholders. CSR activities can improve financial performance through building good relationship with customers, reducing violation costs, and motivating employees by favorable conditions (Dhaliwal et al., 2012). Jones (1991) concludes that CSR firms have incentives to be honest, trustworthy, and ethical. Kim et al. (2012) find that socially responsible firms are less likely to manage earnings through discretionary accruals and to maintain transparency in financial reporting.

Accounting researchers have become increasingly interested in the impact of CSR disclosure on firm valuation (Dhaliwal et al., 2014; Dhaliwal et al., 2012; Dhaliwal et al., 2011). Dhaliwal et al. (2012) suggest that CSR disclosure can increase analyst forecast precision. Other studies extend the relationship between financial disclosure and analyst forecast to non-financial disclosure (Hope, 2003). This perspective shows that stand-alone CSR reports provide incremental negative or positive price-related information about firms' financial performance (Balakrishnan et al., 2011; Kim et al., 2012).

3.2. Insurance Effect of CSR Disclosure

Insurance Effect of CSR disclosure demonstrates that CSR has positive social effect on the firm. It can compensate the firm from non-financial perspective (Goss, 2009), support the firm through financial crisis (Lins et al., 2017) and save the firm from negative shock (Xu et al., 2020). Prior literatures show that CSR activities can improve firm's value. For instance, it can reduce the firm's systematic risk for those with higher CSR investment level, reduce its financial pressure (Goss, 2009), and lower cost of capital and higher valuation (El Ghouli et al., 2011; Dhaliwal et al., 2011), gain additional subsidies from the government (Xu et al., 2020), receive more positive reviews from analysts (Bushee, 2001; Bushee and Noe, 2000), and higher return after merger and acquisition (Deng et al., 2013).

Alternatively, prior literature argue that Mandatory CSR disclosure could also hamper the firm's performance. Firm's obligation to the society could be a sacrifice of firm's value. Therefore, we derive the hypothesis:

H_{1a}: The abnormal return is increasing after the 2008 CSR mandatory disclosure was implemented

H_{1b}: The abnormal return is decreasing after the 2008 CSR mandatory disclosure was implemented

H_{2a}: The volatility is decreasing after the 2008 CSR mandatory disclosure was implemented

H_{2b}: The volatility is increasing after the 2008 CSR mandatory disclosure was implemented

3.2.1. Mechanism: increasing environmental protection expenditure

CSR mandatory disclosure enforces the firms to increase its effort in improving social welfare and relationship with community and protect the environment. Chen et al. (2017) find that after CSR mandatory disclosure in 2008, positive externality improves the welfare of the society in China. The positive externality exhibits such as reduction in pollutions, although the firm performance deteriorates. And Christensen et al. (2017) also find the real effect of CSR that after mandatory safety regulation disclosure, the safety of mine workers is improving although the productivity is reduced. Following prior research, we posit that after the CSR mandatory disclosure, the performance is reducing. But firms would have positive externality. The externality could move to increase environmental protection expenditure. Environmental protection is one of the core aspects of CSR, and gaining more and more attention from Chinese authority. It also serves the key elements in company assessment. Increasing environmental protection expenditure could help the companies to gain commitment to CSR. Therefore, we derive the hypothesis H₃:

H₃: After CSR mandatory disclosure, firms would increase environmental protection expenditure

3.2.2. Mechanism: reducing violation costs

CSR has good risk management effect on the firms (Dhaliwal et al., 2011) and reduce the scale of corporate misbehavior. CSR disclosure could reduce the violation for the firm. Specifically, once the firm suffer from reputational negative shock, CSR can have insurance effect and save the firms from trap (Xu et al., 2020). CSR could also reduce the cost of litigation (Hong et al., 2015). Companies capital market misbehavior CSR mandatory disclosure can better regulate the firm's behavior and reduce the likelihood of violation in the stock market. Therefore, we derive the hypothesis below:

H₄: After CSR mandatory disclosure, firms would reduce violation cost

4. METHODOLOGY

To examine the effect of mandated disclosure on stock prices, we take 2008 policy as exogenous shock. The treatment group are the samples in during the period of 2009–2010 and control group within the period of 2006–2008. According to Chen et al. (2017), we delete the dual-listing companies in both Mainland China and Hong Kong markets. And we also delete financial companies and companies with omitted data. Data from stock return, financial data and analysts are obtained from CSMAR.

