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Window Dressing in Impression Management: Does Negative Media Coverage Drive Corporate Green Production?

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Abstract: This study addresses the calls for research attention on corporate greenwashing and analyzes an environmental strategy in corporate impression management. We assume that negative media coverage triggers impression motivation and causes firms to adopt environmental strategies for impression construction based on the two-component model in impression management. Specifically, firms release credible signals, such as green investment, to cover concealed pollution emissions under the framework of a game with incomplete information. We posit that firms can select a window-dressing strategy under the pressures of negative media coverage by constructing two regression models, respectively. We also assess our underlying assumption of constraints from state ownership and institutional shareholdings by testing additional moderating relationships. Utilizing a sample of Chinese publicly listed firms from 2000 to 2010, our empirical results suggest that negative media coverage increases corporate green investment, but pollutant emissions are reduced correspondingly, and state ownership aggravates corporate window dressing while institutional shareholdings curb it. Our findings reveal the corporate social irresponsibility in environmental protection and sustainable development, and they offer important implications for firm stakeholders.

Keywords: negative media coverage; impression management; greenwashing; window dressing; information asymmetry

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1. Introduction

Recently, studies have focused on the impact of negative media coverage related to the environment on corporate environmental performance [1]. For example, the impact of negative environment reports on reducing pollution at the firm level has been investigated [2]. However, environment-related reports only occupy a small percentage of all negative media coverage, as most of them have nothing to do with it. Meanwhile, news media can release negative coverage to break the image perceptions of multiple market participants [3,4], while reputation is a crucial intangible strategic resource for the long-term survival and development of firms [5]. Therefore, other than the direct effect from environment-related coverage to corporate environment abatement, our research question is as follows: Do firms respond with environmental strategies after negative media coverage for impression construction?

Specifically, once illegal behaviors have occurred and are found, the media will expose and spread them, forming a public opinion crisis and reputation pressure [5–7]. The firm is then motivated to manage its impression promptly to counteract the perceived reputational threats through creating the desired image or maintaining a current one [8]. Such impression management includes not only immediate moves like justification, apologies and correction but also a series of strategic behaviors designed to divert public attention. This study focuses on a particular form of impression management, what we called window dressing, to discuss a phenomenon whereby firms adopt environment-friendly behaviors to mitigate and divert the reputational pressure after negative media coverage, but it produces little efficiency on pollution reduction because of profit pursuing. Notably, such an

environmental strategy is intended to establish reputation rather than to improve issues that the media have negatively reported.

To mitigate reputational pressures and polish images, firms can provide new attractions to divert external attention from weaknesses or failures [9]. Information disclosure is a commonly used diversionary tactic in which positive disclosure helps reduce negative effects and demonstrates responsible images, especially concerning environmental issues and sustainability [10,11]. Recently, environmental information disclosure has been often used in brand building, marketing and crisis public relations [12,13]. Firms can also shape green images by showing their efforts toward environmental protection in annual reports and disclosing their green vision through advertisements to society [14,15].

However, information asymmetry plays a vital role in increasing the difficulty of verifying corporate environmental disclosure [16]. It has been found that green marketing, rather than realizing environment governance, is frequently adopted to polish firms' images [17,18]. A certain amount of research has defined greenwashing to explain such problem, which represents false environmental commitments and claims [10,19]. As greenwashing continues to evolve, more and more firms use it as a tool to develop more subtle strategies for environmental governance. However, this superficial impression management in a marketing way cannot tackle pollution abatement, and its frequent exposure has caused trust crises. Different from the greenwashing with commitments but no action, this study focuses on the window-dressing strategy with action but little efficiency, and it analyzes its feasible logic in corporate impression management.

We explore a two-component impression management model and extend this line of theoretical work. First, after analyzing the reasons why negative media coverage triggers impression motivation, we consider an environmental impression construction, a window-dressing strategy, in the framework of dynamic game with incomplete information. Specifically, firms can release credible signals of their image, portraying the impression construction to cope with reputation pressure brought about by negative media coverage. However, such credible signals may not produce a real effect because they will increase production costs and bring about firm performance pressure. This is different from the previous definition of greenwashing, in which firms do make moves but with little efficiency rather than relying on false claims and doing nothing. Second, we distinguish green investment and pollutant emissions based on information asymmetry to explain the feasibility of impression construction through environmental strategy, and we provide the theoretical basis and micro-evidence. Green investment is visible information, while pollutant emissions have higher concealment because of their difficulty of inspection. There is a difference in information asymmetry between the two. Third, we also investigate the different roles of ownerships from the perspective of corporate governance [20], mainly analyzing the difference in motivations between state ownership and institutional shareholdings for impression management and discussing how they influence corporate window-dressing strategy-making.

We apply these theoretical arguments to the context of the Chinese manufacturing sector, as China has become the world's most important developing country at the expense of serious environmental pollution [21]. Increasing external attention toward environmental issues has prompted Chinese firms to proceed with their environmental strategies [22]. Nevertheless, the change may not achieve the expected effects but evolve into a strategy for firms to withstand external pressures and construct desired impressions. We tested our hypotheses by exploring the interrelationships between negative media coverage and corporate environmental strategies, and our findings illustrate the window-dressing strategy. Specifically, our empirical results indicate that firms invest in environmental facilities in response to negative media coverage to divert external attentions and polish their impressions. But then they consciously idle these facilities and even expand production for sharing investment costs, which can result in ineffective pollution control. In addition, state ownership intensifies the green investment in window dressing, while institutional shareholdings curb it, but both have little moderating effect on pollutant emissions.

First, this study contributes to the impression management literature by investigating how firms use environmental strategies to construct impressions after negative media coverage. Existing research has discussed the theoretical mechanism of media coverage in relation to corporate reputation [23,24], but these studies mainly focus on the direct relationship between negative environmental reports and corporate environmental governance. In fact, any negative media coverage will damage reputation and image, and firms have strong motivations to manage impressions. Based on the two-component model, we explain the window dressing for impression construction from the perspective of a dynamic game with incomplete information so as to expand the boundary of relevant theories. This study also discusses a special phenomenon in a large developing country to explore the possible environmental impression management worldwide, because environmental factors may be embedded in impression and strategic management owing to their advantages generated by meeting social needs for sustainable development and building green images for firms [25,26].

Second, we extend the boundary of the greenwashing literature from an information asymmetry perspective. The previous literature defines greenwashing as a marketing measure rather than an environmental strategy, emphasizing its lack of practical action [10,19,27]. With the rise in external regulatory forces, traditional greenwashing is no longer feasible and may even lead to a trust crisis in society. Meanwhile, the difference between green investment and pollutant emissions has not been thoroughly analyzed, as well as their link from input to output, which leads to the insufficient understanding of environmental abatement. We not only focus on the impression construction of firms through green investment for building reputation to cope with external pressure from an input view but also analyze the phenomenon of idling environmental equipment and expanding production for sharing investment costs from an output view. This helps to understand the specific process of greenwashing. Specifically, we put forward the hypothesis of a window-dressing strategy by distinguishing the information asymmetry between green investment and pollutant emissions (in our dataset, it is reflected in the wastewater (gas) disposal equipment and wastewater (gas) discharge of the same firm), which enriches the issue of the effectiveness of corporate environmental governance that has attracted more attention nowadays.

Third, we contribute to the strategic management literature by inspecting the effects of ownership in corporate governance on restraining firms' opportunistic strategy-making. The prior literature fails to dig out the root of greenwashing, ignoring the different motives and selective commitments of shareholders in terms of corporate environmental performance [28]. Meanwhile, prior studies also have not reached a consensus on whether ownership can mitigate or exacerbate opportunism [29]. We choose two representatives of ownership structures, state ownership and institutional shareholdings, to examine their power in corporate strategy-making and to explain the mechanisms that hinder or provoke window dressing. Our findings suggest that ownerships with different interest demands may hold different attitudes toward opportunistic strategy-making, which helps us understand that corporate misbehaviors may stem from internal governance failures.

