



Media spotlight, corporate sustainability and the cost of debt

Hao Gao, Jing He & Yong Li


To cite this article: Hao Gao, Jing He & Yong Li (2022) Media spotlight, corporate sustainability and the cost of debt, Applied Economics, 54:34, 3433-3445, DOI: 10.1080/09500804.2022.2090003


To link to this article: <https://doi.org/10.1080/09500804.2022.2090003>

 [View supplementary material](#)


 Published online: 05 December 2022

 [Submit your article to this journal](#)

 Article views: 0

 [View related articles](#)

 [Crossmark data](#)

 [Citing articles: View citing articles](#)



Media spotlight, corporate sustainability and the cost of debt

Hao Gao^a, Jing He^a and Yong Li^b

^aPBC School of Finance, Tsinghua University, Beijing, China; ^bSchool of Banking and Finance, University of International Business and Economics, Beijing

ABSTRACT

In this study, we examine the effect of media spotlight of corporate environmental, social, and governance (ESG) performance on corporate debt financing. We use the most influential media firm's rankings of corporate ESG performance from 2009 to 2017 as a proxy of media spotlight. Positive media ESG spotlight significantly reduces firms' cost of debt through enhancing reputation in supply chains, reducing financial risk and increasing corporate transparency. Media ESG spotlight plays a more important role for firms with poor corporate governance and firms located in provinces with more serious pollution.

KEYWORDS
Media; corporate social responsibility; cost of debt; ESG

JEL CLASSIFICATION
M14; G14



1. Introduction

The media actively shape public attention and categories of thought in the financial market (Gerber, Karlan, and Bergan 2009; Shiller 2015). Media coverage can promulgate a firm's financial information and affect investors' decisions (Griffin, Hirschey, and Kelly 2011; Kaniel and Parham 2017; Liu, McConnell, and Xu 2017; Liu and McConnell 2013). Several papers find that media coverage increases public recognition of corporate environmental, social, and governance (ESG) performance (Byun and Oh 2018; Lyon and Shimshack 2015; Naumer and Yurtoglu 2020), a central issue of increasing concern to investors and policymakers (Eliwa, Aboud, and Saleh 2019; Salvi, Giakoumelou, and Bertinetti 2020). We therefore analyse the effect of media spotlight on corporate ESG in China, the largest emerging economy facing rampant environment challenges. We focus on the effect of media spotlight of corporate ESG in the lending market, the most important market for corporate financing in China.


It is well known that China's rapid economic development has been accompanied by serious ESG problems created by firms, such as the 2008 milk scandal and 2010 Zijin Mining water pollution (Du et al. 2017; Liang and Renneboog 2017; McGuinness, Vieito, and Wang 2017). In addition,

the ESG information is diffused and scarce. Therefore, media attention to corporate ESG performance is increasing. One of the most respected outlets in the Chinese media landscape is the newspaper *Southern Weekly*, founded in 1984. *Southern Weekly* has been listed among China's 500 most valuable brands, and it is the largest weekly newspaper in China. In 2018, it was named China's best-selling newspaper by *China Post* for the 11th consecutive year. It is a credible and serious newspaper with wide influence in China. More than 78% of its subscribers are highly educated.¹ *Southern Weekly* is the first nationally recognized media outlet to cover ESG topics, and it has become the authority on monitoring Chinese firms' ESG activities. From 2009 to 2017, the newspaper published annual lists of the 100 'best corporate social responsibility firms' according to ESG performance (hereafter the best ESG list).

Research shows that the market tends to react positively to positive reports coming from reputable media sources. Lyon and Shimshack (2015) find that firms on the top of *Newsweek's* environmental ranking have higher abnormal returns. Byun and Oh (2018) find that publicized ESG activities are positively associated with shareholder value. Cheng et al. (2017) document that achieving a higher ranking in *Fortune's* list of most admired

CONTACT Yong Li  yongli@uibe.edu.cn  School of Banking and Finance, University of International Business and Economics, Beijing 100029

¹For more introduction regarding *Southern Weekly*, please refer to its official website (<http://www.infzm.com/about>).

 Supplemental data for this article can be accessed [here](#).

companies can increase the value of a manager's reputational capital. Kaniel and Parham (2017) demonstrate that mutual funds included in the *Wall Street Journal* 'Category Kings' ranking list attract more fund flows. Based on these studies, we argue that the best ESG list published by the *Southern Weekly* represents a significant media spotlight on corporate ESG engagement, which is important to stakeholders and creditors (Barigozzi and Tedeschi 2015; Chava 2014; Jiraporn et al. 2014; Lins, Servaes, and Tamayo 2017). The best ESG list is constructed from surveys conducted by *Southern Weekly*, and this information has been acknowledged by market participants. Therefore, this media spotlight does not convey new fundamental corporate information, and the best ESG list is the list itself (Cheng et al. 2017; Kaniel and Parham 2017). We use the best ESG list as a proxy of positive media spotlight to investigate its relation with debt financing costs. The best ESG list provides a relatively clean setting, as it enables us to avoid the self-reporting bias present in studies of corporate social responsibility (Lyon and Shimshack 2015). Consistent with the view that lenders value ESG performance and put pressure on underperforming firms' management when negotiating debt refinancing contracts (Goss and Roberts 2011; Menz 2010; Stellner, Klein, and Zwergel 2015), we find that the cost of debt for firms on the best ESG list is significantly lower than it is for firms not on the list. We use a propensity score matching (PSM) method to control potential confounding factors, and confirm the result. In addition, higher-ranked firms on the best ESG list have lower costs of debt relative to lower-ranked firms. Change-on-change regressions show that as a firm's ranking rises, its cost of debt decreases significantly; this suggests that lenders capture the signal of the best ESG list and reward better ESG firms.

