

Media Coverage, Environmental Investment and Market Value

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Abstract. This study provides evidence regarding the importance that media coverage places on corporate environmental protection by examining whether the negative reports on pollution are related to corporate environmental investments and its market value. We empirically analyze the data of Chinese companies listed in Shenzhen and Shanghai stock exchanges in the period 2008-2014, and find that negative media coverage reduces market value of environmental investment, which in turns puts pressure on corporate environmental protection from the capital market. Overall, our findings provide insights into the importance that media coverage place on environmental governance.

1. Introduction

Corporate environmental activities have become a substantial and mounting interest for academics and practitioners. Previous studies on environment performance highlight the critical impact of public opinion from the social media. Most studies confirm that media reports concerning environmental violation stimulate corporate environment information disclosure, and there is a connection between supervision of public opinions and the corporate environmental communication. Therefore, this article explores whether the negative atmosphere created by media coverages is an effective tactic to increase the environmental investment so as to mitigate its impact on the corporate value.

2. Hypotheses Development

Two main effects on the market value of a firm occur when a firm increases its investment on environmental protection activities. The first is the socioeconomic effect. These investments help investors minimize the risk of violating environmental regulations, break down environmental barriers in certain countries and regions, and obtain more investment opportunities and more promising market shares. These investments also help the firms establish a positive reputation and image regarding environmental protection and sustainability, which effectively represents active engagement in environmental protection activities by the firm, reduces losses incurred by potential environmental lawsuits and penalties, avoids customer boycotts of the products sold by the firm, and increases customer loyalty and satisfaction to boost sales. The second is the social identity effect. Although investment in environmental protection activities increases corporate costs, it reflects that the firm is adopting social responsibility, which is a positive signal that distinguishes it from competitors. Therefore, the increase in costs can establish a long-term competitive advantage. Additionally, these effects facilitate the creation of a positive business environment for firms, increase their expected cash flows, minimize the cost of capital, have a significant positive effect on the stock market, and increase corporate value.

Previous analyses have indicated that stakeholders mainly obtain access to information on firms through the news media ^[1-3]; additionally, the value of the firm depends on evaluation by its stakeholders. Studies show that media coverage is a crucial factor affecting fluctuations in stock price, trading volume, and stock returns ^[4]. This indicates that media information is a signal that spreads to the stock market, and because of its agenda-setting function, the behaviors of investors are affected, which in turn affects the stock price and market value of a firm. Therefore, the hypothesis is proposed:

Hypothesis: Negative media coverage not only negatively influence the corporate value, but also negatively moderate the effect of environmental investment on the corporate value.

3. Empirical Models

To verify whether investors use corporate environmental information to assess the market value of their investments in environmental protection, a modified version of the Ohlson valuation model is applied. Following Clarkson, the Ohlson valuation model is further modified. The interaction term between *eni* and *negmedia* can be applied to test whether the market value of the environmental investments is affected by the media coverage.

$$V = \beta_0 + \beta_1 ABV + \beta_2 eni + \beta_3 negmedia + \beta_4 eni \times negmedia + \beta_5 AE + \varepsilon \quad (1)$$

All variable definitions are displayed in Table 1.

Table 1. Variable definitions

<i>eni</i>	The proxy of corporate environment strategy with the value of investment on environmental protection in million yuan processed with logarithm.
<i>V</i>	The market value of common equity is measured three months after the firm's fiscal year end in million yuan
<i>negmedia</i>	The proxy of media coverage on the corporate environmental pollution events by taking logarithm of the times of reports plus one.
<i>ABV</i>	Adjusted book value of the common equity in million yuan
<i>AE</i>	the abnormal earnings defined a earnings to common equity less an assumed cost of capital times beginning-of-fiscal year book value of common equity, in million yuan

4. Empirical Results

4.1 Descriptive Statistics

Tables 2 display the descriptive statistics. In Table 2, When the sample is divided according to whether the firm had been reported for its environmental pollution events, the means of *eni* (4.471) and *eni* (0.88) in the no-reports group is considerably lower than those in the in the group covered by the reports. The average number of reports on environmental pollution events is 1.75 when the vale after the logarithm is 1.013.

Table 2. Sample partition and the descriptive statistics of main variables

	stats	<i>eni</i>	<i>negmedia</i>	<i>V</i>
Total sample	max	23.350	5.375	111.000
	min	0	0	0.459
	mean	0.955	0.041	8.249
	sd	3.911	0.233	13.733
	N	11629	11629	11629

Table 3. Pearson correlation matrix

	<i>eni</i>	<i>eni01</i>	<i>negmedia</i>	<i>V</i>
<i>eni</i>	1			
<i>eni01</i>	0.991***	1		
<i>negmedia</i>	0.093***	0.083***	1	
<i>V</i>	0.240***	0.222***	0.218***	1

Table 3 illustrates that the extent and probability of investments in environmental protection are positively correlated to the extent and probability of media reports on pollution and are significant at the 0.01 level, indicating that media coverage is related to corporate environmental protection behaviors.

4.2 Multivariate Tests

Hypothesis is proposed to investigate whether the value of corporate evaluation by investors could be affected by the media. The estimation results from Model (1) indicate that the coefficients of *negmedia* are -1.796 and -2.579 , with significance at the 0.1 level. When considering corporate environmental investment, *ABV* is the book value of common equity minus the investment in environmental protection from *BV*. Table 4 displays the coefficients of *eni*, which are 0.003 and 0.004, with significance at the 0.01 level. The coefficient of the interaction term between *eni* and *negmedia* is -0.015 ($p < 0.01$), regardless of whether the year and industry effect are controlled for. When substituting the mean of *negmedia*, the total effects of environmental investment on market value are -0.002 ($0.003 - 0.015 \times 0.041$) and -0.003 ($0.004 - 0.015 \times 0.041$), which are negative. In conclusion, the media coverage on corporate pollution events supersedes the positive effect of environmental investment, thus the total effect is negative.

Table 4: The affect of media coverage on the market value of environmental investments

IV \ DV	(4.1)	(4.2)	(5.1)	(5.2)
	V	V	V	V
<i>BV</i>	0.002***	0.002***		
	0.000	0.000		
<i>negmedia</i>	-1.796***	-2.579***	-0.162	-0.969
	(0.685)	(0.685)	(0.676)	(0.677)
<i>ABV</i>			0.002***	0.002***
			0.000	0.000
<i>eni</i>			0.003**	0.004**
			(0.002)	(0.002)
<i>eni*negmedia</i>			-0.015***	-0.015***
			(0.001)	(0.001)
<i>AE</i>	0.000280***	0.000279***	0.000304***	0.000306***
	0.000	0.000	0.000	0.000
intercept	3.720***	3.124*	3.694***	2.985*
	(0.157)	(1.641)	(0.154)	(1.609)
R-sq	0.881	0.887	0.886	0.892

5. Conclusion

The effect of media coverage on market value is based on the assumption that public opinion is influenced by social media. Because of the strengthening of public environmental awareness and ensuing consumer pressure, firms have begun to invest more in environmental protection; when investors attach greater importance to the environment, they sell stocks of firms with negative media coverage according to the expectation that the market value of these firms will be damaged by the reports and strategies should be adopted to manage negative public opinion and ultimately improve corporate value.

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