Fourth, we also provide a new way to identify greenwashing. The prior literature focuses on greenwashing more in terms of the theoretical discussion, and the empirical evidence is relatively rare [30,31]. Although it is reasonable to take the difference between the firm's commitment and actual pollutant emissions as a proxy for greenwashing, most firms do not set specific environmental targets [28]. In addition, firms with clearly environmental targets are more easily supervised by external regulators, and such selection bias may underestimate the greenwashing. Therefore, to solve the difficulties of quantizing greenwashing, we combine green investment and pollutant emissions, which provides an important empirical basis for relevant research on the testing of the greenwashing of firms.

Last but not least, this study contributes to the research on sustainability-related issues. First, the environmental performance directly affects the sustainable development of firms. False environmental strategies and excessive packaging of disclosure may bring about long-term reputational damages, legal risks and decreases in investor attention on

corporate reputation [32]. Second, green marketing and greenwashing cannot improve environmental sustainability [33,34]. This study helps to alert firm stakeholders and the public to focus less on the surface of phenomena in environmental protection of firms but to investigate the specific implementation of environmental strategies. Third, media and other external supervisors play significant roles in sustainability, and they can promote the goals and responsibilities of sustainability in governments and firms through monitoring and reporting [35,36]. Therefore, we provide insights for future research on sustainable development from corporate sustainability, environmental sustainability, and the subject of sustainable development supervision.

2. Theoretical Background and Hypotheses Development

2.1. Negative Media Coverage and Impression Management

Negative media coverage can disrupt the perceptions that people have about firms based upon their past actions [3,4,37,38]. The potential damage from such reputation pressure urges firms to engage in impression management [39]. Leary and Kowalski proposed two discrete processes, impression motivation and impression construction, to deconstruct impression management and develop a two-component model [40]. Specifically, when a stimulus is detected to damage the desired image, the firm will be motivated to actively prevent the continuous spread of the negative effects and control how public see it, which forms impression motivation. Once the motivation is formed, the firm will consciously allocate its resources to correct the stimulus and adopt appropriate means to maintain its image in the minds of others, namely impression construction.

Specifically, on the one hand, negative media coverage forms the impression motivation through three factors mentioned in the model [40]. First, the inseparable relationship between firms and media is consistent with the 'goal-relevance of impression'. Negative media coverage can publicly tarnish corporate images through widely spreading [4], and firms also rely on the media to release favorable reports and portraying desired images. Second, affected corporate images have been deemed an important intangible resource related to positive outcomes [37], reflecting the 'value of desired goal'. If impression management can achieve considerable benefits, impression motivation will also be enhanced. Third, the 'discrepancy between the desired and current images' suggests that firms are motivated to reverse their status and shape recognized perceptions through positive behaviors when ideal images are destroyed by negative media coverage. Overall, negative media coverage provides ample incentives for impression management.

On the other hand, negative media coverage also urges focal firms to adopt appropriate strategies for impression construction [39]. According to the two-component model, certain aspects consistent with positive behaviors should be valued at appropriate times to show firms' self-concept, which is expected to alleviate current negative effects and have potentially positive impacts on firms' future operations. Negative media coverage generates a particular situation where firms display defensive impression construction to form their self-concept [41], maintain impressions, feed legitimacy demands, and narrow the gap between the current and expected images for future operations [42]. In our context, we focus on firms' environmental strategies for impression construction and examine whether they can cope with negative media attention well.

2.2. Window-Dressing Strategy

Due to increasing concerns regarding the ecology, environment governance has gradually become an approved strategy for impression construction [43]. Firms can improve their environmental performance by means of green investment and pollution reduction so as to form a green reputation and gain stakeholder support, shifting external attention to corporate social responsibility [24]. In recent years, firms have constructed impressions through environmental strategies to cater to the impression motivation generated by negative media coverage and gain more benefits from such a green self-concept. Particularly, the information disclosure of environmental performance can help firms publicize their

commitments to environmental protection so as to highlight their social responsibilities and divert external attention [10,11,13,44].

However, information disclosure can be widely verified with the rise of external supervision forces, including news media, government, public and non-governmental organizations, making it difficult for firms to brag about their environment performance by taking advantage of information asymmetry. It has been shown that traditional greenwashing based on false claims, disclosures, and advertisements cannot stand up to scrutiny without a credible basis [45]. Worse still, such greenwashing without taking actual actions may even produce the 'backfire effect' on corporate reputation [13]. This implies that cost-saving greenwashing is no longer a viable impression construction that can form the desired self-concept unless firms provide convincing solution for environmental protection. Hence, if a firm tries to control the effect of negative media coverage through an environmental strategy for impression management, it must find a way to make it a solution that can be accredited by stakeholders and the public.

According to a dynamic game with incomplete information, each person wants to convey favorable information to the other person, although the other person may not believe that the signal you are sending is true because of incomplete information [46]. Since delivering a message is cheap and easy to copy, actors must pay enough to make the released information credible. How can credible signals be offered? The most effective method is to visualize commitments. For example, technological innovation and pollution abatement equipment can release more reliable signals than symbolic promises, conveying that the firm has allocated visible resources for environmental protection. After an upfront cost is paid to show environmental beliefs, firms can establish green images and divert external attention from those negatively reported to alleviate reputational damage to some extent. However, being green is not always a win–win proposition, because it is costly and unprofitable in the short term [28]. Specifically, substantial purchasing expenditures and maintenance fees for the environmental facilities increase the performance pressure, and there is a high probability that firms will idle these facilities after displaying their efforts at environmental governance and even expand production to share the costs of these credible signals, resulting in the awkward situation where pollutant emissions have not been reduced, or even worse.

The information asymmetry between green investment and pollutant emissions plays a great role in such environmental impression construction. Previous studies often take these two indicators as equivalent proxies for environmental performance [47,48]. However, the potential discrepancy between the two has not been fully discussed. On the one hand, the government subsidy makes it inspectable for firms' green investment, and the disclosed environmental equipment can also be verified onsite by external regulators, which endows green investment with lower information asymmetry. On the other hand, the channels of pollutant emissions are concealed, and the release is usually self-reported by firms to local environmental departments. This provides room for opportunism, resulting in leakage occurrence. Additionally, due to the immaturity of monitoring technology, the external supervision of pollutant emissions is usually found in sampling inspection instead of continuous monitoring. Therefore, pollutant emissions display higher information asymmetry than green investment.

This paper proposes a strategic environmental governance, window-dressing strategy, which considers the internal information asymmetry of environmental performance to describe a firm's impression construction. Specifically, both the reputation pressure caused by negative media coverage and the performance pressure brought about by the input costs in impression construction need to be considered in the process of firms' strategic decision-making. Investing in relatively transparent environmental facilities not only provides a way for firms to enhance society responsibilities, which helps with building their reputation and image, but also diverts external attention to somewhere else instead of focusing on negative contents reported by the media. Meanwhile, to share the investment costs of shaping green images and alleviate the performance pressure, firms have strong motivation to idle these

environmental protection facilities and even expand current production to maintain profits because of higher information asymmetry in pollutant emissions, thereby the environment may not be improved as expected.