Entry onto or exit from the best ESG list can be treated as a media shock to address potential endogeneity issues (Cheng et al. 2017; Focke, Maug, and Niessen-Ruenzi 2017; Kaniel and Parham 2017). Difference-in-differences (DID) regressions show that list entry and exit have asymmetric effects. We provide evidence that entry onto the best ESG list significantly reduces the cost of debt but that the effect of exiting from the list is limited. We

attribute this asymmetry to investors' limited attention: lenders are more likely to notice and reward firms' improvements as reflected by entry onto the list. Instrument variable (IV) and generalized method of moments (GMM) regressions also confirm our conclusions. Taken together, our results support the proposition that positive media spotlight of corporate ESG performance can reduce the cost of debt.

We explore the channels through which media spotlight affects the cost of debt in three ways. The first draws on reputation theory. Media coverage can effectively enhance corporate reputation (Barakat et al. 2019; Liu, McConnell, and Xu 2017; Liu and McConnell 2013). In addition, corporate ESG is a key source of moral capital that creates trust and reciprocity, which facilitates contracting and operations (Du, Bhattacharya, and Sen 2011). We test the reputation theory explanation by investigating firms' trade credit in the supply chain (Bae et al. 2019; Gualandris et al. 2015; Porteous, Rammohan, and Lee 2015). We find that appearance on the best ESG list significantly enhances firm reputation in the supply chain and leads to lower cost of debt.

The second channel that we investigate draws on risk perception theory (Albuquerque, Koskinen, and Zhang 2018; Byun and Oh 2018; Du et al. 2017; Goss and Roberts 2011; Sharfman and Fernando 2008). Media spotlight can increase public awareness of corporate risk, whereas corporate ESG performance reduces risk exposure (Chava 2014; Du et al. 2017; Gong, Xu, and Gong 2018; Goss and Roberts 2011; Tsai, Lu, and Hung 2016; Ye and Zhang 2011). We show that media coverage of corporate ESG performance significantly reduces financial risk, which leads to lower cost of debt. Therefore, financial risk is a key channel through which media coverage of corporate ESG performance can reduce the cost of debt.

The third channel draws on information asymmetry theory, which argues that corporate transparency reduces financing costs (Byun and Oh 2018; Francis, Nanda, and Olsson 2008). We provide evidence that firms on the best ESG list have more analyst coverage, which reduces information asymmetry and enhances corporate ESG transparency. We thus show that corporate transparency is

positive media ESG spotlight improves a firm's reputation on the supply chain, reduces its financial risk, and enhances its corporate transparency, which are three channels through which the cost of debt decreases.

Finally, we contribute to the ongoing debate on the relation between corporate ESG performance and the cost of debt. One strand of the literature argues that corporate social responsibility can reduce the cost of debt (Chava 2014; Du et al. 2017; Eichholtz et al. 2019; Gong, Xu, and Gong 2018; Goss and Roberts 2011). However, a counter argument is that better corporate ESG performance implies that a firm is departing from optimal resource allocation, creating potential default risk and thereby increasing the cost of debt (Menz 2010; Sharfman and Fernando 2008; Stellner, Klein, and Zwergel 2015). Aside from these two strands of the literature, Ye and Zhang (2011) document a U-shaped relationship between corporate philanthropy and the cost of debt. In this study, we provide evidence that there is a significantly negative association between corporate ESG performance and the cost of debt from the angle of media attention. We also highlight the fact that in China, unlike in developed countries, the state-owned banking sector dominates the financing channel for firms (Allen, Qian, and Gu 2017).² Therefore, our results provide indirect evidence regarding whether the national credit system in China responds to media spotlight of corporate ESG performance.

The remainder of this paper is organized as follows: Section II describes the data and key variables. Section III reports the baseline results, and Section IV presents the results of the endogeneity control tests. Section V analyzes possible channels for the identified

include short-term loans, long-term liabilities due within one year, long-term loans, bonds payable, and long-term payables.

We define three variables based on the best ESG list to proxy the media spotlight on corporate ESG performance. The first is a dummy variable *List* that equals 1 if a firm is on the best ESG list in a given year and 0 otherwise. The second is *NList* that denotes the number of times a firm has entered the best ESG list by the year. The third is *Rank* that denotes a firm's ranking on the best ESG list.

We use seven explanatory variables to control for the impacts of firm-level factors on the cost of debt. Firm size (*Size*) controls for a firm's financing flexibility and information asymmetry. *Size* is calculated as the natural logarithm of total assets. The return on assets (*ROA*), asset turnover ratio (*AT*), sales growth rate (*SG*), and leverage ratio (*Lev*) control for a firm's operational and financial performance. *ROA* is calculated as net income divided by total assets. *AT* is calculated as net sales divided by average total assets at the beginning and end of the year. *SG* is calculated as the annual increase in sales divided by total sales in the previous year. *Lev* is calculated as total liabilities divided by total equity. The largest shareholder's ownership (*Own*) controls for conflicts involving shareholders and debtholders. *Own* is the shareholdings of the largest shareholder divided by total shares outstanding. Following the conglomeration reform, the *Southern Weekly* completed a commercialization process that transformed it into a nonofficial newspaper (Piotroski, Wong, and Zhang 2017). Nevertheless, given that its parent firm, Nanfang Daily Media, is a state-owned company, there may be concerns over biased sample selection. To mitigate this concern, we use the dummy variable *State* as a control variable, which equals 1 if a firm is state-owned and 0 otherwise. Appendix B summarizes the definitions of the variables used in our analysis.

empirical analysis

Panel A of Table 1 reports the descriptive statistics for the cost of debt and characteristics of Chinese non-financial firms. We have 19,330 firm-year observations in our sample. For all non-financial firms, the mean cost of debt is

Table 1. Descriptive statistics.