4.1. Definitions of Variables

4.1.1. Abnormal Return (R)

Abnormal return is the excessive amount of average return of the stock market. The higher abnormal return represents better stock

performance. We collect the weekly return from 2006 to 2010 respectively and calculate the average return as follow:

$$R_{i,t} = \alpha_i + \beta_i R_{m,t} + \varepsilon_{i,t} \quad (1)$$

$$AR_{i,t} = \varepsilon_{i,t} = R_{i,t} - \alpha_i - \beta_i R_{m,t} \quad (2)$$

The weekly abnormal return $R_{i,t}$ of Stock i in Week t is:

$$R_{i,t} = \ln(1 + \varepsilon_{i,t}) \quad (3)$$

$\varepsilon_{i,t}$ is the residual error in Equation 3, $AR_{i,t}$

4.1.2. Stock Volatility (Vol)

Stock volatility is represented by standard deviation of weekly abnormal return within a year. The lower of stock volatility, the more stability of the stock price.

4.1.3. Leverage ratio (lev)

Leverage is the ratio measured by the total debt to total assets.

4.1.4. Return on total assets (ROA)

ROA is measured by the ratio of net income to total assets, representing the return on per unit asset. The higher ROA represents higher financial performance of the firm.

4.1.5. Firm size (size)

The scale of the firm is represented by logarithm of total assets.

4.1.6. Analysts

We measure the number of analysts who forecast the specified companies. The higher number of analysts, the higher attention to the firms.

4.1.7. Market to book ratio (mb)

The ratio of market value to book value.

4.1.8. Stock turnover ratio (turnover)

The ratio represents the frequency of the stock transaction. The higher the ratio, the higher of stock liquidity.

4.1.9. Dummy variable (post)

Post represents the dummy variable of DID. We define samples in the period of 2009–2010 as 1 and others as 0.

4.1.10. Treat

Treat is defined as 1 for treatment group, those firms which discloses CSR report mandatory; and 0 for others. Variables are shown in Table 1.

4.2. PSM Matched Samples

Various factors may influence CSR report issuance. PSM is used to remove possible variables in the selection bias and heterogeneous problems. Such effects are mainly from the disclosure of a specific donation amount. Thus, we conduct PSM on sample selection.

Table 2 provides the results of matching tests. After sample matching, most coefficients become insignificant between

Table 1: Table of variables

Variables	Definitions
R_i	Weekly return of stock i
Vol	Stock volatility is represented by standard deviation of weekly abnormal return within a year. The lower of stock volatility, the more stability of the stock price
lev	Leverage is the ratio measured by the total debt to total assets
ROA	ROA is measured by the ratio of net income to total assets, representing the return on per unit asset
size	The scale of the firm is represented by logarithm of total assets
analyst	We measure the number of analysts who forecast the specified companies
mb	The ratio of market value to book value
turnover	The ratio represents the frequency of the stock transaction
io	The holding percentage of institutional investor
top	Holding percentage of top management
board	The number of board member
per	The price-to-earnings ratio (P/E ratio) is the ratio for valuing a company that measures its current share to its current earning per share
post	We define the dummy variable as 1 for sample after 2008, and 0 for others
treat	We defined the dummy variable as 1 for treatment groups and 0 for others
expenditure	We collect the data manually from annual report from listed companies
Violation cost	The data is collected from CSMAR

firms that disclose donation in CSR reports and those that do not. Therefore, PSM removes most firm-level heterogeneous characteristics. We match the firm-level characteristics, including firm size, turnover ratio, ROA, and analysts.