Consequently, negative media coverage provides firms with impression motivation, while firms adopt environmental strategies as a response for impression construction. We investigate environmental strategy based on information asymmetry and discuss the reasons and process of impression construction in detail, which helps explain why firms choose a window-dressing strategy under both reputational and performance pressure (Figure 1). Our baseline hypothesis is as follows:

H1: *Motivated by negative media coverage, firms will respond with the window-dressing strategy for impression construction, manifesting in increases in green investment while pollutant emissions are not effectively reduced.*

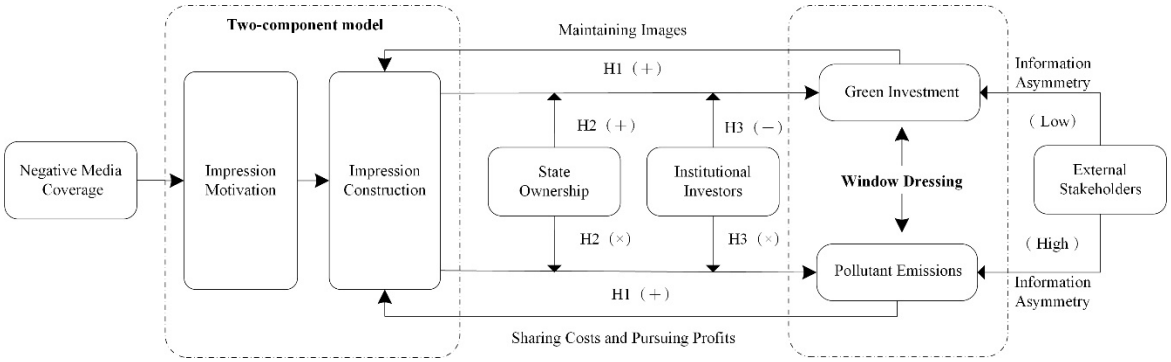


Figure 1. Theoretical framework for corporate window-dressing.

2.3. Moderating Effect of Ownerships

Considering discrete interest demands, different ownership structures may have different governance effects on corporate strategic management [49,50]. Given that state ownership and institutional shareholdings are crucial resources in corporate governance [51], this study aims to determine why their attitudes toward the window dressing are diverse and how they intervene in corporate strategic decision-making.

With the continuous progress of the non-tradable shares reform, China's ownership structure is developing toward diversification, but state ownership still plays a prominent role in corporate governance. State-owned firms, as a part of the government's macro-control, not only undertake the task of making profits but also shoulder necessary social responsibilities, exhibiting a strong public nature that distinguishes them from non-state firms on corporate governance [52]. Whenever social conflicts and corporate crises break out, state ownership forces firms to deviate from the goal of profit maximization under the trade-off between profitability and publicity, and to maintain social stability and corporate image through positive corporate governance strategies. Meanwhile, the top management of a state-owned firm is often assigned by the government, which consolidates the government's position in the strategic decision-making and makes state-owned firms have powerful political attributes [53,54]. Consequently, both public and political attributes make state ownership have a significant impact on corporate strategic decision-making.

State ownership is motivated to intervene in impression constructions in several ways. On the one hand, the government is responsible for protecting the environment and implementing a series of legislations and policies [55], while the public and political attributes of state ownership require firms to follow the instructions for economic development. At the same time, the reputation and image of state-owned firms are closely linked to those of government departments, and the reporting system demonstrating governance capabilities to superiors also motivates executives to adopt active impression construction to avoid the negative effects of image damage and protect their future political promotion in careers [53].

In this light, green investment in window dressing may be preferred because it helps to establish reputation and portray an image for state-owned firms, and it meets the need of executives to show their abilities.

On the other hand, because performance evaluation is more politically oriented, state ownership is incentivized to pay more attention to non-profit goals rather than maximizing financial performance [56]. Meanwhile, government departments usually monitor the environmental protection of firms from the recorded investment rather than the emissions. Moreover, although the support from the government, such as subsidies and preferential policies, makes state-owned firms have less pressure to survive in the market [57], the most prominent implicit welfare that state-owned firms can obtain lies in the fact that they are less subject to environmental constraints and regulatory pressure, which leads to the lack of motivation to deal with environmental problems, especially when most of China's heavily polluting industries are dominated by state-owned firms. Therefore, after the impression motive is generated by the negative media coverage, there are contradictions in the internal governance of state-owned firms.

Overall, after negative media coverage generates impression motivation, it is feasible for state-owned firms to increase green investment for building social reputation to transfer and alleviate the negative impacts. However, because state-owned firms have relatively low regulatory pressure on environmental issues, it may also lead to a lack of attention being paid to pollution emissions after benefiting from impression management. Accordingly, the second hypothesis is formulated as follows:

H2: *State ownership aggravates window dressing. It exerts a positive moderating effect on green investment but has no moderating effect on pollutant emissions.*

It has been observed that institutional shareholdings constitute a third force and exert a great influence on corporate governance [58]. Specifically, compared with scattered investors, substantial professional experience and fund resources enable sophisticated institutional shareholdings to participate extensively in corporate strategy-making [59]. Furthermore, connections facilitated by equity linkages in joint shareholdings among investors strengthen their motivations to become active shareholders in corporate governance, which can effectively restrain the opportunism of the management. In particular, these investors can deliver passive signals through withdrawer threats to exert stronger supervision over invested firms. Hence, institutional shareholdings have adequate capacity to be involved in corporate governance.

However, the agency problem caused by the separation of ownership and control always exists because information asymmetry puts the principal at an information disadvantage and cannot fully supervise the agent [57,60], which may limit the power of institutional shareholdings over corporate governance. Meanwhile, different from foreign institutional investors, such as public pensions and government funds, institutional investors in China are mainly composed of banks, insurance, trust, social security funds and other profitable institutions, which leads to the fact that their investment motives and purposes are relatively unified, especially in investment income [61–63]. Hence, the agent problem arises when managers desire to promote impression construction via green investment, while institutional shareholdings' goal is to reduce business costs and expand profits.

On the one hand, institutional shareholdings pay more attention to consumer and market responses than state ownership in the absence of the up-reporting system, while pollutant emissions in window dressing can cause trust crises and then affect corporate performance. Media in developing countries are also prone to pressure and tend to align with government goals [64], so the misconduct of private firms is more likely to attract media attention compared with state-owned firms, which makes institutional shareholdings try to avoid strategic behaviors that may be exposed by the media [65]. In addition, relatively fewer political connections indicate fewer policy preferences and privileges, and the high investment in environmental protection equipment may further shake institutional

shareholdings' support because of increased production costs. Therefore, institutional shareholdings have strong motivations to resist cost-consuming green investment and urge the management to allocate limited resources more cautiously when green investment in window dressing is only a step in impression management.

On the other hand, institutional shareholdings remain outsiders. It is difficult to identify internal issues because institutional shareholdings make decisions based on the external information of corporate governance generated from their site inspection, firms' information disclosure, and external media coverage. This study considers that green investment is visible and easy to obtain from outside information sources, whereas pollutant emissions tend to be deceptive and difficult to track, which enlarges the difficulty for institutional shareholdings in monitoring corporate behaviors. Compared with state ownership, maximizing profit is the priority for institutional shareholdings, who may also advocate expanding production and reducing operating costs to pursue investment interests, leading to weaker supervision of pollutant emissions. In general, the difficulty of obtaining internal information objectively results in the limited ability of institutional shareholdings in the supervision of pollutant emissions, and the subjective incentive to chase investment returns also exacerbates the lack of attention to pollutant emissions.