Panel A. Summary statistics						
	25%	Median	Mean	75%	Std	N
<i>CoD</i>	3.47%	5.11%	5.74%	6.82%	0.043	19,330
<i>List</i>	0	0	0.0348	0	0.183	19,330
<i>NList</i>	0	0	0.167	0	0.894	19,330
<i>Size</i> (Billion Yuan)	1.59	3.37	14.90	8.50	72.07	19,330
<i>ROA</i>	1.35%	3.69%	3.93%	6.85%	0.145	19,330
<i>Lev</i>	31.30%	46.70%	50.40%	62.40%	1.074	19,330
<i>SG</i>	-2.11%	12.04%	19.97%	30.15%	0.423	19,330
<i>AT</i>	0.36	0.57	0.69	0.85	0.581	19,330
<i>Own</i>	23.40%	33.50%	35.50%	45.90%	0.155	19,330
<i>State</i>	0	0	0.40	1	0.488	19,330
<i>SC</i>	-8.44%	-0.75%	-0.15%	6.89%	0.154	19,330
<i>DFL</i>	1.021	1.137	1.504	1.468	1.043	16,607
<i>NAnalysts</i>	1	4	7.51	11	9.020	19,330

Panel B. Comparing the cost of debt for firms on and not on the best ESG list.

	<i>List</i> = 1		<i>List</i> = 0		Tests of differences	
	Mean	N	Mean	N	Mean	T-statistics
Panel B.1. Full sample						
<i>CoD</i>	4.893%	683	5.774%	18647	-0.881%***	-5.52
Panel B.2. 1-to-1 PSM sample						
<i>CoD</i>	4.893%	683	5.479%	683	-0.586%***	-3.17

In this table, we report the descriptive statistics. Panel A reports the summary statistics of the variables across firm-year observations. The sample period covers the period 2009 to 2017. We exclude financial firms from our sample. The definitions of all of the variables are provided in Appendix B. Panel B reports the results of comparing the cost of debt for firms on and not on the best ESG list. *List* is a dummy variable that equals 1 if a firm is on the best ESG list and 0 otherwise. Panel B.1 reports the results using the full sample and Panel B.2 reports results using a 1-to-1 PSM sample. Significance at the 10%, 5%, and 1% levels is indicated by *, **, and ***, respectively.

5.74% and the median value is 5.11%. The mean value of the dummy variable *List* indicates that 3.48% of all firm-year observations are firms appearing on the best ESG list. The mean value of total assets is 14.9 billion yuan. The mean return on assets (*ROA*) is 3.93%. The mean sales growth rate (*SG*) is 19.97%. The mean asset turnover ratio (*AT*) is 0.69. The mean leverage ratio (*Lev*) is 50.4%. The mean largest shareholder's ownership (*Own*) is 35.5%. The mean value of *State* is 0.4, indicating that state-owned firms account for 40% of the whole sample. All of the variables are in a normal range.

Panel B of Table 1 shows the comparison of the costs of debt of firms that are on and not on the best ESG list. We calculate the mean value of the cost of debt for these two groups of firms. Panel B.1 shows the results using the full sample. The

mean cost of debt of firms on the best ESG list is 4.89%, while the mean cost of debt of firms not on the best ESG list is 5.77%. The t-statistics show that the cost of debt of firms on the best ESG list is significantly lower than that of firms not on the best ESG list. Panel B.2 reports the results using a 1-to-1 PSM sample. We use the PSM method to match firms that appear on the best ESG list with firms that never appear on the best ESG list by *Size*, *ROA*, *SG*, and *State* to mitigate endogeneity concerns (Gao et al. 2019). The mean value of the cost of debt of firms on the best ESG list is 4.89%, while the mean value of the cost of debt of matched firms is 5.48%. The cost of debt of firms on the best ESG list is again significantly lower than that of firms that never appear on the best ESG list.

Lastly, we assign firms appearing on the best ESG list to five groups based on their rankings. Figure 1 illustrates the five groups' mean cost of debt. In the figure, the x-axis divides the firms into five groups of 20, and the y-axis represents the mean value of the cost of debt. We show that the cost of debt increases with decreasing ranking on the list.

Taken together, the descriptive statistics illustrate preliminary findings that an inverse relation exists between media spotlight of corporate ESG performance and the cost of debt. Appearing on the best list can reduce the cost of debt. In the following sections, we perform regressions to confirm this relationship.

III. Effects of media ESG spotlight and the cost of debt

In this section, we first propose baseline regressions to examine the effect of appearing on the best ESG list on the cost of debt. Next, for firms on the best ESG list, we use a change-on-change setting to examine what impact a change in the ranking has on the change in debt financing costs.

