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## Article

# Do bond investors attend to corporate targeted poverty alleviation?

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## Do bond investors attend to corporate targeted poverty alleviation?

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### ABSTRACT

This paper incorporates corporate targeted poverty alleviation behaviour into the bond pricing framework for the first time, using a sample of A-share listed companies that issued corporate bonds from 2016 to 2018 to study the impact and mechanism of targeted poverty alleviation behaviour on bond credit spreads. We find that bond-issuing companies' targeted poverty alleviation behaviour can significantly reduce bond credit spreads, which are more pronounced in subsamples with higher credit risk and lower credit rating and of active participants. In addition, companies' targeted poverty alleviation behaviour has improved corporate reputation and strategic resource acquisition and reduced information asymmetry and agency costs. Consequently, these results indicate that corporate targeted poverty alleviation is essentially embodied as value features, not tool features, and bond investors can identify the true motivations of engaged enterprises.

### KEYWORDS

Targeted poverty alleviation;  
bond credit spreads;  
motivation for targeted  
poverty alleviation

## 1. Introduction

Since November 2013, President Xi Jinping first issued important instructions on targeted poverty alleviation, and China's poverty alleviation has entered a new stage of targeted poverty alleviation. As a national strategy, it is an innovative form of poverty alleviation that combines government-led and market mechanisms for Chinese special national conditions (Gong, 2016). The engagement of listed firms in response to the call of the Communist Party and the State is a new form of corporate social responsibility (CSR).

However, CSR has been controversial since its inception, giving rise to two distinct hypotheses: the instrumental hypothesis and the value creation hypothesis of CSR. The instrumental hypothesis holds that companies engage in CSR, such as charitable donations, to cover up or divert public attention from other corporate misconduct or inherent CSR deficiencies through charity and to reduce reputation loss (Gao et al., 2012). Furthermore, managers may use CSR tools to enhance their professional reputation and social influence motivated by self-interest (Barnea & Rubin, 2010; Cespa &

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Cestone, 2007). Moreover, to cover up unethical behaviour, they may also use CSR tools to divert negative news and cover up problems in operating performance (Tian & Wang, 2017). The value creation hypothesis believes that CSR can send a signal to the market that the enterprise is in a good business condition. In addition, CSR helps reduce information asymmetry, improve brand awareness and establish a good public image for corporations. Consequently, this provides a stable institutional environment and necessary resource support for corporate subsequent development (Dai et al., 2014; Feng et al., 2016; Goss & Roberts, 2011; Li et al., 2016; Song et al., 2017; Wu & Wang, 2016; Zhang et al., 2013; Zhou et al., 2016). Simultaneously, CSR is also an important way for managers to convey 'good management' to stakeholders of managerial teams' competence and trustworthiness, thus eventually limiting the potential moral hazards arising from agency risks (Oikonomou et al., 2014; Waddock & Graves, 1997).

Moreover, corporate targeted poverty alleviation is different from general CSR. Targeted poverty alleviation is a national strategy, and it has become the most important livelihood project for units and governments at all levels in China. According to Li (2012), when CSR rises to the national development strategy and becomes a focus of concern for the central government, fulfilling CSR in China may reflect the will of the government more rather than enterprises' completely independent will. The literature demonstrated that different motivations for CSR can have completely opposite economic consequences for firms, with voluntary CSR being able to increase firm value (Godfrey, 2005; Servaes & Tamayo, 2013; Tang & Yang, 2016). However, passive CSR not only fails to increase firm value but also damages it (Demsetz & Lehn, 1985; Manchiraju & Rajgopal, 2017). Not only do we have to ask whether investors in the Chinese capital market attend to corporate targeted poverty alleviation? If so, which is the hypothesis suitable for it in China? What is the real motivation for engagement enterprise? Is it an act caused by invisible local government pressure? Or is it a voluntary behaviour undertaken by enterprises of their own accord? These are the main research questions of this paper.