To examine the effect of mandated disclosure on stock prices, we take 2008 policy as exogenous shock. The treatment group are the samples in during the period of 2009–2010 and control group within the period of 2006 to 2008. According to Chen et al. (2017), we delete the dual-listing companies in both Mainland China and Hong Kong markets. And we also delete financial companies following and companies with omitted data. Data from stock return, financial data and analysts are obtained from CSMAR.

Figure 1 shows the PSM Test results. Turnover, ROA, size, and analyst are included in PSM Tests. The results show that the bias is removed after matching.

Figure 1 and Table 2 show the results for PSM. In Figure 1, we remove the difference after the matching. In Table 2, U stands for the one unmatched and M represents the results after matching. The results show that there is significant difference before matching, the P values are lower than 1% for size, turnover, ROA, and analysts respectively. The Table 2 shows that the difference is removed after PSM.

4.3. DID Approach

The 2008 mandatory CSR disclosure policy provides us with a rare opportunity to systematically study the CSR mandatory disclosure and firm performance. First, it was difficult if not impossible

Table 2: PSM tests

Variable	Matched	Mean		%reduction		t-test	
		Treated	Control	%bias	bias	t	p>t
Size	U	1.10	3	37.2		6.25	0
	M	67	66	0.3	99.1	0.09	0.925
Turnover	U	260.06	321.49	-33		-3.54	0
	M	266.2	267.35	-0.6	98.1	-0.06	0.953
ROA	U	0.05005	0.02916	31.7		3.38	0.001
	M	0.05039	0.05697	-10	68.5	-0.97	0.334
Analyst	U	13.223	6.901	70.5		9.16	0
	M	12.232	12.167	0.7	99	0.06	0.95

*if variance ratio outside [0.74; 1.35] for U and [0.74; 1.36] for M

Figure 1: PSM test

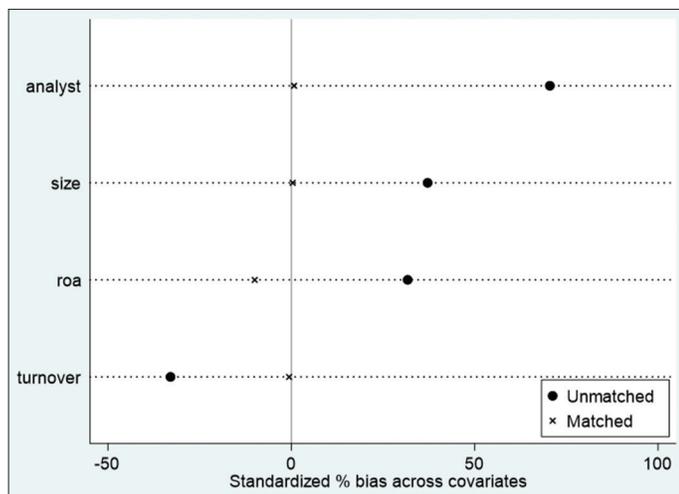
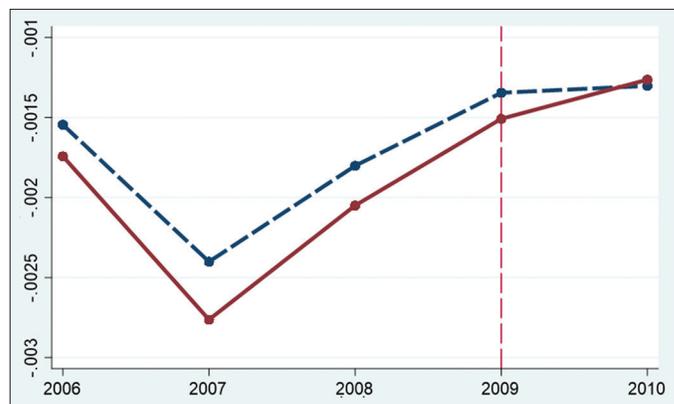


Figure 2: Parallel trend tests: stock return pattern



The baseline regressions are as follow:

Abnormal return:

$$R = \beta_0 + \beta_1 \text{post} + \beta_2 \text{treat} + \beta_3 \text{did} + \beta_j \text{controls}_j + \varepsilon \quad (4)$$

Stock volatility:

$$\text{Vol} = \beta_0 + \beta_1 \text{post} + \beta_2 \text{treat} + \beta_3 \text{post} * \text{treat} + \beta_j \text{controls}_j + \varepsilon \quad (5)$$

Abnormal Return (R) is the excessive amount of average return of the stock market from 2006 to 2010. The higher abnormal return represents better stock performance. Specifically, $R_{i,t}$ represents the stock i in the week t each year, $R_{m,t}$ represents the market value weighted weekly return in Week t . $AR_{i,t}$ represents the abnormal return of Stock i in Week t . We estimate α_i and β_i by the weekly return of each stock and get the abnormal weekly return through Equation 2. In Model 5, Vol, stock volatility is represented by standard deviation of weekly abnormal return within a year. The lower of stock volatility, the more stability of the stock price. Post represents the dummy variable of DID approach. We define samples in the period of 2009–2010 as 1 and others as 0. Treat is defined as 1 for treatment group, those firms which discloses CSR report mandatory; and 0 for others. β_3 represents the effect of mandatory disclosure on stock abnormal return. Controls are control variables mentioned above.

To examine the effect of mandated disclosure on stock prices, we take 2008 policy as exogenous shock. The treatment group is the samples in during the period of 2009–2010 and control group within the period of 2006–2008.

for most companies to anticipate that such a policy would take place. It is reasonable to assume that this event constituted a clear exogenous shock. Second, all listed companies can act quickly and the policy comes to effect immediately. Chinese listed companies are governed by CSRC and Central government-controlled enterprises are supervised by SASAC. The enforcement from government could lead to immediate and direct effect.

Our PSM-DID approach can remove firm-level heterogenous problem and allow us to examine the causal relationship between CSR mandatory disclosure and stock abnormal return. We also include the fixed effect model to remove omitted variable problem.

4.3.1 Parallel Trend Tests

Before the DID test, we conduct the parallel trend tests. In Figures 2 and 3, we confirm that the abnormal return and volatility demonstrate the similar pattern. After mandatory disclosure, the pattern loses its consistency.

Figure 2 shows the Parallel Trend Tests in stock return. The blue line represents the treatment group and red line represents the control group. Before the shock, both groups remain the similar pattern.

Figure 3 shows the Parallel Trend Tests in stock volatility. The blue line represents the treatment group and red line represents the control group. Before the shock, both groups remain the similar pattern.

4.4. Descriptive Statistics

Table 3 reports the descriptive statistics. The average abnormal return is -0.00176 . In the total 1032 samples, the standard deviation is 9.086 and there is significant difference among companies. The similar results are shown in turnover ratio as well; the minimum turnover ratio is 11.81% and maximum is 2567%. The maximum leverage ratio is 0.044 and maximum is 0.501. The maximum book to market ratio is 0.066 and maximum is 1.295, with the average of 0.627.

Table 4 shows the Pearson correlation and the coefficients are low. The results do not show correlation problem.

4.5. Main Results

4.5.1. DID baseline regressions

Table 5 shows the results for mandatory CSR disclosure and abnormal return, as well as volatility in Column 1 and 2 respectively. In Column 1, the coefficient of interaction term $post*treat$ is -0.0003 and at significance level of 5%. In control variables, the coefficient of ROA is 0.0048 and at the significance level of 1%. The results show that after the mandatory disclosure requirement implemented, compared with

non-mandatory firms, mandatory firms have lower abnormal return. Better performed firms have higher abnormal return. The sudden change of disclosure requirement constitutes a causal relationship between CSR disclosure and abnormal return. It indicates that mandatory requirement diminishes the excessive return on individual stock. Before 2008, the requirement was not implemented, the firms with mandatory disclosure have higher abnormal return.