Baseline regression

In this subsection, we examine the effect of appearing on the best ESG list on the cost of debt. Specifically, the baseline regression is established as follows

$$CoD_{i,t} = \alpha + List_{i,t-1} + \Phi Controls_{i,t-1} + Fixed\ Effects + \epsilon_{i,t} \quad (1)$$

The dependent variable is the cost of debt, which is defined as interest expenses divided by interest-bearing liabilities. The key independent variable is *List*, which is a dummy variable that equals 1 if a firm *i* is on the best ESG list in year *t* and 0 otherwise. ϵ

heterogeneity between state-owned and non-state-owned companies (Du et al.

sample. We report the results using 1-to-1 (column (1)), 1-to-3 (column (2)), and 1-to-5 (column (3)) matched samples with the controls and firm- and year-fixed effects. Our results are consistent, and the coefficients of *List* are all significantly negative.

Table 2 shows that a negative relation exists between media coverage of corporate ESG performance and the cost of debt. The market rewards firms that appear on the best ESG list with lower costs of debt compared to their counterparts. Further, we choose an official newspaper as a robustness test. Guided by Chen, Hung, and Wang (2018), we rerun the baseline regressions using the list of firms receiving the People's Corporate Social Responsibility Award – presented by the *People's Daily*, a well-known official Communist Party newspaper – from 2015 to 2017. The results, included in the online appendix, show that firms receiving this award have a lower cost of debt than their counterparts. Therefore, the cross-reference results also strongly indicate that the media spotlight on ESG significantly reduces the cost of debt.³

IV. Endogeneity tests

Section III shows that a significantly negative relation exists between media spotlight of corporate ESG performance and the cost of debt. However, potential endogeneity issues may render the observed relation suspicious. In this section, we exploit features of the best ESG list to test endogeneity in three ways. First, we use entry onto or exit from the list as a media shock to address causality. Second, we use initial rankings as an instrument variable to run 2SLS regressions. Third, we use the two-level system GMM regressions to address the dynamic relations between media ESG spotlight and the cost of debt.

The entry

In this subsection, we use DID examinations to identify the causal relation between media spotlight of corporate ESG performance and the cost

of debt. Specifically, we use firms' entry onto or exit from the best ESG list as a media shock and examine these firms' change in cost of debt relative to their counterparts. We choose firms that newly enter (or exit) the best ESG list as the treated group and use the PSM method to obtain a control group. The firms in the control group have never appeared on the best ESG list. The DID regression is as follows:

The end

Next, we use the IV approach to mitigate potential endogeneity concerns. We use a firm's initial ranking (*IRank*) on the best ESG list as an instrument (Benlemlih and Bitar 2018; Bhandari and Javakhadze 2017). The initial ranking is related to future ranking performance,

significantly negative. Thus, the 2SLS regressions show that higher media ESG ranking leads to lower debt financing costs.

7.2. Endogeneity

Finally, we use the two-level system GMM method to substantiate our findings (Arellano and Bond 1991). We include the lagged *CoD* in the baseline regression Equation (1) and obtain dynamic panel data. The regression is specified as follows.

$$CoD_{i,t} = \beta_0 + \beta_1 List_{i,t-1} + \beta_2 CoD_{i,t-1} + \Phi Controls_{i,t-1} + Fixed\ Effects + \epsilon_{i,t} \quad (6)$$

Column (3) of Table 4 reports the results of the GMM estimation. The coefficient of *List* remains significantly negative after including the lagged *CoD* in the regression. The *p*-value of the Hansen test is greater than 0.1, indicating that there is no over-identification. The results of AR (1) and AR (2) tests, respectively, indicate that the autocorrelation exists with respect to the first-order difference of the disturbance term, and it does not exist with respect to the second-order difference, which are in line with the requirements of the system GMM method. Taken together, these tests validate the results of the two-level system GMM method. The negative relation between media spotlight of corporate ESG performance and the cost of debt is robust.

Overall, the endogeneity tests – the DID regressions, IV approach, and GMM estimation – show that positive media spotlight of corporate ESG performance can lead to lower cost of debt, which is consistent with the results of the baseline regressions.

V. Channel analyses

In this section, we investigate three channels through which the media spotlight on corporate ESG performance can affect the cost of debt: reputation, operational risk, and corporate transparency. Following Deng, Li, and Li (2018), we use a two-step approach to carry out channel analysis for each channel variable. In the first step, we

confirm that there is a significant link between the media spotlight, a channel variable, and the cost of debt. Further, because the fitted value of the dependent variable in the first-stage regression contains the largest correlation between the channel variable and the media spotlight, in the second-stage regression, if we find a significant relationship between the cost of debt and the fitted value, we can conclude that the media spotlight on ESG significantly affects the cost of debt through the hypothesized channel variables. We also use the intersection term approach to corroborate our findings and report the results in the online appendix.

