

Does the Agenda-Setting Effect Always Work?

The Moderating Role of Institution Informatization

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ABSTRACT

The media is viewed as an external mechanism of corporate governance in a large body of literature. In agenda-setting research, the media can exert influence on corporate emissions behavior by controlling the public and government agenda. However, it is unclear whether such effect will be influenced by the regional institutional environment. The authors construct a theoretical framework including different types of media and corporate environmental behavior, which is used to investigate the impact of institution informatization on the media agenda-setting effect. The authors then used a sample of Chinese industrial enterprises from 2011 to 2014 to test this hypothesis. The empirical results reveal that both printing and electronic media elicit improvement on corporate environmental performance. Institutional informatization can significantly enhance the disincentive effect of electronic media on corporate emissions, while the moderating role in the relationship between printing media and corporate emissions is not significant.

KEYWORDS

agenda-setting effect, e-government, electronic media, institution informatization, Printing media

INTRODUCTION

The role of the media on corporate behavior has received significant attention from scholars (Deephouse, 2000). In stakeholder research, the media plays an important role in building trust between firms and external audiences (Bitektine, 2011). The media also serves as an essential intermediary in social information interaction (Bednar et al., 2013). Thus, stakeholders tend to evaluate firms through media messaging. This function has led to the media's influential stakeholder position and influence over corporate reputation (Tang & Tang, 2012). Particularly, small-to-medium enterprises (SMEs) lean on media coverage to influence behavior (Weaver et al., 1999). Furthermore, in agenda-setting research, the media is seen as a secondary stakeholder, guiding the public and policy agenda so that stakeholders may intervene in corporate behavior (Tang & Tang, 2016).

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The impact of media coverage on corporate social activities, such as corporate social responsibility, has received substantial attention (Chiu & Sharfman, 2011). However, the empirical results on this topic are mixed. For example, some studies have highlighted offsetting mechanisms for firms facing negative events (Muller & Kräussl, 2011), arguing that negative coverage results in firms being more likely to engage in social activities to gain legitimacy. Other scholars argue that negative coverage results in increased efficiency pressures on firms to reduce their investment in social activities (Jeong & Kim, 2019).

Firms do not accept the pressure from the media wholesale. Stakeholder (media) pressure on firm behavior can be countered and compromised (Tan, 2009). The media agenda-setting effect can be greatly diminished when the media's calls do not lead to substantive action by other stakeholders (Tang & Tang, 2016). What factors influence the agenda-setting effect of the media? Limited research has investigated this question, including the location of mass media (Jia et al., 2016). In management research, the institutional environment is an important factor that drives firms to adopt social practices (Gao & Hafsi, 2015). Institutional informatization can influence the perceived environmental regulatory pressure on firms (Liu et al., 2021).

Meanwhile, numerous studies have highlighted the important role of digitalization on corporate development (Liu et al., 2022). However, there is limited research on whether the level of institution informatization also affects agenda-setting effects. Today, there is developed electronic media and increased public interaction in the media (Zhou et al., 2022). However, there is no sufficient theoretical and empirical evidence to test whether the agenda-setting effect of the media is significant. Thus, the core questions are:

1. Do different forms of media have a consistent impact on corporate environmental behavior?
2. Do agenda-setting effects differ across media in the same institutional setting?

This study conducts a framework with regional institution informatization to investigate the impact of the media agenda-setting effect on firm pollution behavior. In this framework, environmental activities are seen as responses to external stakeholder pressures on firms. The researchers argue that the media focus on environmental issues discipline corporate emissions. In addition, regional institution informatization will strengthen this relationship. Firms in regions with high institution are likely to perceive more stakeholder pressure on environmental issues. However, the study's empirical result reveals that the moderating role of institution informatization is not significant on the relationship between paper media coverage and corporate environmental performance.