Similarly, in Column 2, the coefficient of the interaction term is 0.0039, at the significance level of 1%. The results demonstrate that after 2008, the volatility is increasing. The coefficient of $post$ is -0.0019 at the significance level of 1%. And the coefficient of $treat$ is -0.0032 and at the significance level of 1%. In control variable, the coefficient of ROA is -0.0376 and at significance level of 1%. Financial performance can stabilize the stock market.

To sum up, the after 2008, the mandatory disclosure requirement reduce abnormal return and increase volatility. The requirement hampers the individual stock performance.

4.5.2. PSM-DID

Various factors may influence CSR Insurance Effect. PSM is used to remove possible variables in the selection bias and heterogeneous problems. Such effects are mainly from the disclosure CSR reports. Thus, we conduct PSM on sample selection.

Table 6 shows the full sample regressions of mandatory CSR disclosure and abnormal return, as well as volatility in Column 1 and 2 respectively. In Column 1, the coefficient of interaction term $post*treat$ is 0.0048 and at significance level of 5%. In control variables, the coefficient of ROA is 0.026 and at the significance level of 1%. The results show that after the mandatory disclosure requirement implemented, compared with non-mandatory firms, mandatory firms have lower abnormal return. Better performed firms have higher abnormal return. And disclosure requirement also increases individual firm's volatility and escalate the market instability.

4.6. Robustness Check

According to Lins et al. (2017) and Goss and Robert (2011), we further include the number of board member (board), holding percentage of institutional investors (io) and block shareholder's holding percentage into the model. In Table 7, the coefficient of the interaction term $Post*Treat$ is -0.0006 in Column 1 and 0.0091 in Column 2. And the results are all significant. In control variables, the coefficient of io are positive in Column 1 and Column 2. The results are consistent with prior research.

Figure 3: Volatility pattern

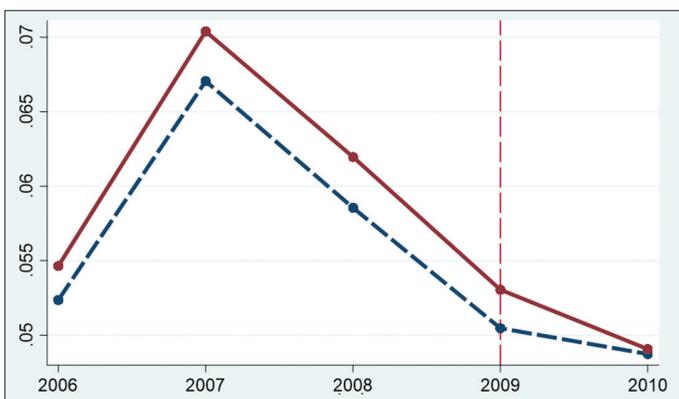


Table 3: Descriptive statistics

Variable	Obs	Mean	Std.Dev.	Min.	Max.
R	1112	-0.002	0.001	-0.021	1.32
lev	1108	0.501	0.182	0.044	0.973
ROA	1108	0.055	0.051	-0.362	0.344
size	1108	50.03	5.78	1.53	426
analyst	1032	10.295	9.086	1	48
mb	1105	0.627	0.230	0.066	1.295
turnover	1114	738.200	399.152	11.810	2567.033
Vol	1112	0.056	0.0167	0.00193	0.181

Table 4: Pearson correlation

	R	Vol	lev	ROA	size	analyst	mb	turnover
R	1	-1.000*	-0.057*	-0.031	0.186*	0.075*	0.221*	-0.272*
Vol	-0.930*	1	0.056*	0.033	-0.187*	-0.074*	-0.222*	0.269*
lev	-0.106*	0.083*	1	-0.529*	0.441*	-0.137*	0.362*	-0.022
ROA	0.113*	-0.034	-0.498*	1	-0.245*	0.386*	-0.469*	-0.155*
size	0.156*	-0.219*	0.349*	-0.132*	1	0.214*	0.368*	-0.277*
analyst	0.116*	-0.112*	-0.146*	0.342*	0.176*	1	-0.263*	-0.266*
mb	0.159*	-0.203*	0.359*	-0.427*	0.340*	-0.275*	1	-0.049
turnover	-0.210*	0.270*	-0.029	-0.125*	-0.251*	-0.269*	-0.054*	1