5.1. Corporate ESG

Corporate ESG is an important source of moral capital while media spotlight can enhance corporate reputation among stakeholders. Corporate reputation is a key factor in reducing debt financing costs (Barakat et al. 2019; Du, Bhattacharya, and Sen 2011; Liu, McConnell, and Xu 2017; Liu and McConnell 2013). Hence, we posit that media spotlight of corporate ESG performance can reduce the cost of debt by increasing corporate reputation. We measure a firm's reputation from the perspective of its trade credit in the supply chain (*SC*) (Bae et al. 2019; Gualandris et al. 2015; Porteous, Rammohan, and Lee 2015). *SC* is calculated as (accounts payable + advance from customers – accounts receivable – advances to suppliers)/total assets. Greater *SC* means greater trade credit and better corporate reputation in the supply chain. We first examine the relation between corporate reputation on the supply chain and media spotlight of corporate ESG performance as follows:

$$SC_{i,t} = \beta_0 + \beta_1 List_{i,t-1} + \Phi Controls_{i,t-1} + Fixed\ Effects + \epsilon_{i,t} \quad (7)$$

Next, we identify the relation between corporate supply chain reputation and the cost of debt:

$$CoD_{i,t} = \beta_0 + \beta_1 SC_{i,t-1} + \Phi Controls_{i,t-1} + Fixed\ Effects + \epsilon_{i,t} \quad (8)$$

Finally, we carry out a two-stage analysis. In the first step, we obtain the fitted value of the dependent variable (*Fit_SC*) from Equation (7). In

the second step, we replace SC with the fitted value Fit_SC in Equation (8) and obtain the following regression:

$$CoD_{it} = \alpha_0 + \alpha_1 Fit_SC_{i,t-1} + \Phi Controls_{i,t-1} + Fixed\ Effects + \epsilon_{it} \quad (9)$$

In Equations (7) to (9), all of the control variables and fixed effects are the same as in Equation (1). In Equation (7), if α_1 is significantly positive, then media spotlight of corporate ESG performance can promote corporate reputation on the supply chain. In Equation (8), if α_1 is significantly negative, then corporate supply chain reputation can reduce the cost of debt. In Equation (9), if α_1 is significantly negative, then corporate reputation is a channel through which media spotlight of corporate ESG performance can reduce the cost of debt.

Panel A of Table 5 reports the results of testing supply chain reputation as a channel through which media spotlight of corporate ESG performance can reduce the cost of debt. Column (1) reports the results of Equation (7). The coefficient of $List$ is significantly positive, indicating that media spotlight of corporate ESG performance can enhance corporate reputation in the supply chain. Column (2) shows the results of Equation (8). The coefficient of SC is significantly negative at the 5% level, indicating that corporate supply chain reputation can reduce the cost of debt. Column (3) shows the results of Equation (9). The coefficient of Fit_SC is significantly negative at the 1% level. Taking these results together, we conclude that media spotlight of corporate ESG performance improves corporate reputation, which is a channel for reducing the cost of debt.

Financial risk

The second channel draws on risk perception theory (Albuquerque, Koskinen, and Zhang 2018; Byun and Oh 2018; Du et al. 2017; Goss and Roberts 2011; Sharfman and Fernando 2008). The cost of debt is essentially compensation for financial risk. Media spotlight of corporate ESG performance is helpful in reducing corporate risk exposure (Chava 2014; Du et al. 2017; Gong, Xu, and Gong 2018; Goss and Roberts 2011; Tsai, Lu, and Hung 2016; Ye and Zhang 2011). Therefore,

media spotlight of corporate ESG performance can reduce financial risk and thereby reduce the cost of debt. We use the degree of financial leverage (DFL) to measure corporate financial risk. DFL refers to the elasticity of EPS relative to $EBIT$, which is calculated as $DFL = \frac{EPS-EBIT}{EBIT-EBIT}$.

We first test the relation between financial risk and media spotlight of corporate ESG performance

$$DFL_{it} = \alpha_0 + \alpha_1 List_{i,t-1} + \Phi Controls_{i,t-1} + Fixed\ Effects + \epsilon_{it} \quad (10)$$

Next, we identify the relation between the cost of debt and financial risk:

$$COD_{it} = \alpha_0 + \alpha_1 DFL_{i,t-1} + \Phi Controls_{i,t-1} + Fixed\ Effects + \epsilon_{it} \quad (11)$$

Finally, we carry out a two-stage analysis. In the first step, we obtain the fitted value of the dependent variable (Fit_DFL) from Equation (10). In the second step, we replace DFL with Fit_DFL in Equation (11) and obtain the following regression:

$$COD_{it} = \alpha_0 + \alpha_1 Fit_DFL_{i,t-1} + \Phi Controls_{i,t-1} + Fixed\ Effects + \epsilon_{it} \quad (12)$$

In Equations (10) to (12), all of the control variables and fixed effects are the same as in Equation (1). In Equation (10), if α_1 is significantly negative, then media spotlight of corporate ESG performance can reduce corporate financial risk. In Equation (11), If α_1 is significantly positive, then financial risk can increase the cost of debt. In Equation (12), if α_1 is significantly positive, then financial risk is a channel through which media spotlight of corporate ESG performance can reduce the cost of debt.

Panel B of Table 5 presents the results of testing financial risk as a channel through which media spotlight of corporate ESG performance can reduce the cost of debt. Column (1) reports the results of Equation (10). The coefficient of $List$ is significantly negative, indicating that media spotlight of corporate ESG performance can reduce financial risk. Column (2) reports the results of Equation (11). The coefficient of DFL is significantly positive at the 1% level, indicating that higher financial risk leads to a higher cost of debt. Column (3) reports

the results of Equation (12). The coefficient of *Fit_DFL* is also significantly positive. Taking these findings together, we conclude that media spotlight of corporate ESG performance can reduce financial risk and thereby reduce the cost of debt.