Consequently, after negative media coverage generates impression motivation, institutional shareholdings will try to prevent firms from increasing green investment for impression construction because of cost consideration. Also, due to objective and subjective reasons, institutional shareholdings may acquiesce to the idling of environmental facilities and expansion of production, which may lead to the inability to effectively alleviate pollutant emissions. Accordingly, we propose the following hypothesis:

H3: *Institutional shareholdings can partially suppress window dressing. They exert a negative moderating effect on green investment but have little moderating effect on pollutant emissions.*

3. Data and Methods

3.1. Data and Sample

The sample for this study includes firms listed on the Shanghai and Shenzhen stock exchanges between 2000 and 2010. This sample is available in the CSMAR database, retrieving and coding information from corporate annual reports. We obtain data on negative media coverage from the Financial News Database of Chinese Listed Companies (CFND), which collects news reports on listed firms documented in approximately 600 official and commercial newspapers (the CFND contains media coverages from approximately 600 newspapers, of which the most important ones include 8 mainstream financial newspapers frequently used in the research on listed firms: China Securities Journal, Securities Daily, Securities Times, Shanghai Securities News, China Business Journal, The Economic Observer, 21st Century Business Herald and First Financial Daily). Data on a firm's environmental performance are derived from the Annual Environmental Survey of Polluting Firms of China, established by the Ministry of Environmental Protection (MEP), which provides substantial information on installed green investment and pollutant emissions. We manually combine data from the above information sources by identifying listed firms' names and formulating a panel of 274 listed manufacturers. The panel covers 1107 firm-year observations of 30 manufacturing sectors and 30 provinces in China (the 30 manufacturing sectors cover food, textiles and clothing, wood and furniture, paper and printing, petroleum, chemicals and plastics, electronic, metals and non-metals, machinery and equipment, medicine and biology, and other manufacturing according to the guidelines on industry classification of listed companies (2001)).

3.2. Dependent Variables

Green investment. In previous studies, firms' green investment is often defined as the decontamination facility, R&D in clean production technology, and ecological protection expenditure [48,66]. However, firms have incentives to overstate their green expenditures

to satisfy legitimacy requirements and advertise environmental protection [42]. Therefore, we employ the number of wastewater abatement facilities approved by the MEP as a proxy variable. We also consider the number of pollution abatement facilities to dispose of waste air for further robustness checks.

Pollutant emissions. Discharge, including industrial effluents, COD, CO_2, and SO_2, has been widely used as a proxy for pollutant emissions [67]. However, according to MEP data, water pollution events accounted for over 40% of the total pollution events from 2000 to 2010, far higher than other types of pollution events. Thus, we use the natural logarithm of the industrial effluent as a primary proxy for pollutant emissions. Waste air is also considered a proxy in our robustness checks, as air pollution is also a serious environmental issue in China.

3.3. Independent Variable

Negative Media Coverage. Negative media coverage has been widely researched in the corporate governance literature [2,68]. Firms' images are more susceptible to negative news reports than other types of coverage, which motivates firms to formulate a suitable impression management. Following Bednar [4], we use the natural logarithm of negative news articles that mention a firm's name in their titles or contents as a proxy for negative media coverage. A greater amount of negative media coverage of a firm indicates a higher motivation for the firm to manage its impression. In the robustness checks, negative media coverage related to environmental issues is excluded in this study to further test the reliability of our conclusions.

3.4. Moderating Variables

In our study, to examine the governance roles of ownership in the strategy-making of corporate impression construction, we introduce two moderators. State Ownership. Following related studies, we use a dummy variable to measure state ownership. If a firm is state-owned, we code it as 1; otherwise, we code it as zero [3]. Institutional shareholdings. We adopt the share percentage of institutional shareholdings to measure the power of institutional ownership in firms' strategy-making [69].

3.5. Control Variables

We control for four types of external regulators: government regulation, public attention, NGO participation, and external auditors. Government regulation. We employ the number of staff members in environmental protection departments to control the external pressure exerted by the government. This is calculated as the ratio of environmental personnel to the total population at the provincial level. Public attention. We use the population density, defined as the total population divided by the province area, as a proxy for public attention. NGO participation. We use the annual number of environmental NGOs in each province to control their potential impact on the environmental performance of listed firms. External auditor. We construct a dummy variable for the external auditor, which equals 1 if firms are audited by KPMG, Deloitte, PwC, or EY in a given year, and 0 otherwise. We also control for a bundle of firm-level variables, including firm age, capital–labor ratio, the ratio of liabilities, ownership concentration, and independent director. We specifically analyze the impact of the firm size and political connections to avoid endogeneity caused by the omission of variables.

3.6. Methodology

Our baseline regressions contain two sets of models:

(1) Green investment = f (negative media coverage, controls, fixed effects)
(2) Pollutant emissions = f (negative media coverage, controls, fixed effects)

We use the OLS model to estimate H1 regarding the effects of negative media coverage on firms' green investment and pollutant emissions separately to characterize the window-dressing strategy. To test H2 and H3 about ownership power on firms' strategy-making, we

add moderators and their interactions with our independent variable to the baseline models. To support our findings, we also consider a series of robustness checks, including variable remeasurement and endogeneity. The measurements of all the variables are presented in Table 1. Table 2 reports the descriptive statistics and correlation matrix. The variance inflation factor values are well below the cut-off point of 10. This indicates that our analysis does not suffer from multicollinearity problems [70].

Table 1. Definitions of the variables and descriptive statistics.

Variables	Mean	S.D.
Dependent Variables		
Green investment—The natural logarithm of the number of wastewater abatement facilities	0.73	0.9
Pollutant emissions—The natural logarithm of the amount of industrial effluents	12.96	2.27
Independent variables		
Negative media coverage—The natural logarithm of the yearly number of negative news articles that mention a firm's name in their titles or contents	1.83	1.03
Moderating variables		
State ownership—Dummy: This is equal to 1 if the firm is state-owned, and 0 otherwise	0.66	0.47
Institutional shareholdings—The percentage of institutional investor shares	0.07	0.1
Control variables		
Government regulation—The ratio of environmental personnel to the total population at the provincial level	4.76	0.3
Public attention—The ratio of the total population to the geographic area at the provincial level	1.34	0.79
NGO participation—The natural logarithm of the annual number of environmental NGOs in each province	0.64	0.69
External auditors—Dummy: This is equal to 1 if firms are audited by KPMG, Deloitte, PwC, or EY, and 0 otherwise	0.07	0.25
Firm age—The natural logarithm of the given year minus the firm's opening year	2.3	0.47
Capital–labor ratio—The natural logarithm of the ratio of fixed assets to the total labor	12.45	0.87
Ratio of liabilities—The ratio of assets to liabilities	0.47	0.34
Ownership concentration—The percentage of the largest shareholder's shareholdings	0.41	0.17
Independent director—The percentage of the number of independent directors to the total number of directors	0.32	0.1

Table 2. Correlations.

	Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Pollutant emissions	1													
2	Green investment	0.544	1												
3	Negative media coverage	0.184	0.209	1											
4	Firm age	−0.078	−0.138	0.150	1										
5	Capital–labor ratio	0.141	0.235	0.144	0.022	1									
6	Public attention	−0.054	−0.066	−0.022	0.128	0.024	1								
7	Government regulation	−0.029	−0.084	−0.037	0.027	0.156	0.080	1							
8	NGO participation	−0.151	−0.095	0.060	0.362	0.090	0.322	−0.054	1						
9	External auditors	0.159	0.243	0.122	−0.083	0.119	0.093	0.01	−0.029	1					
10	Ratio of liabilities	−0.037	0.001	0.042	0.126	0.151	−0.057	0.035	0.011	0.006	1				
11	Ownership concentration	0.234	0.320	0.090	−0.349	0.090	−0.080	−0.089	−0.193	0.208	−0.050	1			
12	Independent director	0.004	0.017	0.131	0.250	0.097	−0.006	0.127	0.125	−0.013	0.053	−0.079	1		
13	State ownership	0.279	0.265	0.104	−0.129	0.027	−0.03	−0.025	−0.178	0.087	0.093	0.279	−0.081	1	
14	Institutional shareholdings	0.060	0.020	0.269	0.138	−0.012	0.009	0.024	0.091c	0.023	−0.04	−0.147	0.110	−0.025	1

4. Empirical Results

4.1. Baseline Results

Tables 3 and 4 show the impact of negative media coverage on firms' green investment and pollutant emissions, respectively. Model 1 includes only a series of control variables. To test H1, Model 2 incorporates the independent variable negative media coverage. To explore the moderating effects of state ownership and institutional shareholdings, we add the moderating variables and their interaction terms to Models 3 and 4, respectively. Year-fixed and industrial-fixed effects are included in each model.