Table 5: Baseline Regressions

Variables	R	Vol
Post*treat	-0.0003**	0.0039**
	-0.0001	-0.0016
Post	0.0013***	-0.0186***
	-0.0001	-0.0013
Treat	0.0003***	-0.0033***
	-0.0001	-0.0011
lev	-0.0010***	0.0178***
	-0.0002	-0.0027
ROA	0.0048***	-0.0376***
	-0.0008	-0.0100
Size	-0.07*	0.05
	0	0
Analyst	-0.0001	0.0001**
	-0.0000	-0.0001
mb	0.0023***	-0.0326***
	-0.0002	-0.0023
Turnover	-0.0000***	0.0000***
	-0.0000	-0.0000
_cons	-0.0030***	0.0685***
	-0.0002	-0.0027
N	1022	1022
R ²	0.2839	0.3510

The superscripts ***, **, and * indicate significance at the 1%, 5%, and 10% confidence levels, respectively

Table 6: PSM-DID results

Variables	Vol	R
Post*treat	0.0048**	-0.001
	-0.0019	-0.0008
Post	-0.0193***	0.0012***
	-0.0011	-0.0005
Treat	-0.0050***	0.0009*
	-0.0013	-0.0005
lev	0.0243***	-0.0030***
	-0.0025	-0.0011
ROA	0.0260***	-0.0190***
	-0.0084	-0.0036
Size	0.08	0.06
	0	0
analyst	-0.0001	0.0001**
	-0.0001	0
mb	-0.0293***	0.0002
	-0.0022	-0.0009
turnover	0.0000***	0
	0	0
_cons	0.0646***	-0.0005
	-0.0024	-0.001
N	3002	3002
R ²	0.1622	0.0138

The superscripts ***, **, and * indicate significance at the 1%, 5%, and 10% confidence levels, respectively

5. MECHANISMS

To further investigate the mechanisms of the CSR mandate, our study focuses on environmental protection expenditure. If the mandatory disclosure imposed on the firm, the managers would consider shift the benefit to more social friendly activities, such as environmental protection. On the one hand, mandatory CSR disclosure may demonstrate a monitor role to reduce the firm's misbehavior. For example, the requirement aims to build a positive image toward the society. And firms would restraint itself in the stock market.

Table 7: Robustness checks: additional control variables

Variables	R	Vol
Post*Treat	-0.0006***	0.0091***
	-0.0002	-0.003
post	0.0012***	-0.0184***
	-0.0002	-0.0025
treat	0.0004**	-0.0045**
	-0.0001	-0.002
io	-0.0000*	0.0002***
	0	-0.0001
top	-0.0000**	0.0002***
	0	-0.0001
board	-0.0001*	0.0010**
	0	-0.0005
lev	-0.0006*	0.0111**
	-0.0004	-0.0055
ROA	0.0043**	-0.0661**
	-0.0018	-0.0269
size	0.06	0.07
	0	0
analyst	0	-0.0001
	0	-0.0001
mb	0.0020***	-0.0318***
	-0.0004	-0.0053
turnover	-0.0000***	0.0000***
	0	0
_cons	-0.0020***	0.0581***
	-0.0006	-0.0084
N	279	279
R ²	0.3144	0.3717

The superscripts ***, **, and * indicate significance at the 1%, 5%, and 10% confidence levels, respectively

5.1. Increasing Environmental Protection Expenditure

We introduce the environmental protection expenditure. We hypothesize that after mandatory CSR information disclosure, companies would increase the environmental protection expenditure. Companies will care more about environment and reduce the pollution. We also subdivide the samples into state-owned enterprises (SOE) and Non stated owned enterprises (N-SOE). We collect the expenditure data from annual reports manually.

In Table 8, the results show that the coefficient of Column 1 is 0.0004, at the significance level of 10% in return. While the results are not significant in Columns 2. The results show that the insurance effect is more pronounced in SOE. SOE is more likely to increase effort in environmental protection.