Corporate transparency

The third channel draws on information asymmetry theory, which assumes that corporate transparency reduces financing costs (Byun and Oh 2018; Francis, Nanda, and Olsson 2008). Research shows that media attention significantly affects analysts' spotlight, which proxies for corporate transparency (Frijns and Huynh 2018). Therefore, the third mechanism that we propose is that media spotlight of corporate ESG performance can reduce the cost of debt by increasing corporate transparency. We use the number of analysts covering a firm (*NAnalysts*) to measure corporate transparency. If appearing on the best ESG list is associated with higher analyst spotlight, it can reduce information asymmetry and enhance corporate transparency.

We first test the relation between media spotlight of corporate ESG performance and corporate transparency:

$$NAnalysts_{i,t} = \alpha_0 + \alpha_1 List_{i,t-1} + \Phi Controls_{i,t-1} + Fixed\ Effects + \epsilon_{i,t} \tag{13}$$

Next, we identify the relation between corporate transparency and the cost of debt:

$$CoD_{i,t} = \alpha_0 + \alpha_1 NAnalysts_{i,t-1} + \Phi Controls_{i,t-1} + Fixed\ Effects + \epsilon_{i,t} \tag{14}$$

Finally, we carry out a two-stage analysis. In the first step, we obtain the fitted value of the dependent variable (*Fit_NAnalysts*) from Equation (13). In the second step, we replace *NAnalysts* with *Fit_NAnalysts* in Equation (14) and obtain the following regression:

$$CoD_{i,t} = \alpha_0 + \alpha_1 Fit_NAnalysts_{i,t-1} + \Phi Controls_{i,t-1} + Fixed\ Effects + \epsilon_{i,t} \tag{15}$$

Table 5. Channel analyses.

	(1)	(2)	(3)
Panel A. Reputation on the supply chain			
	Equation (7)	Equation (8)	Equation (9)
Dependent variables:	SC	CoD	CoD
<i>List</i>	0.011*** (2.88)		
SC		-0.010** (-2.24)	
<i>Fit_SC</i>			-0.065*** (-3.85)
<i>Constant</i>	-0.132*** (-5.14)	0.137*** (6.98)	0.114*** (7.61)
Control variables	YES	YES	YES
Firm FE	YES	YES	YES
Year FE	YES	YES	YES
Adj. R ²	0.110	0.027	0.209
Observations	13,673	13,673	13,673
Panel B. Financial risk			
	Equation (10)	Equation (11)	Equation (12)
Dependent variables:	DFL	CoD	CoD
<i>List</i>	-0.207*** (-4.44)		
DFL		0.024*** (5.35)	
<i>Fit_DFL</i>			0.194*** (3.19)
<i>Constant</i>	0.820*** (4.80)	0.239*** (3.98)	0.332*** (5.69)
Control variables	YES	YES	YES
Firm FE	YES	YES	YES
Year FE	YES	YES	YES
Adj. R ²	0.210	0.294	0.303
Observations	11,605	11,605	11,605
Panel C. Corporate transparency			
	Equation (13)	Equation (14)	Equation (15)
Dependent variables:	<i>NAnalysts</i>	CoD	CoD
<i>List</i>	3.498** (2.21)		
<i>NAnalysts</i>		-0.020*** (-3.55)	
<i>Fit_NAnalysts</i>			-0.025*** (-8.53)
<i>Constant</i>	-69.274*** (-5.92)	0.107*** (6.23)	-0.065*** (-4.60)
Control variables	YES	YES	YES
Firm FE	YES	YES	YES
Year FE	YES	YES	YES
Adj. R ²	0.606	0.284	0.261
Observations	13,673	13,673	13,673

This table reports the results of channel analyses using two-step regressions. Panel A reports the results of testing corporate supply chain reputation. Panel B reports the results of testing corporate operational risk. Panel C reports the results of testing corporate transparency. Appendix B shows the definitions of all of the variables. Robust t-statistics are reported in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

In Equations (13) to (15), all of the control variables and fixed effects are the same as in Equation (1). In Equation (13), if α_1 is significantly positive, then media spotlight of corporate ESG performance can enhance corporate transparency. In Equation (14), if α_1 is significantly negative, then

Table 6. The heterogeneity effect of Media ESG spotlight on the cost of debt.

	(1) Equation (16) Corporate governance	(2) Equation (17) Air pollution
<i>List*LCG</i>	-0.002** (-2.35)	
<i>List*HAP</i>		-0.001* (-1.85)
<i>List</i>	-0.002* (-1.66)	-0.001* (-1.80)
<i>Size</i>	-0.030*** (-6.04)	-0.020*** (-3.42)
<i>ROA</i>	-0.017*** (-6.92)	-0.016*** (-6.28)
<i>Lev</i>	0.091*** (7.19)	0.040*** (7.23)
<i>SG</i>	-0.012** (-1.99)	-0.010* (-1.84)
<i>AT</i>	0.011 (0.64)	0.061 (0.67)
<i>Own</i>	-0.073* (-1.79)	-0.072* (-1.94)
<i>State</i>	-0.002 (-0.95)	-0.004** (-2.38)
<i>Constant</i>	0.029** (2.21)	0.042*** (3.57)
Firm FE	YES	YES
Year FE	YES	YES
Adj. R ²	0.093	0.355
Observations	13,673	13,673

This table reports the results of heterogeneity tests. Column (1) report results of testing the effect of media ESG spotlight on the cost of debt in high and low corporate governance firms. Column (2) report results of testing the effect of media ESG spotlight on the cost of debt for firms locating in high and low air pollution provinces. Appendix B presents the definitions of all of the variables. Robust t-statistics are reported in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

$$CoD_{i,t} = \beta_1 List_{i,t-1} * HAP_{i,t-1} + \beta_2 List_{i,t-1} + \Phi Controls_{i,t-1} + Fixed Effects + \epsilon_{i,t} \quad (17)$$

where *List* is a dummy variable that equals 1 if a firm is on the best ESG list and 0 otherwise. *HAP* is also a dummy variable that equals 1 if a firm locates in the high-air-pollution province and 0 otherwise. The coefficient of the interaction term *List*HAP* is our main interest.