This study conducted the empirical analysis in a sample of Chinese industrial enterprises from 2011 to 2014. The findings contribute to the literature in two aspects. First, it highlights the information mechanism of media agenda-setting by investigating the impact of institutional informatization on agenda setting in different forms of media. This study enriches the literature related to agenda-setting theory by identifying the margin condition role of region institution informatization. Second, the researchers examine the impact of media on firm environmental activities. This provides an explanation for mixed findings surrounding the influence of media coverage on firm behavior.

BACKGROUND AND HYPOTHESIS DEVELOPMENT

Media and Firm Pollution Behaviors

A large body of literature in environmental management has focused on understanding the drivers of firms' pollution behaviors, particularly external factors. In non-market strategy research, institution and stakeholder theory are often used to explain the environmental activities of a firm (Mellahi et al., 2016). Environmental activities help a firm obtain legitimacy and stakeholder support, essential aspects in a firm's operations (Berrone et al., 2017). Firms must interact frequently with external

audiences. The viewers' evaluation of corporate behavior will, in turn, impact a reputation (Agle et al., 1999). Simultaneously, audiences can impact a firm's behavior because the firm is resource dependent on external stakeholders (Kassinis & Vafeas, 2006).

The media is an important external stakeholder for firms due to their role in information intermediation (Bednar, 2012). Based on this role, other stakeholders will be more inclined to evaluate a firm through media coverage (Ogunfowora et al., 2018). For example, some scholars measure corporate legitimacy based on media coverage related to them (Deephouse & Carter, 2005). A large body of research finds that the media can shape stakeholders' perception toward corporate reputation (Jeong & Kim, 2019; Tang & Tang, 2012). Bednar et al. (2013) presented three ways that media can impact a firm: (1) publicizing stakeholder views; (2) reporting events; and (3) independent investigations. These functions may cause external stakeholders to be influenced by media coverage as they review reputation and legitimacy of a specific firm (Pollock & Rindova, 2003). Furthermore, media coverage alleviates information asymmetry between firm and external audience, making firms more likely to perceive stakeholder pressure about environmental issues.

The stakeholder theory emphasizes pressures of external audiences (media) on firms. In contrast, the agenda-setting theory argues that the media distributes power throughout society (Entman, 2007). According to the theory, the media guides external audience attention to an issue by controlling the amount and depth of coverage (Weaver, 2007). McCombs and Shaw (1972) suggested that mass media tells people what to think and how to think. Some scholars argue that media coverage can significantly influence public and government agendas. Thus, firms are likely to reduce pollution emission under the stakeholder pressure (Tang & Tang, 2016). Agenda-setting research has measured the impact of the media on corporate behavior. For example, Jia et al. (2016) verified the impact of media coverage on corporate environmental activities by applying an innovative measure of negative news.

Agenda-Setting in China

China is an emerging country characterized by state capitalism under an authoritarian regime. In addition, the government has strict control over media coverage (Jia et al., 2016). Consequently, Chinese media stereotypes have led some scholars to question whether the media's agenda-setting effect is valid (rather than the government's manipulation of the media's agenda and direction of public view). In fact, in 2004, media reform and private investment entered the media industry, making most media market- and profit-oriented. This change caused the media, which relies on government subsidies, to alter their reports in exchange for legitimacy. In particular, Tang and Tang (2016) suggested that official Chinese newspapers have government-granted legitimacy with readers who are government officials. On the other hand, commercial newspapers cover real issues to gain public trust and legitimacy. Therefore, this article argues that agenda-setting within the media exists in certain issues in China.

Censorship of news coverage also affects the media agenda-setting effect. The Chinese government rarely conducts rigorous prepublication censorship (Hassid, 2008). In general, the Chinese government sets red lines for specific topic coverage (mainly issues related to political and social stability). These limit media criticism and discourse on specific agendas. However, numerous studies have demonstrated that the Chinese government's tolerance for negative environmental reporting is exceptionally high (Chen, 2012; Tang & Tang, 2016). This may be due to the central government's growing emphasis on environmental protection (Marquis et al., 2011). For example, the central government has prioritized the protection of ecological environments and sustainable development via several five-year plans.