5.2. Reducing Violation Costs

CSR information would regulate the companies' behavior. Better performed CSR disclosure could demonstrate a responsible role in community and society. And the firm would reduce its violation behavior in the capital market. Hong and Liskovich, (2015) find that higher CSR level firms would reduce its legal penalty. And Xu et al. (2020) find that firms which disclose their CSR report reduces its violation in capital market. Violation cost is collected from CSMAR.

In Table 8, we examine the effect after CSR mandatory disclosure through its violation behaviors. The interaction term represents the firm subject to mandatory disclosure and after the 2012. In

Table 8: Mechanism: environmental protection expenditure and violation costs

Variables	Environmental protection expenditure		Violation cost	
	SOE	N-SOE	SOE	N-SOE
Post*Treat	0.0004* .0001	0.0003 0.0001	-0.0063** -0.0013	-0.0032 -0.0019
Post	0.0016*** .0001	0.0008* 0.0001	-0.0143*** -0.0013	-0.0186* -0.0015
treat	0.0003** 0.0001	0.0003* 0.0001	-0.0075** -0.0011	-0.0029* -0.0009
lev	-0.0010** -0.0002	-0.0013** -0.0002	-0.0216** -0.0027	-0.0152*** -0.0014
ROA	0.0058*** 0.0010	0.0036** 0.0008	-0.0413*** -0.0084	-0.0312*** -0.0085
size	-0.0007* 0	-0.0009* 0	-0.00036 0	-0.00037 0
analyst	-0.0001 -0.0001	-0.0000 -0.0000	0.0001** -0.0001	0.0001** -0.0001
mb	0.0017*** 0.0043	0.0016*** 0.0012	-0.0169*** -0.0063	-0.0253*** -0.0045
turnover	-0.0000*** -0.0000	-0.0000*** -0.0000	0.0000*** -0.0000	0.0000*** -0.0000
_cons	-0.0019*** -0.00056	-0.0017*** -0.0005	0.0463*** 0.0043	0.0583*** 0.0016
N	1022	1022	1022	1022
R ²	0.2593	0.2403	0.3763	0.338

The superscripts ***, **, and * indicate significance at the 1%, 5%, and 10% confidence levels, respectively.

Column 3, the coefficient of the interaction term is -0.0063 , at the significance level of 5%. In Column 4, the results are not significant for N-SOE. The results show that SOE are more likely to restrain its misbehavior in the stock market rather than N-SOE.

To sum up, the insurance effect of CSR in China is demonstrated by increasing environmental protection expenditure and reducing violation cost. The effect is more pronounced in SOE. SOE is the capstone of Chinese economy and is government oriented. The insurance effect serves a better role in improving the social friendly society. Although company's financial performance is damaged by mandatory disclosure requirement, the insurance effect can guide the companies toward to building a good society.

6. CONCLUSIONS

In this paper, we examine the impact of mandatory CSR disclosure on individual stock abnormal return and volatility, as well as its insurance effect. Specifically, we examine the impact of the mandatory CSR disclosure in China starting from 2008. The requirement of mandatory CSR disclosure allows us to examine the casual effect of CSR mandatory disclosure and stock return. Mandatory disclosure pressures firms to engage in more CSR activities and may lead to a decrease in firm performance.

To further investigate the mechanisms of the CSR mandate, our study focuses on environmental protection expenditure. If the mandatory disclosure imposed on the firm, the managers would consider shift the benefit to more social friendly activities, such as environmental protection. On the one hand, mandatory CSR disclosure may demonstrate a monitor role to reduce the firm's

misbehavior. For example, the requirement aims to build a positive image toward the society. And firms would restraint itself in the stock market. We find that companies are more likely to increase their environmental protection expenditure and reduce violation costs, especially in SOE.

7. ACKNOWLEDGMENT

Our research is supported by the Fundamental Research Funds for the Central Universities, HUST:2019WKYXQN050.

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