H1 proposes that negative media coverage is positively associated with firms' green investment and pollution emissions. Model 2 in Table 3 presents a significant and positive relationship between negative media coverage and green investment ($\beta = 0.118$, $p < 0.001$). As presented in Model 2 in Table 4, the coefficient of negative media coverage is also significantly positive ($\beta = 0.380$, $p < 0.001$). Hence, H1 is supported.

Table 3. Baseline results: The effect of negative media coverage on green investment.

Variables	Dependent Variables: Green Investment			
	Model 1	**Model 2**	**Model 3**	**Model 4**
Control variables				
Government regulation	−0.183 **	−0.149 **	−0.178 **	−0.207 **
	(0.074)	(0.074)	(0.073)	(0.081)
Public attention	0.036	0.037	0.034	0.000
	(0.033)	(0.032)	(0.033)	(0.035)
NGO participation	−0.112 ***	−0.101 ***	−0.095 ***	−0.118 ***
	(0.035)	(0.034)	(0.035)	(0.038)
External auditors	0.148 **	0.111	0.106	0.130 *
	(0.073)	(0.071)	(0.073)	(0.077)
Firm age	−0.012	−0.045	−0.066	−0.038
	(0.052)	(0.052)	(0.052)	(0.055)
Capital–labor ratio	0.091 ***	0.079 ***	0.080 ***	0.107 ***
	(0.031)	(0.031)	(0.031)	(0.033)
Ratio of liabilities	−0.083	−0.110 **	−0.126 **	−0.120 **
	(0.051)	(0.051)	(0.053)	(0.060)
Ownership concentration	0.289 *	0.218	0.119	0.349 **
	(0.164)	(0.163)	(0.165)	(0.177)
Independent director	0.383	0.511	0.575	0.330
	(0.382)	(0.364)	(0.356)	(0.387)
Moderating variables				
State ownership			0.234 ***	
			(0.051)	
Institutional shareholdings				0.423
				(0.289)
Independent variables				
H1: Negative media coverage		0.118 ***	0.101 ***	0.109 ***
		(0.022)	(0.022)	(0.025)
Interactions				
H2: Negative media coverage × State ownership			0.101 ***	
			(0.037)	
H3: Negative media coverage × Institutional shareholdings				−0.442 **
				(0.195)
N	1107	1107	1107	954
F-statistic	3.982 ***	6.484 ***	7.952 ***	6.295 ***
R^2	0.465	0.477	0.490	0.499
Adjusted R^2	0.439	0.451	0.463	0.468

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

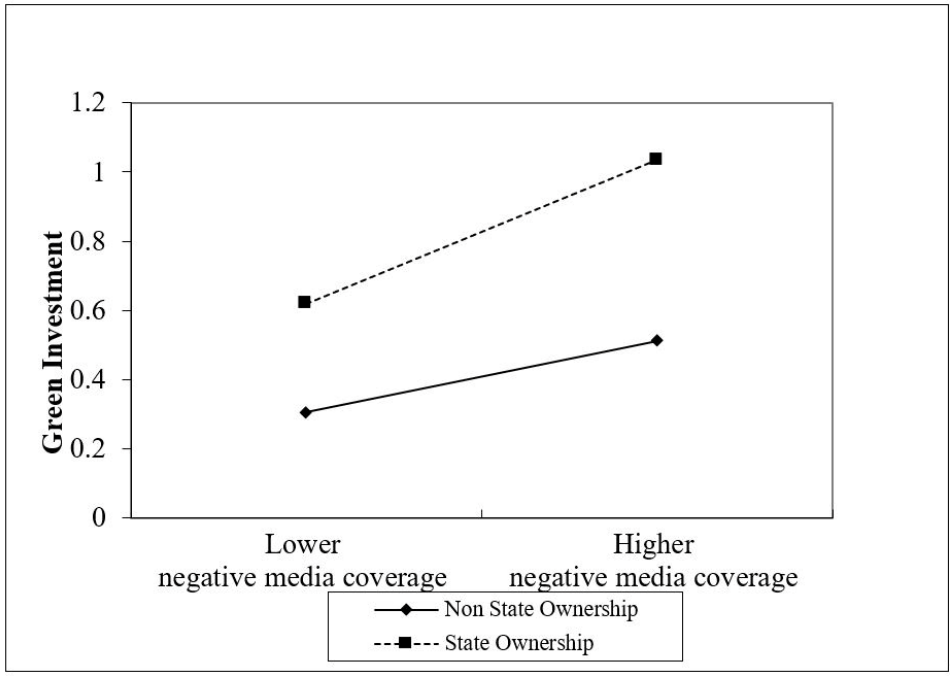
H2 argues that although state ownership enhances the relationship between negative media coverage and firms' green investment, it does not moderate the relationship between negative media coverage and pollutant emissions. Model 3 in Table 3 illustrates that the interaction term for state ownership is significantly positive ($\beta = 0.101$, $p < 0.001$). Model 3 in Table 4 presents a positive but insignificant coefficient for the interaction term. To visualize the results, we plot the moderating effects in Figure 2a,b. Figure 2a illustrates that state-owned firms have more green investment. By contrast, Figure 2b demonstrates that pollutant emissions do not appear significantly different between state-owned and non-state-owned firms, which is consistent with our prediction in H2.

Table 4. Baseline results: The effect of negative media coverage on pollutant emissions.