Media coverage has become an external mechanism of corporate governance. In China, newspapers and online platforms are two media channels. Some studies argue that newspapers are the main source of information for Chinese people as compared to online media, which makes print more suitable for investigating the agenda-setting effect (Strömbäck & Kioussis, 2010). The rapid development of online media like Weibo allows for the dissemination of information and guidance of public opinion (Shao & He, 2022; Wu et al., 2022). According to the 2013 China New Media

Development Report, China's new media users continue to grow, which increases popularity. For example, Weibo has more than 90 million users between the ages of 20 and 29. Although online media is more advanced, the differences between print and digital media tend to be in the mode of communication rather than content. Therefore, the agenda-setting effect exists for both forms of media in China. This, in turn, influences corporate behavior.

Hypothesis Development

This study's framework is verified by a large body of literature stating that the media has a significant impact on firms' pollution behaviors. According to agenda-setting research, the media can influence the level of awareness and importance of an agenda to external audiences through published news coverage. External stakeholders who perceive the call of the media are more likely to exert pressure on firms.

In the information era, both print and electronic media have become important sources for the public to obtain corporate information. Therefore, the agenda-setting effect of both forms of media is significant. In addition, external audiences place a higher priority on environmental agendas when regional media releases several reports about environment protections. The coverage is more likely to impact the local atmosphere regarding environmental protection (Jia et al., 2016). Corporate managers will then reduce polluting activities to avoid reputational risks. On the other hand, extensive media coverage may generate additional government regulation and attention (Tang & Tang, 2016), which makes firms more likely to reduce pollution emissions. Therefore, the baseline hypothesis of this study is the amount of print or electronic media coverage on environmental issues negatively associated with corporate environmental pollution among firms in a city.

The agenda-setting effect is also determined by information perceived by external stakeholders. The perceived information affects stakeholders' judgment toward corporate behavior. Such information may be influenced by external environments. To examine the impact of external conditions on agendas, this article examines how institutional informatization affects agenda-setting by the media.

Role of Institution Informatization on the Media Agenda-Setting Effect

Informatization refers to the application of modern information technology, especially the process of facilitating the transformation of an object or field of application (Mul, 1999). This study argues that institution informatization refers to the informatization of the institutional environment within a region, highlighting the distribution of regional institutional information.

In China, e-government is an urban governance tool that applies new-generation information technology. Studies have demonstrated the role of e-government as an information mechanism in enhancing urban governance (Anthopoulos & Reddick, 2016; Yang et al., 2014). The e-government application can reduce the information asymmetry of sectors within a region and facilitate the diffusion of institutional information (Liu et al., 2021). Therefore, this study argues that e-government construction is highly relevant to regional institution informatization.

Additionally, the study argues that the inhibitory effect of the media on corporate pollution behavior is influenced by institution informatization. On the one hand, regional institution informatization can influence the media's agenda-setting effect because e-government facilitates information interaction between the media and audiences. Studies have highlighted the role of information technology for organization information integration (Tang & Zhang, 2022). Audiences in a region with high institution informatization are more likely to perceive information from mass media; thus, the media could more easily guide the public's attribution of the agenda. On the other hand, research reveals that institution informatization affects firms' perceived stakeholder pressure (Liu et al., 2021). Firms in a region with high institution informatization could perceive higher environmental pressure, improving their environmental activities. In conclusion, this article proposes the following:

- H1:** The negative relationship between electronic media and firm emissions is stronger for firms in a region with high institution informatization.
- H2:** The negative relationship between print media and firm emissions is stronger for firms in a region with high institution informatization.

METHODOLOGY

Sample and Data Collection

The study examined corporate environmental performance as the reaction of media agenda-setting in the context of Chinese industrial enterprises from 2011 to 2014. The study set the starting year to 2011, the closing year of the 12th five-year plan. During this sensitive period, large Chinese firms were concerned about the direct impact of negative events like corporate pollution.