Based on the above controversy, this paper applies a sample of A-share listed companies that issued corporate bonds from 2016 to 2018 to study the impact and mechanism of corporate targeted poverty alleviation behaviour on bond credit spreads. We find that bond-issuing companies' targeted poverty alleviation behaviour can significantly reduce bond credit spreads, which are more pronounced in subsamples with higher credit risk and lower credit rating and of active participants. In addition, companies' targeted poverty alleviation behaviour has improved corporate reputation and strategic resource acquisition and reduced information asymmetry and agency costs. These results suggest that bond investors not only attend to corporate targeted poverty alleviation but also give a positive market reaction while paying more attention to voluntary behaviour. Consequently, this indicates that corporate targeted poverty alleviation is essentially embodied as value creation features, not tool features, and bond investors can identify the true motivations of engagement enterprises.

We investigate the above issues from the perspective of bond credit spreads for the following reasons. First, the bond market has the least internal information compared with the stock market, and bond investors rely on public information more for trading (Zhao et al., 2021). Corporate targeted poverty alleviation behaviour has conveyed a large

amount of nonfinancial information to the market, which is more likely to be incorporated into the bond pricing framework by bond investors as an important reference for their investment transactions. Second, the Chinese stock market is dominated by retail investors, while mainly institutional investors are in the bond market (Wu & Wang, 2016). Their information processing capacity is less subject to market noise and can identify the real motivation of engagement enterprises. Simultaneously, institutional investors tend to be more rational in the market, while retail investors are susceptible to 'impulsive' investments due to the lack of accurate information or irrational regard of noise as information (Locke & Mann, 2005). Third, unlike equity financing, creditors do not enjoy the residual claim of the firm. Once the bond is issued, the risk and return of creditors are asymmetric. They cannot receive any extra returns other than the principal and interest if the project is successful, while they may lose all if it fails. Therefore, creditors are more presumably seeking stability than shareholders and are more concerned about the sustainability of the enterprise and the potential risk of project failure (Allen et al., 2015; Ni, 2020). For this reason, we select the bond market for research, which can objectively evaluate the impact of corporate targeted poverty alleviation on the long-term development of enterprises. As an effective mechanism to convey credit risk to the market (Badoer & Demiroglu, 2019), bond credit spreads are predictive of credit defaults and contribute to bond risk management and pricing (Zhou et al., 2012). If bond investors attend to the targeted poverty alleviation of enterprises, the market reaction is likely to be manifested in the form of bond credit spreads.

This study contributes to the literature as follows. First and foremost, it has important theoretical implications. We empirically verify the essential characteristics of corporate targeted poverty alleviation in the Chinese capital market and the real motivation of engagement enterprises. These findings are in favour of the development of principal-agent theory and related CSR theories. Subsequently, this paper extends the literature on the economic consequences of corporate targeted poverty alleviation based on the bond market for the first time in China. The literature has provided empirical evidence on the impact on short-term financial performance (Hu & Zhang, 2020; Zhang & Dong, 2020), while bond credit spreads reflect the long-term development prospects of enterprises to a certain extent. It is helpful to understand the impact on the long-term value and sustainable development of enterprises. Again, this study reveals the mechanisms between corporate poverty alleviation and bond credit spreads to some extent. Specifically, corporate targeted poverty alleviation has improved corporate reputation and strategic resource acquisition and reduced information asymmetry and agency costs. At last, our findings provide important implications for managers on credit risk management and government departments on establishing a long-term poverty reduction mechanism.

The remainder of this paper proceeds as follows. [Section 2](#) details our hypothesis development. [Section 3](#) outlines our research design. [Section 4](#) discusses the empirical results and cross-sectional analysis. [Section 5](#) displays further research. [Section 6](#) demonstrates the robustness tests. [Section 7](#) presents our conclusions and offers policy implications.

## 2. Hypothesis development

### 2.1. *The instrumental hypothesis*

nitially, in accordance with shareholder theory, excessive CSR will occupy resources under the condition of limited corporate cash flow, which may lead to companies reducing strategic expenditures such as R&D investment and long-term investment. These result in weakened corporate competitiveness and reduced firm value (Friedman, 1970). CSR may only be a tool for crisis management, aiming at reducing reputation loss in crisis events. For instance, Gao et al. (2012) argue that companies engage in CSR, such as charitable donations, to cover up or divert public attention from other corporate misconduct or inherent CSR deficiencies through charity and reduce reputation loss. Bond investors identify the real motivations and adverse effects on the long-term development of enterprises to fulfill their CSR; they will raise the risk premium charges, leading to an increase in bond credit spreads.