Column (2) of Table 6 reports the results of the subsample regressions for firms located in high- and low-air-pollution provinces. We find the coefficient of *List*HAP* is significantly negative at the 10% level, indicating media ESG spotlight reduces more cost of debt to for firms locating in high-air-pollution provinces. Lenders tend to be more concerned with the ESG issues of firms located in high-air-pollution areas, and our results show that positive media spotlight mitigates this concern to a greater extent.

VIII. Conclusion

We examine the relation between media spotlight of corporate ESG performance and the cost of debt using the *Southern Weekly* best ESG list as a proxy for positive media ESG spotlight. We show that debt financing costs are significantly lower for firms that appear on the best ESG list compared to firms that do not. This result is confirmed using a PSM-matched sample. The results of change-on-change regression show that an increase in the ranking on the best ESG list can reduce the cost of debt. Thus, a significantly negative relation exists between media spotlight of corporate ESG performance and the cost of debt.

Our results are robust when we implement three endogeneity examinations. First, we use entry onto and exit from the best ESG list as a media attention shock to test the relation between media spotlight of corporate ESG performance and the cost of debt. We find that entering the list reduces the cost of debt in the subsequent period, whereas the effect of exiting the list is limited. Second, we use the initial ranking on the best ESG list as an instrumental variable, and the results of 2SLS regressions show a negative relation between media rankings of corporate ESG and the cost of debt. Third, we use the two-level system GMM estimation to control for the dynamic relations between media spotlight of corporate ESG performance and the cost of debt, and the results are consistent.

We also provide evidence that positive media spotlight of corporate ESG performance can improve corporate reputation, reduce financial risk, and enhance corporate transparency, all of which reduce the cost of debt.

Lastly, we find that media spotlight of corporate ESG performance reduces the cost of debt for firms with poor corporate governance to a greater extent, revealing the substitutionary role of media ESG spotlight in reducing the cost of debt for such firms. In addition, we show that media ESG spotlight has a greater effect on reducing the cost of debt for firms located in provinces with worse air pollution. Media spotlight mitigates lenders' concerns about the ESG of firms in heavy-pollution provinces to a greater extent than firms in low-pollution provinces. In this figure, we illustrate the mean cost of debt of firms on the best ESG list. We assign these firms to five groups

based on their rankings. The x-axis indicates the five groups from the top 20 to the bottom 20, and the y-axis indicates the mean value of the cost of debt as a percentage.

Acknowledgments

We thank Bing Han, Jacquelyn Humphrey and Lin Peng for their helpful comments. This research is partially supported by the National Natural Science Foundation of China (grant numbers 71903036, 72102042), Fundamental Research Funds for Central universities, UIBE (CXTD12-03) and MOE (Ministry of Education in China) Project of Humanities and Social Sciences (Project No.21YJC630026). We remain responsible for all errors and omissions.

Disclosure statement

No potential conflict of interest was reported by the author(s).

References

- Ahmad, K., J. G. Han, E. Hutson, C. Kearney, and S. Liu. 2016. "Media-Expressed Negative Tone and Firm-Level Stock Returns." *Journal of Corporate Finance* 37: 152–172. doi:10.1016/j.jcorpfin.2015.12.014.
- Albuquerque, R., Y. Koskinen, and C. Zhang. 2018. "Corporate Social Responsibility and Firm Risk: Theory and Empirical Evidence." *Management Science* 65 (10): 4451–4949.
- Allen, F., J. Qian, and X. Gu. 2017. "An Overview of China's Financial System." *Annual Review of Financial Economics* 9 (1): 191–231.