China provides an ideal empirical setting to address this article's research. First, Chinese industrial enterprises are a major source of environmental pollution, discharging more than 70% of pollution and generating only about 46.5% of the gross domestic product (Zou, 2009). Stakeholder pressure is an important factor as it drives firms to adopt environmental practices (Kassinis & Vafeas, 2006). Second, the research sample consists of Chinese industrial enterprises above the scale. Compared with SMEs, larger firms are more likely to be the subject of scrutiny and attention (Luo et al., 2017). Thus, they would be concerned about the impact of media coverage on firm reputation. This allows for the investigation of the impact of media agenda-setting on corporate environmental performance. Third, e-government has grown rapidly with the support of the Chinese government. In fact, the government has invested in resources, strategies, policies, and best practices from other countries (Liu et al., 2021). E-government enhances the information interaction between government and other departments (Matheus et al., 2018), which provides an opportunity to study the impact of regional institutional informatization on the media agenda-setting effect.

This study contains three major sources of data. The first, the Annual Census Industrial Enterprises (ACIE), contains industrial enterprise data above the scale (annual sales of more than 5 million RMB). The database, which is collected by China's National Bureau of Statistics, contains financial and operational information on both state-owned and private firms. Thus, it is widely used for corporate strategy research in the Chinese context (Chang & Xu, 2008; Xie & Li, 2018). In addition, the researchers matched the annual emissions of sample firms in the Environmental Survey and Reporting (ESR) database based on names and organization codes, double-checking them based on locations and industry information.

The second source is media coverage database. Newspaper data are obtained from the Chinese Important Newspapers Full Text Database, which contains scholarly and informative literature published in important Chinese newspapers (e.g., *Beijing Daily*) since 2000. This CNKI database collects regional newspapers from different cities, providing opportunities to examine conditions that may influence media agenda-setting effects on corporate environmental behavior in a region. The electronic media data in the study was obtained from Baidu, a commonly used search engine on the Chinese web. This serves as an important channel for Internet users to access Chinese information and services (Feng et al., 2020).

The third source is the annual report of evaluations on China's government portal, conducted by the software testing center in the Ministry of Industry and Information Technology. This report includes e-government scores for provincial and prefectural governments, which often reflect the level of institutional informatization in the region (Liu et al., 2021).

Variables Measurement

Corporate Environmental Performance

This study followed Deng et al. (2019) to adopt specific toxic emissions as indicators to measure corporate environmental performance. The current work focused on chemical oxygen demand (COD)

and sulfur dioxide (SO₂) emissions. It calculated the natural logarithm of annual cumulative toxic gas emissions from industrial enterprises to reflect pollution levels. COD and SO₂ are important environmental pollution indicators for the Chinese government, with emission restrictions on these pollutants mentioned in multiple five-year plans.

Media Coverage

Following the previous study, media coverage was measured by the amount of news reports on the environment in a region (Tang & Tang, 2016). The study manually searched the CNKI database for reports with “environment” or “pollution” titles. It took the natural logarithm of these searches. Electronic media was measured as the Baidu Index because it reflects the size of searches for a keyword in Baidu, as well as the amount of related news. The study manually searched the Baidu index with “environment” or “pollution.” It took the natural logarithm of its annual average value.

E-Government

This study used an e-government score to measure regional institution informatization. E-government is a collection of new generation information technologies that can reduce information asymmetry between the government and other departments, thus improving the level of regional institution informatization (Yang et al., 2014). This score was obtained from the annual reports of evaluations on China’s government portal. The researchers evaluated e-government through a comprehensive indicator system which consists of four primary indicators and 53 secondary indicators.

Control Variables

The study included several firm- and region-level variables to control for their potential impact on corporate environmental performance. Larger firms are more likely to perceive stakeholder pressure (Berrone & Gomez-Mejia, 2009); therefore, the study followed Bednar et al. (2013) to control for firm size. The firm size was measured as the natural logarithm value of firm total assets. The firm age was measured by year of corporate establishment. Debt ratio was measured by the ratio of total liabilities to total assets.

The study included firm affiliation to control heterogeneity of different levels of government that influence corporate environmental practices (Wang et al., 2018). Affiliation was measured by an order variable, coded 1 for central government, 2 for provincial government, 3 for prefecture-level government, 4 for county-level government, 5 for town-level government, and below. Financial performance was measured as returns on total assets. Subsidy income was measured by the natural logarithm value of firm subsidy.