Furthermore, agency conflict is an important factor affecting the interests of creditors and shareholders (Jensen & Meckling, 1976). In accordance with principal-agent theory, CSR may be a masking tool for shareholders or managers to engage in benefit appropriation. First, it is probable that managers make investment decisions that are detrimental to creditors' interests aiming to maximise shareholders' interests (Jensen & Meckling, 1976; Smith & Warner, 1979). Unlike equity financing, creditors do not have residual claims. Once the bond is issued, the risk and return of creditors are asymmetric. Managers may use CSR tools to infringe on the interests of creditors, such as asset substitution, to maximise the interests of shareholders. Second, managers have the opportunistic motivation and may take advantage of CSR to enhance their professional reputation and social influence or abuse CSR to conceal unethical behaviour (Barnea & Rubin, 2010; Cespa & Cestone, 2007). Consequently, CSR helps shift negative news and disguises business mismanagement so that CSR only has tool characteristics rather than value creation characteristics (Quan et al., 2015; Tian & Wang, 2017). Simultaneously, CSR information is manifested as a masking effect rather than a communication effect, increasing the difficulty for bond investors to detect bad news concealment behaviour promptly, and there are potential security risks to the rights and interests of creditors. To protect their rights and interests from infringement, bond investors will raise the risk premium charges, thus increasing bond credit spreads.

In short, corporate targeted poverty alleviation complies with the instrumental hypothesis. It may be a tool for crisis management, aiming to reduce reputation loss in crisis events. Managers may take advantage of enhancing their professional reputation and social influence or disguising business mismanagement and encroaching on the wealth of shareholders and creditors under the guise of targeted poverty alleviation. Bond investors identify the real motivations of the engagement enterprise and its adverse effects on them, thereby increasing bond credit spreads. Consequently, founded on the instrumental hypothesis, we propose H1a:

**H1a:** The corporate targeted poverty alleviation increases bond credit spreads.

## 2.2. *The value creation hypothesis*

First, CSR can help companies obtain indispensable resources and support from stakeholders. Stakeholder theory holds that companies should go beyond the benefits of shareholders and consider a broader group of stakeholders' benefits (Freeman, 1984). Fulfilling CSR is an important way for companies to obtain indispensable resources and stakeholder support (Jones, 1995). According to resource dependence theory, any organisation needs to obtain necessary resources from the external environment, which causes the dependence of the resource demander on the resource controller. In the context of China, the government controls the resource allocation that is related to the survival and sustainable development of companies, thus making the establishment of ties with the government an important resource that the company needs to possess. Targeted poverty alleviation is a national strategy and has become the most important livelihood project for units and governments at all levels. Local governments have the political task of launching it and comprehensively eliminating absolute poverty under the current standards. To reduce the pressure of poverty alleviation and ensure the successful completion of the tasks, local governments will mobilise enterprises to engage. In addition, policy support and resource allocation will be tilted towards engaged enterprises aiming at guiding enterprises to actively engage in targeted poverty alleviation (Zhen & Wang, 2021). Enterprises assist the local government to alleviate assessment pressure and strengthen the interaction between enterprises and government by responding to the government's call to engage in poverty alleviation, which is capable of helping establish and maintain a close relationship with the government. This means that it will form an invisible contract such as political connection and gain a competitive advantage in the competition for scarce resources and institutional environment stability. The literature demonstrates that enterprises engaged in targeted poverty alleviation help establish and maintain close relationships with the government and facilitate the acquisition of scarce resources such as government subsidies and bank loans (Nie et al., 2020; Hu & Zhang, 2020; Zhen & Wang, 2021). As a result, these scarce resources provide a guarantee for the sustainable development of enterprises.