- Financial Transparency.” *Journal of Accounting and Public Policy* 33 (4): 328–355. doi:10.1016/j.jaccpubpol.2014.04.006.
- Dougal, C., J. Engelberg, D. GarcíGarcía, and C. A. Parsons. 2012. “Journalists and the Stock Markettle.” *The Review of Financial Studies* 25 (3): 639–679. doi:10.1093/rfs/hhr133.
- Du, S., C. B. Bhattacharya, and S. Sen. 2011. “Corporate Social Responsibility and Competitive Advantage: Overcoming the Trust Barrier.” *Management Science* 57 (9): 1528–1545. doi:10.1287/mnsc.1110.1403.
- Du, X., J. Weng, Q. Zeng, Y. Chang, and H. Pei. 2017. “Do Lenders Applaud Corporate Environmental Performance? Evidence from Chinese Private-Owned Firms.” *Journal of Business Ethics* 143 (1): 179–207. doi:10.1007/s10551-015-2758-2.
- Dyck, A., A. Morse, and L. Zingales. 2010. “Who Blows the Whistle on Corporate Fraud?” *The Journal of Finance* 65 (6): 2213–2253. doi:10.1111/j.1540-6261.2010.01614.x.
- Eichholtz, P., R. Holtermans, N. Kok, and E. Yönder. 2019. “Environmental Performance and the Cost of Debt: Evidence from Commercial Mortgages and REIT Bonds.” *Journal of Banking & Finance* 102: 19–32. doi:10.1016/j.jbankfin.2019.02.015.
- El Ghouli, S., O. Guedhami, C. C. Y. Kwok, and D. R. Mishra. 2011. “Does Corporate Social Responsibility Affect the Cost of Capital?” *Journal of Banking and Finance* 35 (9): 2388–2406. doi:10.1016/j.jbankfin.2011.02.007.
- Eliwa, Y., A. Aboud, and A. Saleh. 2019. “ESG Practices and the Cost of Debt: Evidence from EU Countries.” *Critical Perspectives on Accounting* 79 (9): 102097.
- Fang, L. H., J. Peress, and L. Zheng. 2014. “Does Media Coverage of Stocks Affect Mutual Funds’ Trading and Performance?” *The Review of Financial Studies* 27 (12): 3441–3466. doi:10.1093/rfs/hhu056.
- Fang, L., and J. Peress. 2009. “Media Coverage and the Cross-Section of Stock Returns.” *The Journal of Finance* 64 (5): 2023–2052. doi:10.1111/j.1540-6261.2009.01493.x.
- Ferrell, A., H. Liang, and L. Renneboog. 2016. “Socially Responsible Firms.” *Journal of Financial Economics* 122 (3): 585–606. doi:10.1016/j.jfineco.2015.12.003.
- Flammer, C. 2015. “Does Corporate Social Responsibility Lead to Superior Financial Performance? A Regression Discontinuity Approach.” *Management Science* 61 (11): 2549–2568. doi:10.1287/mnsc.2014.2038.
- Focke, F., E. Maug, and A. Niessen-Ruenzi. 2017. “The Impact of Firm Prestige on Executive Compensation.” *Journal of Financial Economics* 123 (2): 313–336. doi:10.1016/j.jfineco.2016.09.011.
- Francis, J., D. Nanda, and P. Olsson. 2008. “Voluntary Disclosure, Earnings Quality, and Cost of Capital.” *Journal of Accounting Research* 46 (1): 53–99. doi:10.1111/j.1475-679X.2008.00267.x.
- Frijns, B., and T. D. Huynh. 2018. “Herding in Analysts’ Recommendations: The Role of Media.” *Journal of Banking and Finance* 91: 1–18. doi:10.1016/j.jbankfin.2018.03.010.
- Gao, H., J. Wang, Y. Wang, C. Wu, and X. Dong. 2019. “Media Coverage and the Cost of Debt.” *Journal of Financial and Quantitative Analysis* 55 (2): 429–471.
- Gao, P., C. Lee, and D. Murphy. 2019. “Financing Dies in Darkness? The Impact of Newspaper Closures on Public Finance.” *Journal of Financial Economics* 135 (2): 445–467.
- GarcíGarcía, D. 2013. “Sentiment During Recessions.” *The Journal of Finance* 68 (3): 1267–1300. doi:10.1111/jofi.12027.
- Gerber, A. S., D. Karlan, and D. Bergan. 2009. “Does the Media Matter? A Field Experiment Measuring the Effect of Newspapers on Voting Behavior and Political Opinions.” *American Economic Journal. Applied Economics* 1: 35–52.
- Gong, G., S. Xu, and X. Gong. 2018. “On the Value of Corporate Social Responsibility Disclosure: An Empirical Investigation of Corporate Bond Issues in China.” *Journal of Business Ethics* 150 (1): 227–258. doi:10.1007/s10551-016-3193-8.
- Goss, A., and G. S. Roberts. 2011. “The Impact of Corporate Social Responsibility on the Cost of Bank Loans.” *Journal of Banking & Finance* 35 (7): 1794–1810. doi:10.1016/j.jbankfin.2010.12.002.
- Griffin, J. M., N. H. Hirschey, and P. J. Kelly. 2011. “How Important is the Financial Media in Global Markets?” *The Review of Financial Studies* 24 (12): 3941–3992. doi:10.1093/rfs/hhr099.
- Griffin, P. A., T. Neururer, and E. Y. Sun. 2018. “Environmental Performance and Analyst Information Processing Costs.” *Journal of Corporate Finance* 61 (4): 101397.
- Gualandris, J., R. D. Klassen, S. Vachon, and M. Kalchschmidt. 2015. “Sustainable Evaluation and Verification in Supply Chains: Aligning and Leveraging Accountability to Stakeholders.” *Journal of Operations Management* 38 (1): 1–13. doi:10.1016/j.jom.2015.06.002.
- Jiraporn, P., N. Jiraporn, A. Boeprasert, and K. Chang. 2014. “Does Corporate Social Responsibility (CSR) Improve Credit Ratings? Evidence from Geographic Identification.” *Financial Management* 43 (3): 505–531. doi:10.1111/fima.12044.
- Kaniel, R., and R. Parham. 2017. “WSJ Category Kings – the Impact of Media Attention on Consumer and Mutual Fund Investment Decisions.” *Journal of Financial Economics* 123 (2): 337–356. doi:10.1016/j.jfineco.2016.11.003.
- Liang, H., and L. Renneboog. 2017. “On the Foundations of Corporate Social Responsibility.” *The Journal of Finance* 72 (2): 853–910. doi:10.1111/jofi.12487.