Regarding the region level, the study included regional marketization, regional corruption, and regional economic development control variables. Regional marketization was measured as a marketization index. This stemmed from reports of the National Economic Research Institute (Wang et al., 2017). Regional corruption was measured as the amount of corruption cases per 10,000 civil servants within a province. Regional economic development was measured as the natural logarithm value of gross domestic production in a province.

Estimation Method

The current research followed a previous study to conduct an ordinary least-squares (OLS) regression model that absorbs year and industry fixed effect to examine the impact of media agenda-setting on corporate environmental performance (Marquis & Qian, 2014). The regression model is as follows:

$$\begin{aligned} \text{Corporate environmental performance} = & \beta_0 + \beta_1 \text{Printing media} \\ & + \beta_2 \text{Printing media} \times \text{Institution informatization} + \beta_3 \text{Electronic media} \\ & + \beta_4 \text{Electronic media} \times \text{Institution informatization} + \beta_5 \text{Controls} + \varepsilon \end{aligned}$$

where β_1 and β_3 are the coefficient of printing media and electronic media; β_2 and β_4 are the coefficient of interaction term between moderating variable and media coverage to test hypothesis 1 and 2. Controls represents a set of control variables; ε is a random error term.

RESULTS

Sample and Data Collection

Table 1 presents the means, standard deviations, and correlations relationship of all variables in this study. As shown in Table 1, the mean value of COD emissions is 1.777 in natural logarithm. As expected, print media and electronic media are negatively correlated with corporate environmental performance. Furthermore, the correlation between COD emissions and other variables is less than 0.5. The study calculated the variance inflation factor (VIF). The mean value of VIF is 1.93, which is less than the cutoff point of 5.

Hypothesis Testing

Table 2 reports the regression results estimated for COD emission in model 1-5 and SO2 emission in model 6-10. Model 1 and model 6 added control variables. It included media coverage variables in models 2-3 and 7-8, the interaction term between moderating variable and independent variable.

Hypothesis 1 predicts that institution informatization strengthens the negative relationship between electronic media and corporate environmental performance. As shown in Table 2, the coefficient of interaction term between electronic media and e-government construction (Interaction 1) is negative and significant ($\beta = -0.193, p < 0.001$). This suggests that firms in regions with high institution informatization are more influenced by the agenda-setting effect of electronic media. The research received a similar result in model 9, which is estimated for SO2 emission ($\beta = -0.398, p < 0.001$).

Hypothesis 2 also predicts that institution informatization strengthens the negative relationship between print media and firm pollution. However, the coefficient of interaction term between print media and e-government (Interaction 2) is negative and insignificant in models 5 and 10 ($\beta = -0.046, p > 0.05; \beta = -0.036, p > 0.05$). Both results indicate that institution informatization does not improve the agenda-setting effect of print media. This does not support hypothesis 2. Print media is a traditional media carrier; therefore, it can be a challenge for e-government as it applies

Table 1. Descriptive Statistics and Correlation Matrix

Variables	Mean	Sd	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) COD emissions	1.777	1.559	1.000												
(2) Firm size	11.81	1.601	0.258	1.000											
(3) Firm age	12.512	9.249	0.068	0.163	1.000										
(4) Debt ratio	0.567	0.272	0.039	0.028	0.000	1.000									
(5) Affiliation	5.496	1.185	-0.112	-0.307	-0.267	-0.069	1.000								
(6) Financial performance	0.111	0.201	-0.031	-0.203	-0.075	-0.283	0.098	1.000							
(7) Subsidy income	1.781	3.093	0.093	0.320	0.098	0.055	-0.198	-0.126	1.000						
(8) Regional marketization	7.966	1.568	-0.039	-0.081	0.001	0.015	0.293	-0.005	-0.174	1.000					
(9) Regional corruption	24.088	4.499	-0.017	0.008	-0.001	-0.034	-0.004	0.072	-0.007	-0.049	1.000				
(10) Regional economic development	10.469	0.563	-0.057	-0.086	0.012	-0.012	0.236	0.015	-0.256	0.823	-0.237	1.000			
(11) E-government	4.33	0.158	-0.023	-0.099	-0.026	0.015	0.213	-0.065	-0.080	0.666	-0.307	0.503	1.000		
(12) Newspaper report	3.299	1.27	-0.006	0.042	0.034	0.005	0.047	-0.048	-0.022	0.133	-0.185	0.203	0.092	1.000	
(13) Internet media	4.572	0.761	-0.027	0.084	0.075	0.013	0.138	-0.094	-0.044	0.417	-0.148	0.440	0.302	0.412	1.000