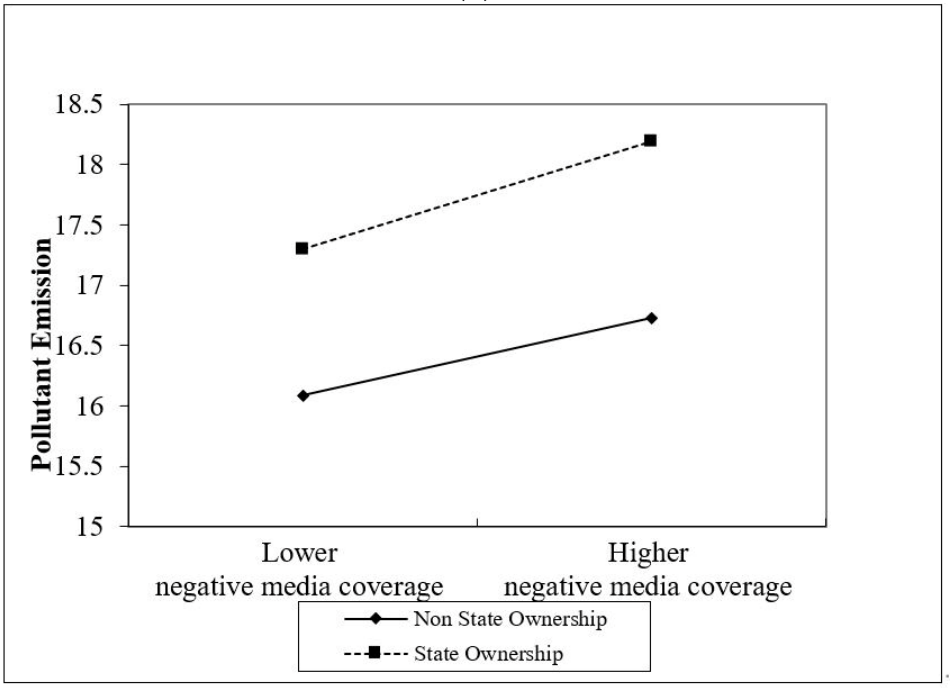
Variables	Dependent Variables: Pollutant Emissions			
	Model 1	**Model 2**	**Model 3**	**Model 4**
Control variables				
Government regulation	−0.357	−0.249	−0.425 **	−0.210
	(0.230)	(0.228)	(0.216)	(0.247)
Public attention	0.115	0.120	0.097	0.048
	(0.090)	(0.090)	(0.091)	(0.090)
NGO participation	−0.572 ***	−0.536 ***	−0.487 ***	−0.506 ***
	(0.115)	(0.113)	(0.103)	(0.126)
External auditors	0.566 ***	0.448 **	0.480 **	0.357 *
	(0.202)	(0.188)	(0.191)	(0.208)
Firm age	−0.044	−0.151	−0.256 *	−0.205
	(0.161)	(0.160)	(0.155)	(0.175)
Capital–labor ratio	−0.141	−0.178 *	−0.158 *	−0.142
	(0.100)	(0.098)	(0.092)	(0.103)
Ratio of liabilities	−0.342	−0.427 **	−0.498 ***	−0.154
	(0.209)	(0.199)	(0.185)	(0.290)
Ownership concentration	1.291 ***	1.062 ***	0.516	1.217 ***
	(0.399)	(0.397)	(0.406)	(0.427)
Independent director	1.229	1.642 *	1.771 *	1.891 *
	(1.027)	(0.968)	(0.931)	(1.058)
Moderating variables				
State ownership			1.123 ***	
			(0.131)	
Institutional shareholdings				1.568 **
				(0.714)
Independent variables				
H1: Negative media coverage		0.380 ***	0.315 ***	0.359 ***
		(0.064)	(0.061)	(0.072)
Interactions				
H2: Negative media coverage × State ownership			0.118	
			(0.117)	
H3: Negative media coverage × Institutional shareholdings				−0.271
				(0.577)
N	1107	1107	1107	954
F-statistic	6.998 ***	10.01 ***	14.59 ***	6.435 ***
R^2	0.420	0.440	0.478	0.439
Adjusted R^2	0.392	0.412	0.451	0.404

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

H3 proposes that while institutional shareholdings weaken the relationship between negative media coverage and firms' green investment, they do not play a moderating role between negative media coverage and pollutant emissions. As demonstrated in Model 4 in Table 3, the interaction term of institutional shareholdings is significantly negative ($\beta = -0.442$, $p < 0.05$), and Model 4 in Table 4 presents a negative but insignificant coefficient for the interaction term of institutional shareholdings. Figure 3a,b present the moderating effects of institutional shareholdings on firms' green investment and pollutant emissions. Figure 3a shows that firms with higher institutional shareholdings have less green investment. In comparison, firms with higher or lower institutional shareholdings do not present significant differences in green investment and pollutant emissions (Figure 3b), which further supports the prediction of H3.



(**a**)



(**b**)

Figure 2. (**a**) Moderating effect of state ownership on green investment. (**b**) Moderating effect of state ownership on pollutant emissions.

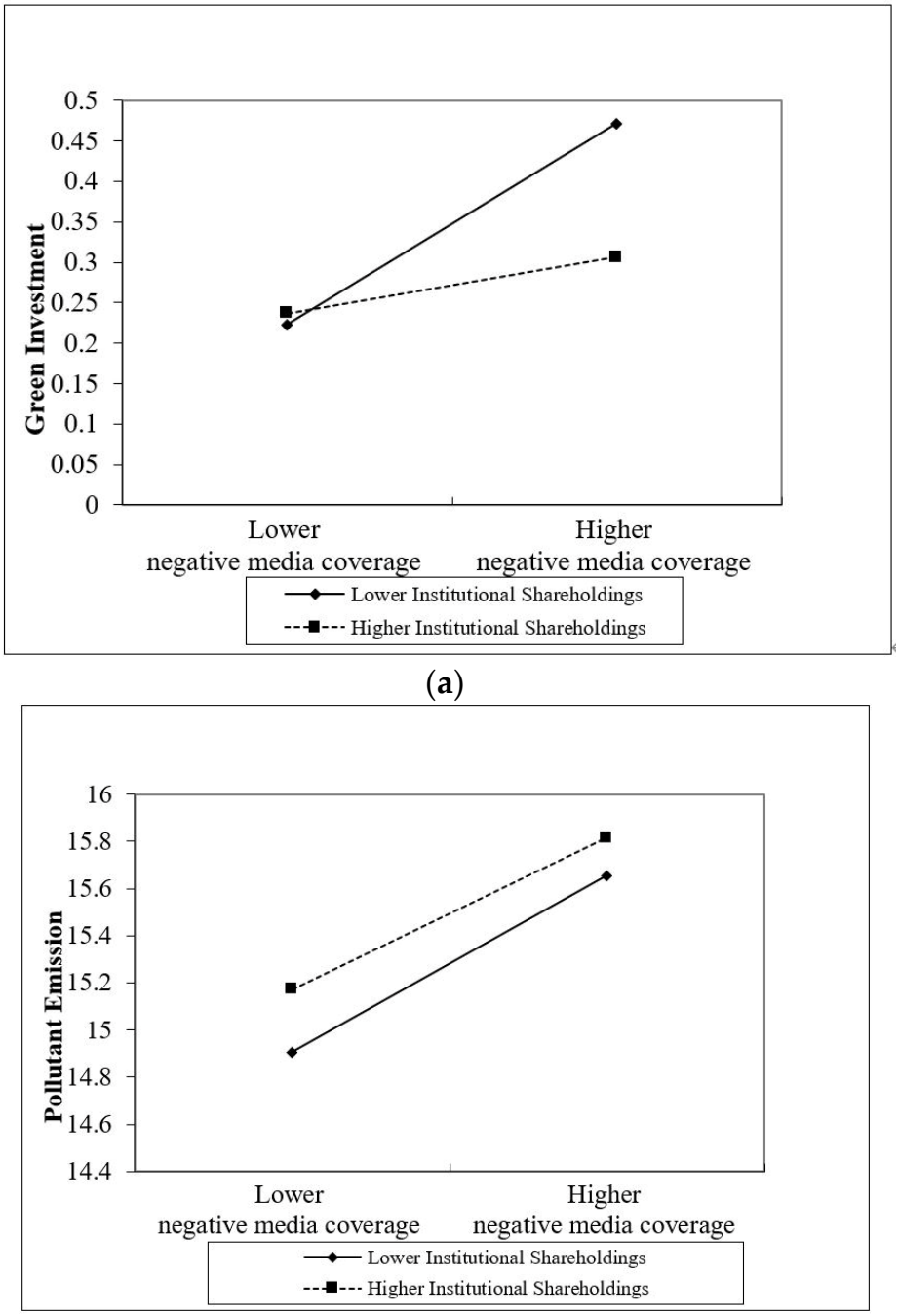


Figure 3. (**a**) Moderating effect of institutional shareholdings on green investment. (**b**) Moderating effect of institutional shareholdings on pollutant emissions.

4.2. Robustness Checks

We conduct a set of robustness checks to examine the robustness of our findings, and the results are presented in Tables 5 and 6. Air pollution is another major environmental issue, in addition to water pollution. We use two alternative measures of firms' environmental performance: the number of waste gas abatement facilities and the number of exhaust emissions. The results are presented in Models 1a and 1b in Tables 5 and 6, respectively, and they are consistent with our main results. Additionally, extensive media coverage would distract limited public attention, which may reduce the unit value of news and overestimate the impact of negative media coverage. Thus, we construct an

alternative relative indicator (RMedia). RMedia is defined as one minus the ratio of the corporate ranking divided by the total negative media coverage in the current year (that is, $RMedia_{it} = 1 - Rank_{it}/Number_t$, where $Number_t$ denotes the number of firms in t year and $Rank_{it}$ is the rank of negative media coverage refers to firm i in t year). The larger the variable, the higher the corporate impression motivation. As presented in Models 2a and 2b in Tables 5 and 6, respectively, our results imply that our findings remain robust. Furthermore, we also exclude the negative media coverage related to environmental issues and the results are presented, respectively, in Models 3a and 3b in Tables 5 and 6, indicating that our main results remain robust.