Second, 'being rich but not benevolent' has always been despised by Chinese culture in China. Integrating business behaviour into the trend of social development and being proactive in solving problems and sharing worries of society is the only way for enterprises to obtain long-term development (Chen & Jia, 2003). Fulfilling CSR can establish a highly socially responsible image and improve corporate reputation, which is beneficial to building close relationships with stakeholders. For instance, Feng et al. (2016) suggest that reputational capital has an insurance effect on companies to divert public attention from misconduct. Mitigating the negative impact of crisis events that will occur on the future development of companies, which is beneficial to improving the ability to respond to changes in the financial environment and reducing financial risks (Cheng et al., 2014; Goss & Roberts, 2011). In addition, fulfilling CSR generates positive moral capital to achieve value integration between enterprises and investors will constitute a company's competitive advantage (Wu & Wang, 2016). Positive moral capital can enhance customer loyalty and improve employee attraction and retention rates, which are eligible to negotiate with the government. Ultimately, the engaged

companies will be rewarded for improving profitability and obtaining capital (Wu & Wang, 2016). Bond investors anticipate that enterprises' bright development prospects and sufficient cash flow to repay debts, they lower the risk premium charges and reduce bond credit spreads.

Third, enterprises actively fulfilling their CSR can reduce information asymmetry. CSR can convey a large amount of nonfinancial information to the market, which has an information communication effect and can reduce information asymmetry (Song et al., 2017). In the bond market, investors are composed of information superiors and information inferiors. Information superiors have more private information about bond issuers' operating conditions and cash flows over information inferiors. As the information asymmetry among investors decreases, the difference in investors' expectations and the volatility of corporate assets' value decreases, thus reducing investment risk and bond credit spreads (Zhou et al., 2016).

Last, managers choose to fulfill CSR with a 'good management' signalling effect (Oikonomou et al., 2014; Waddock & Graves, 1997). Unlike equity financing, creditors do not enjoy the residual claim. Once the bond is issued, the risk and return of creditors are asymmetric. They cannot receive any extra returns other than the principal and interest if the project is successful, while they may lose all if it fails. Bond investors must distinguish good managers from bad ones when they choose to invest. Accordingly, the signalling effect of good management can play a better role in the bond market. To illustrate this point, Oikonomou et al. (2014) confirm that fulfilling CSR is a signal that the team is well integrated and capable of dealing with highly complex issues effectively to convey 'good management' to stakeholders of the managerial team's competence and trustworthiness, thus reducing principal-agent risk and bond credit spreads.

In summary, if the corporate targeted poverty alleviation conforms to the value creation hypothesis. For one thing, it can help the enterprise to obtain external resources and stakeholder support. For another, it also has the information communication and good management signalling effect to reduce information asymmetry and principal-agent risk. Bond investors anticipate the positive influence of targeted poverty alleviation on enterprises and lower risk premium charges, thus reducing bond credit spreads. Therefore, according to the value creation hypothesis, we propose H1b.

**H1b:** The corporate targeted poverty alleviation decreases bond credit spreads.

### 3. Research design

#### 3.1. Sample and data

We take the A-share listed companies that issued corporate bonds from 2016 to 2018 as samples and process them as follows: (1) The ST or \*ST samples are excluded; (2) The financial and insurance industries samples are excluded; (3) The missing data related to control variables are also eliminated; (4) Referring to Zhou et al. (2016), one bond is randomly retained if a company may have two or more bonds that are trading simultaneously. The data on the bond and marketisation process index are obtained from the

Wind database, and other data are all from the CSMAR database. We winsorise the continuous variables in our main regressions at the 1st and 99th percentiles to eliminate the potential influence of outliers.

### 3.2. Empirical model and definition of variables

Referring to the literature (Kaviani et al., 2020; Oikonomou et al., 2014; Wang et al., 2015; Yang & Pan, 2019), model (1) is constructed for empirical testing:

$$CS1_{it} = \alpha_0 + \beta_1 Power1_{it}/Tpa_{it} + \beta_2 Size_{it-1} + \beta_3 Lev_{it-1} + \beta_4 Tobinq_{it-1} + \beta_5 Ebit_{it-1} + \beta_6 CFO_{it-1} \\ + \beta_7 Audit_{it-1} + \beta_8 State_{it} + \beta_9 Ev_{it} + \beta_{10} Amount_{it} + \beta_{11} Coupon_{it} + \beta_{12} Bondrating_{it} \\ + \beta_{13} Maturity_{it} + \beta_{14} Secured_{it} + \beta_{15} Volatility_{it} + \sum \beta_i Year + \sum \beta_j Industry + \varepsilon_{it}$$