Note. N = 61,156; correlations greater than |0.01| are significant at the 0.05 level.

Table 2. Estimate for Corporate Emissions

Variables	DV: COD Emissions					DV: SO2 Emissions				
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
Firm size	0.306*** (0.003)	0.311*** (0.004)	0.308*** (0.004)	0.312*** (0.004)	0.308*** (0.004)	0.366*** (0.005)	0.392*** (0.005)	0.371*** (0.005)	0.394*** (0.005)	0.371*** (0.005)
Firm age	0.003*** (0.001)	0.005*** (0.001)	0.003*** (0.001)	0.005*** (0.001)	0.003*** (0.001)	0.005*** (0.001)	0.006*** (0.001)	0.006*** (0.001)	0.006*** (0.001)	0.006*** (0.001)
Debt ratio	0.182*** (0.018)	0.159*** (0.019)	0.144*** (0.021)	0.161*** (0.019)	0.144*** (0.021)	0.514*** (0.025)	0.456*** (0.027)	0.474*** (0.029)	0.462*** (0.027)	0.474*** (0.029)
Affiliation	-0.072*** (0.004)	-0.072*** (0.005)	-0.078*** (0.005)	-0.072*** (0.005)	-0.078*** (0.005)	-0.064*** (0.006)	-0.069*** (0.007)	-0.082*** (0.007)	-0.067*** (0.007)	-0.082*** (0.007)
Financial performance	0.378*** (0.024)	0.387*** (0.026)	0.375*** (0.029)	0.375*** (0.026)	0.373*** (0.029)	0.326*** (0.033)	0.355*** (0.035)	0.485*** (0.039)	0.325*** (0.035)	0.484*** (0.039)
Subsidy income	0.007*** (0.002)	0.005*** (0.002)	0.001 (0.002)	0.005*** (0.002)	0.001 (0.002)	0.016*** (0.002)	0.012*** (0.002)	0.009*** (0.003)	0.012*** (0.002)	0.008*** (0.003)
Regional marketization	-0.073*** (0.006)	0.029*** (0.008)	0.021* (0.008)	0.038*** (0.008)	0.021** (0.008)	-0.166*** (0.008)	-0.030*** (0.011)	-0.041*** (0.011)	-0.002 (0.011)	-0.040*** (0.011)
Regional corruption	0.010*** (0.001)	-0.003* (0.001)	-0.002 (0.001)	-0.004** (0.001)	-0.002 (0.001)	0.009*** (0.001)	-0.003 (0.002)	-0.003 (0.002)	-0.005*** (0.002)	-0.003 (0.002)
Regional economic	0.114*** (0.012)	-0.083*** (0.019)	-0.155*** (0.019)	-0.103*** (0.019)	-0.157*** (0.019)	0.197*** (0.017)	-0.037 (0.025)	-0.150*** (0.025)	-0.094*** (0.025)	-0.154*** (0.026)
Regional e-government	0.071 (0.045)	0.111* (0.049)	0.092 (0.052)	0.089 (0.049)	0.097 (0.052)	-0.762*** (0.060)	-0.932*** (0.064)	-0.892*** (0.069)	-1.013*** (0.065)	-0.89*** (0.069)
Regional internet media		-0.171*** (0.007)		-0.172*** (0.007)			-0.185*** (0.010)		-0.205*** (0.010)	
Regional newspaper			-0.038*** (0.004)		-0.035*** (0.005)			-0.005 (0.006)		-0.003 (0.006)
Interaction 1				-0.193*** (0.037)					-0.398*** (0.048)	
Interaction 2					-0.046 (0.029)					-0.036 (.036)
Constant	-2.823*** (0.231)	-0.678* (0.295)	-0.367 (0.311)	-0.418 (.299)	-0.380 (.312)	.753** (.31)	3.747*** (.382)	4.336*** (.407)	4.612*** (.395)	4.351*** (.408)
Observations	79,426	67,384	61,156	67,384	61,156	63,098	53,929	48,518	53,929	48,518
Adj R-squared	0.288	0.299	0.294	0.300	0.294	0.386	0.391	0.384	0.391	0.384
F-value	1194.96***	941.76***	825.89***	865.82***	757.29***	1143.73***	967.37***	790.66***	893.73***	724.86***
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note. Standard errors are in parentheses *** p<.001, ** p<.01, * p<.05.