Table 5. Robustness checks of the green investment equation.

Variables	Dependent Variables: Green Investment						
	Model 1a	**Model 2a**	**Model 3a**	**Model 4a**	**Model 5a**	**Model 6a**	**Model 7a**
Control variables							
Government regulation	−0.008	−0.154 **	−0.154 **	−0.244 ***	0.145	−0.107	−0.121
	(0.115)	(0.074)	(0.073)	(0.073)	(0.198)	(0.086)	(0.100)
Public attention	−0.048	0.034	0.039	0.013	0.051	0.039	0.021
	(0.038)	(0.033)	(0.033)	(0.030)	(0.058)	(0.030)	(0.036)
NGO participation	−0.127 **	−0.101 ***	−0.103 ***	−0.101 ***	0.015	−0.086 **	−0.095 **
	(0.059)	(0.035)	(0.034)	(0.034)	(0.087)	(0.039)	(0.046)
External auditors	0.154	0.130*	0.106	0.127	−0.285	0.064	0.126
	(0.170)	(0.071)	(0.071)	(0.081)	(0.250)	(0.096)	(0.114)
Firm age	−0.057	−0.041	−0.046	−0.064	−0.337 *	−0.087	−0.080
	(0.096)	(0.052)	(0.052)	(0.052)	(0.173)	(0.062)	(0.078)
Capital–labor ratio	0.177 ***	0.080 ***	0.083 ***	0.066 **	−0.014	0.065 **	0.069 *
	(0.052)	(0.031)	(0.031)	(0.029)	(0.076)	(0.033)	(0.038)
Ratio of liabilities	−0.081	−0.109 **	−0.111 **	−0.051	−0.360 *	−0.143 *	−0.074
	(0.167)	(0.051)	(0.051)	(0.052)	(0.185)	(0.077)	(0.083)
Ownership concentration	0.778 ***	0.252	0.220	0.061	-0.616	0.128	0.410 **
	(0.255)	(0.164)	(0.163)	(0.162)	(0.463)	(0.167)	(0.192)
Independent director	0.448	0.462	0.508	0.622 *	1.717 *	0.673 *	0.490
	(0.505)	(0.367)	(0.363)	(0.346)	(0.885)	(0.364)	(0.446)
Firm size				0.081 ***			
				(0.019)			
Political connection				0.173 ***			
				(0.049)			
Independent variables							
Negative media coverage	0.238 ***	0.414 ***	0.118 ***	0.081 ***	1.295 ***	0.267 ***	0.182 ***
	(0.037)	(0.089)	(0.022)	(0.024)	(0.479)	(0.073)	(0.048)
N	975	1107	1107	1074	991	1107	816
F-statistic	8.790	5.740		9.870			
R^2	0.481	0.475	0.478	0.515			
Adjusted R^2	0.451	0.449		0.490			

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

Second, considering the potential endogeneity arising from the omitted variables, we include other control variables that may simultaneously affect media coverage and a firm's environmental performance. On the one hand, previous studies consider that larger firms can attract more media attention and have better environmental performance than smaller firms [71]. Thus, we added the firm size, defined as the natural logarithm of a firm's total output, to the equation. On the other hand, firms with political connections may have stronger bargaining power with local governments on environmental enforcement [72] and may also influence media coverage. We also consider the political connection, a dummy variable of 1 if the chairman and general manager have political connections and 0 otherwise, as a control variable. As presented in Models 4a and 4b in Tables 5 and 6, respectively, the results are consistent with our findings.

Finally, to further alleviate the endogeneity arising from reverse causality, we construct three instrumental variables and adopt an instrumental regression model. First, we use the proportion of non-tradable shares as an instrumental variable and report the results in Models 5a and 5b in Tables 5 and 6, respectively [3]. Second, we construct an instrumental variable, defined as the region's mean value of negative media coverage. We use the

two-stage least squares method to estimate the results presented in Models 6a and 6b in Tables 5 and 6, respectively. Third, consistent with previous studies [23], we use the lagged negative media coverage as an instrumental variable. The results are illustrated in Models 7a and 7b in Tables 5 and 6, respectively. For all three instrumental variables, the coefficient of negative media coverage is significantly positive in the second-stage regression, indicating that our main results remain robust.

Table 6. Robustness checks of the pollution emissions equation.

Variables	Dependent Variables: Pollutant Emissions						
	Model 1b	**Model 2b**	**Model 3b**	**Model 4b**	**Model 5b**	**Model 6b**	**Model 7b**
Control variables							
Government regulation	0.066	−0.267	−0.274	−0.293	1.096	−0.112	0.042
	(0.173)	(0.229)	(0.227)	(0.222)	(0.764)	(0.225)	(0.241)
Public attention	−0.137 *	0.108	0.125	0.093	0.186	0.126	0.073
	(0.077)	(0.089)	(0.090)	(0.086)	(0.225)	(0.079)	(0.086)
NGO participation	−0.292 **	−0.537 ***	−0.545 ***	−0.589 ***	−0.001	−0.489 ***	−0.576 ***
	(0.118)	(0.112)	(0.113)	(0.110)	(0.335)	(0.103)	(0.111)
External auditors	−0.017	0.509 ***	0.447 **	0.263	−1.431	0.295	0.154
	(0.221)	(0.193)	(0.189)	(0.203)	(0.965)	(0.251)	(0.275)
Firm age	0.155	−0.137	−0.142	−0.215	−1.473 **	−0.289 *	−0.244
	(0.172)	(0.160)	(0.160)	(0.160)	(0.665)	(0.162)	(0.187)
Capital–labor ratio	0.441 ***	−0.175 *	−0.163 *	−0.199 **	−0.594 **	−0.224 ***	−0.292 ***
	(0.087)	(0.098)	(0.098)	(0.091)	(0.294)	(0.086)	(0.091)
Ratio of liabilities	−0.434 *	−0.422 **	−0.422 **	−0.457 **	−1.409 **	−0.537 ***	−0.465 **
	(0.264)	(0.199)	(0.201)	(0.193)	(0.712)	(0.203)	(0.201)
Ownership concentration	2.060 ***	1.174 ***	1.093 ***	0.870 **	−2.615	0.769 *	1.640 ***
	(0.430)	(0.397)	(0.396)	(0.401)	(1.783)	(0.438)	(0.464)
Independent director	1.851 **	1.480	1.588	2.040 **	7.428 **	2.172 **	2.472 **
	(0.723)	(0.981)	(0.973)	(0.944)	(3.409)	(0.956)	(1.076)
Firm size				0.299 ***			
				(0.050)			
Political connection				−0.180			
				(0.134)			
Independent variables							
Negative media coverage	0.283 ***	1.308 ***	0.338 ***	0.241 ***	5.397 ***	0.867 ***	0.547 ***
	(0.068)	(0.246)	(0.061)	(0.065)	(1.848)	(0.193)	(0.117)
N	975	1107	1107	1074	991	1107	816
F-statistic	8.836	9.083		13.28			
R^2	0.627	0.436	0.437	0.480			
Adjusted R^2	0.605	0.408		0.452			

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

5. Discussion and Conclusions

This study aimed to characterize a particular environmental strategy for greenwashing in corporate impression management and to reveal a realistic phenomenon in environmental sustainability. Theoretical considerations suggest that negative media coverage triggers impression motivation, and firms adopt the window-dressing strategy as impression construction, while ownerships have a say in strategy decision-making (Figure 1). We used green investment and pollutant emissions from the perspective of information asymmetry to further support our theoretical hypothesis, where the former is visible and transparent for inspection, while the latter may be firms' private information that is easily concealed. We empirically examined the linkages between negative media coverage and corporate environmental governance, as well as the moderating effects of state ownership and institutional shareholdings, to provide consistent evidence.