new generation communication technology to establish a suitable link. This causes difficulties for traditional media to diffuse their information and guide public view with the help of e-government. It also helps to expand the agenda-setting effect.

Robustness Check

Although the study included industry-fixed effects, there are many firms in the sample that do not emit toxic gas. To avoid the potential effect of zero values for the dependent variable on the estimation results, the study conducted a tobit model robustness test. As shown in models 4 and 5, the coefficient of interaction term is like the baseline result in Table 3 ($\beta = -0.241, p < 0.001; \beta = -0.007, p > 0.05$).

DISCUSSION

Drawing on a specific context (coverage on firm pollution behavior), this study aims to investigate the impact of regional institution informatization on the media agenda-setting effect. By undertaking the empirical test in a sample of Chinese industrial enterprises, the study found that both print and electronic media significantly discourage corporate emissions. More coverage about environmental protection in both forms of media results in more positive corporate environmental performance.

This study measured regional institution informatization with an e-government score. It argued that media in regions with high institutional informatization have the ability to spread information. In turn, firms are more likely to be affected by the media agenda-setting effect. However, the empirical result reveals that institutional informatization moderates the relationship between electronic media and corporate environmental performance. The interaction term between print media and corporate

Table 3. Robustness Check

Variables	DV: COD Emissions				
	Model 1	Model 2	Model 3	Model 4	Model 5
Firm size	0.312*** (0.004)	0.317*** (0.004)	0.314*** (0.004)	0.318*** (0.004)	0.314*** (0.004)
Firm age	0.003*** (0.001)	0.005*** (0.001)	0.004*** (0.001)	0.005*** (0.001)	0.004*** (0.001)
Debt ratio	0.164*** (0.019)	0.143*** (0.021)	0.125*** (0.022)	0.146*** (0.021)	0.125*** (0.022)
Affiliation	-0.076*** (0.004)	-0.077*** (0.005)	-0.082*** (0.005)	-0.076*** (0.005)	-0.082*** (0.005)
Financial performance	0.381*** (0.026)	0.390*** (0.028)	0.364*** (0.030)	0.375*** (0.028)	0.364*** (0.030)
Subsidy income	0.006*** (0.002)	0.005* (0.002)	0.001 (0.002)	0.005* (0.002)	0.001 (0.002)
Regional marketization	-0.072*** (0.006)	0.026** (0.008)	0.016 (0.008)	0.037*** (0.008)	0.016 (0.008)
Regional corruption	0.011*** (0.001)	-0.002 (0.001)	-0.001 (0.002)	-0.003* (0.001)	-0.001 (0.002)
Regional economic	0.113*** (0.012)	-0.075*** (0.020)	-0.143*** (0.020)	-0.100*** (0.020)	-0.143*** (0.020)
Regional e-government	0.182*** (0.047)	0.230*** (0.052)	0.219*** (0.055)	0.203*** (0.052)	0.220*** (0.055)
Internet media		-0.172*** (0.008)		-0.173*** (0.008)	
Newspaper			-0.041*** (0.005)		-0.040*** (0.005)
Interaction 1				-0.241*** (0.039)	
Interaction 2					-0.007 (0.031)
Constant	-3.051*** (0.245)	-1.156*** (0.313)	-0.830* (0.331)	-0.824** (0.317)	-0.832* (0.331)
Observations	79,426	67,385	61,157	67,385	61,157
Pseudo R ²	0.089	0.093	0.092	0.093	0.092
LR chi2	26316.18***	23429.77***	20860.48***	23467.25***	20860.53***
Year dummies	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes

Note. Standard errors are in parentheses *** p<.001, ** p<.01, * p<.05.

environmental performance is not significant. This is probably due to the limited number of newspapers in some regions. Therefore, the effect of institution informatization on the media agenda-setting effect is not significant. On the other hand, the study argued that the ineffective linkage of traditional media with new information infrastructures is also a reason why the moderating role of institutional informatization is not significant.

Theoretical Contributions

This study found that the information mechanism in external audiences perceives agenda-setting effect from the media. This enriches the literature related to media impact on firms' behavior (Graf-Vlachy et al., 2020). Studies have focused on the mechanisms that elicit stakeholder action (Tang & Tang, 2016) and resource dependence of firms (Tang & Tang, 2012). This study, however, points to information as a factor that influences the media agenda-setting effect.

Regarding agenda-setting research, the media is an important external audience that influences corporate reputation and image. Mass media guides the importance attributed to specific issues by stakeholders (Scheufele & Tewksbury, 2007). This study enriches the agenda-setting literature by identifying the impact of institution informatization on the media agenda-setting effect. Previous studies highlighted the relevance of media agenda and public importance agenda (McCombs et al., 1997; McCombs & Shaw, 1972), eliciting the impact of stakeholder pressure on corporate behavior. However, few studies have focused on the impact of regional environment on media agenda-setting effect. This setting may lead to an overestimation or underestimation of media impact on firm pollution behavior. In particular, the level of regional informatization may be related to the media's ability to guide the public agenda. The current findings reveal that the moderating role of institution informatization exists in the relationship between media coverage and corporate environmental performance. It also presents heterogeneity in a different media source.

The current research is an extension of Tang and Tang (2016), providing empirical evidence for mixed findings regarding the impact of media on firms' pollution behavior. The study enriches the literature related to corporate environmental management by verifying the inhibitory effect of newspapers and digital media on corporate pollution (Delmas & Toffel, 2010). Previous studies suggest that conventional media is more authoritative. Still, an empirical study on emerging media on corporate environmental activities remains limited. This study finds that emerging media have an inhibitory effect on corporate pollution, which explains the mixed empirical results of media and environmental activities (Kay et al., 2015).

Practical Implications

This study also provides several practical implications. Due to issues surrounding environmental pollution, the Chinese government now prioritizes future environmental protections (Wu, 2022; Zhang et al., 2021). This study examines the positive effect of media on corporate environmental activities, which may be countered by regional institutional informatization. First, the study provides empirical evidence for how governments use the media to manage corporate pollution. Meanwhile, the study also inspires policymakers to amplify the impact of media on corporate pollution by improving institution informatization. Second, the work focuses on how firms can address stakeholder pressure (Delmas & Toffel, 2008). The study provides an explanation for how firms respond to pressure from the media.

Limitations and Future Studies

This study conducted a solid empirical analysis to test its hypothesis; however, it has limitations. First, the study lacks generalizability. Due to data limitations, it focuses on regional media coverage as the unit of analysis. Although the research controlled some firm characteristics (e.g., firm size, firm financial performance), the heterogeneity of responses to media pressure across regional firms is not explained. Future research could decentralize the research unit to clarify the mechanisms by which the media agenda-setting effect works. Second, this study used e-government scoring to measure regional institution informatization. Although e-government is a critical part of regional intelligence construction (Twizeyimana & Andersson, 2019), it is not a direct measure. Future studies could include more explicit variables to test the findings.

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