On the one hand, based on the proposed window-dressing strategy, we assumed that corporates increase green investment and pollutant emissions simultaneously after negative media coverage. The difference between this hypothesis and the previous research is that the latter often discusses the connection between the media and green investment [1,73,74] or the media and pollutant emissions [75,76], which ignores the comprehensiveness when firms formulate their strategies. Specifically, we found that negative media coverage significantly

and simultaneously increases firms' green investment (Table 3, Model 2) and pollutant emissions (Table 4, Model 2), indicating that firms attempt to enrich green investment to maintain their reputation and divert external attention, and sustain their pollutant emissions to share investment costs and pursue production performance (H1). Thus, under the dual pressure of reputation maintenance and performance increasing after negative media coverage, firms will choose a window-dressing strategy as an impression construction.

On the other hand, existing research suggests that the impact of ownerships on corporate strategic decision-making remains diverse [77,78]. Deficiencies in the management of state-owned enterprises are prevalent in China. Due to political connections, firms are less regulated and more concerned with their reputation, which encourages them to adopt the window-dressing strategy [79,80]. Meanwhile, institutional shareholdings are becoming more active [81]. Firms then may reduce their impression management expenses by controlling production costs and maintaining production and emissions to meet the demands of institutional shareholdings for cost control and investment returns. We predicted that state ownership has a positive moderating effect on green investment of window dressing (Table 3, Model 3), and institutional shareholdings do the opposite (Table 3, Model 4). In contrast, both have little moderating effect on the pollutant emissions of window dressing (Table 4, Models 3 and 4). This shows that ownerships play different governance roles in the strategy-making of firms under different interest motivations (H2 and H3). In general, what we found met the proposed hypothesis.

5.1. Theoretical Implications

This study enhances our understanding of why media coverage motivates firms to manage their impressions. Prior studies focus on the external effects of the media on corporate governance and performance [4]. In particular, these studies will identify the content of media coverage and then examine firms' correction for misbehaviors. For example, some scholars examine the direct effect of news reports about pollution events on disciplining corporate pollution to discuss media functions [2]. However, what the media has negatively reported can always damage firm images so as to stimulate firms to carry out impression management. Under the framework of the two-component model, we analyzed the detailed motivations from the perspective of environmental protection, manifesting as portraying responsible corporate images, diverting external attention, and forming a self-concept for future operations. Hence, our arguments offer additional theoretical nuances to works on the relationship between the media and impression management.

This study contributes to the ongoing work on organizational impression management research [82]. Previous studies have focused on a simple response when considering environmental strategies for impression construction [83,84]. However, after distinguishing green investment and pollutant emission, we divided the impression construction into two parts under the framework of a dynamic game with incomplete information and found that firms may adopt a sophisticated environmental strategy. Specifically, our theoretical analysis and empirical results indicated that green investment is one part of impression construction for firms to release credible signals and maintain their images, while the increased pollutant emissions form the other part caused by idling environmental facilities or expanding production as firms seek to share the investment costs. Therefore, this study extends research on corporate impression management considering an environmental strategy with complete process.

This study enriches a large body of literature on corporate greenwashing and provides a detailed window-dressing strategy to explain a more complicated greenwashing strategy. Window dressing emphasizes that firms have taken practical actions to release credible signals to mask real production behaviors. In other words, window dressing focuses on what firms say and do, and it pays attention to the results of their environmental practices rather than a simply marketing propaganda. Specifically, this study theoretically distinguishes itself from previous studies that equate green investment with pollutant emissions through fully discussing the discrepancy between green investment and pollutant

emissions according to information asymmetry [48]. The difference between the two provided us with a sophisticated view to treat the green investment as a credible signal to cover pollutant emissions. Hence, we offered a new method for empirically examining greenwashing by describing a complete process from green input to the brown output of a firm, while the existing literature mainly focuses on greenwashing at the theoretical level [10].

This study contributes to the strategic management literature from a corporate governance perspective by considering the heterogeneous roles of different ownerships [85]. On the one hand, starting from the public and political attributes of state ownership, we discussed its impression motivation and different views on the green investment and pollutant emissions of window dressing. On the other hand, we focused on institutional shareholdings' interest request and their opinions in the window dressing when facing negative media coverage. Thus, this research provided verifiable evidence for analyzing the impression motivation of different ownerships on external pressures and examined how they intervene in the strategy-making of firms, which enhanced the understanding of ownerships' corporate governance roles.

5.2. Practical Implications

Our findings may also yield informative implications for firm stakeholders, such as executives, investors, policymakers and society. First, the window-dressing strategy is a double-edged sword that may be helpful for firms to weather short-run crisis but also may be disadvantageous in the long run owing to the potential risks of exposure. In fact, corporate reputation should be established through real social responsibility rather than through opportunistic impression management strategies. Thus, we suggest that executives and managers implement real environmental strategies and acquire product value added through the 'green' concept rather than adopting symbolic behaviors. Second, given the existence of information asymmetry, investors are unable to supervise all the behaviors of firms, so we suggest that investors urge firms to disclose more detailed sustainability reports and hire ESG funds to conduct regular audits to ensure compliance with ESG standards [86]. Third, the investment-oriented environmental policy in China stimulates firms to conduct symbolic green investment (as green investment is easier to supervise and regulate, the Chinese government have been encouraging firms to go green following the sixth Five-Year Plan, leading to an investment-oriented environmental policy. According to the China statistical yearbook, the total investment in pollution control has surged from RMB 101.49 billion in 2000 to RMB 761.219 billion in 2010), which results in inefficient pollution abatement. Given that economic growth is highly emphasized because of its importance as a key performance indicator for officers in China, local relevant departments may also turn a blind eye to polluters. Therefore, we suggest that policymakers divert their attention to abatement-oriented environmental policies and encourage local governments to promote pollution supervision and abatement. Especially, policymakers can strengthen field research on the use of environmental facilities and regular monitoring on pollutant emissions. Last but not the least, the detained analysis of corporate strategy has deepened society's understanding of sustainable development, especially by revealing the mask of corporate pseudo-social responsibility. Sustainable development cannot be achieved by a single market entity but requires the collective efforts of all market participants and external supervisors.

5.3. Limitations and Future Directions

This study has certain empirical and theoretical limitations. On the one hand, as is usual for empirical studies, the limitation of sample selection bias arises from the nature of our dataset because we chose listed firms as our research objectives. Meanwhile, greater interaction between corporate and news media increasingly leads to interdependencies, implying that media coverage may be biased or manipulated. Although we have conducted a series of robustness checks, including controlling various variables, instrumental variables, and two-stage modeling, further studies need to adopt longitudinal data or

experimental methods to consider the dynamics between media coverage and corporate environmental performance and address potential endogeneity. In addition, we investigated greenwashing issue and measure corporate green investment and pollutant emissions through second-hand data, and future research may collect first-hand information via field investigations for accuracy. On the other hand, this study did not evaluate the influence of environmental institutions and social culture on corporate behaviors, which may result in missing mechanisms. This study was conducted in the Chinese manufacturing sector, which also raises a non-generalizability issue to other countries and industries. Thus, future research may build on this work and test whether the current results can be generalized to various sectors of developing and developed countries.

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