The dependent variable CS1 proxies for bond credit spread in year  $t$  for bond  $i$ , which is measured by the difference between the yield to maturity of corporate bonds and the yield to maturity of government bonds with the same remaining maturity in the same period.  $Tpa$  is a dummy variable that equals 1 if the company participated in targeted poverty alleviation in the current year and 0 otherwise;  $Power1$  equals the natural logarithm of the sum of funds and materials invested in targeted poverty alleviation by bond-issuing enterprises (in yuan) plus 1. Unlike equity financing, creditors do not enjoy the residual claim. Once the bond is issued, the risk and return of creditors are asymmetric. Creditors cannot receive any extra returns other than the principal and interest if the project is successful, while they may lose all if it fails. Then, we argue that bond investors are more concerned about the absolute level than the relative level of corporate targeted poverty alleviation. We also control for other potential factors that affect bond credit spread in the literature (Kaviani et al., 2020; Oikonomou et al., 2014; Yang & Pan, 2019; Zhou et al., 2016). Table 1 shows the variable definitions.

## 4. Main results

### 4.1. Descriptive statistics

Table 2 Panel A shows the descriptive statistics of the full sample. The mean of  $Tpa$  is 0.416, which indicates that 41.60% of the sample has engaged in targeted poverty alleviation. The minimum of  $Power1$  is 0, the maximum value is 19.25, and the standard deviation is 7.222. The mean of  $Secured$  is 0.323, indicating that 32.30% of the sample is secured bonds.

Table 2 Panel B reports the descriptive statistics of the subsamples. In the poverty alleviation sample, the mean of  $State$  is 0.626, which implies that 62.60% of the bond-issuing enterprises are state-owned. The mean (median) of CS1 in the poverty alleviation sample is 2.178% (1.739%), which is lower than that in the non poverty alleviation sample. The difference test shows that the bond credit spread of the poverty alleviation sample is significantly lower than that of the non poverty alleviation samples. The result is consistent with hypothesis H1b.

**Table 1.** Variable definitions.

Variable	Variable definitions
Size	The natural logarithm of total assets.
Lev	The ratio of total liabilities to total assets.
Tobinq	Market value/(total assets – net intangible assets – net goodwill)
Ebit	Ebit/finance expenses
CFO	Net cash flow from operating activities/total assets
State	If the bond-issuing is a state-owned enterprise, the value is 1, otherwise, it is 0.
Audit	Dummy variable, equal to 1 if the financial statement of a company is audited by the international big four accounting firms, and 0 otherwise.
Volatility	The standard deviation of the total China bond index for the year, the larger the value, the greater the market risk.
Bondrating	Bond issue rating AA-, AA, AA+, AAA, corresponding to the assignment of 1, 2, 3, 4
Ev	The standard deviation of the annual closing price of bond trading
Amount	Total bond issuance (100 million yuan)
Coupon	Coupon rate at the time of bond issuance (%)
Maturity	Bond issue term (years)
Secured	A bond with the guarantee is defined as 1, without a guarantee is defined as 0
Industry	Industry dummy variables
Year	Year dummy variables

## 4.2. Regression results and analysis

Table 3 reports the results of the basic model regression. Column (1) shows that the coefficient on Tpa is  $-0.439$  and significant at the 5% level, which indicates that companies engaged in targeted poverty alleviation have lower credit spreads than those not engaged. In Column (2), the coefficient on Power1 is  $0.030$  and significantly negative at the 5% level. This signifies there is a significant negative relationship between Power1 and bond credit spreads. Together, these results suggest that bond investors not only attend to corporate targeted poverty alleviation but also give a positive market reaction. This implies that bond investors consider corporate targeted poverty alleviation to be essentially consistent with the value creation hypothesis. Hence, hypothesis 1b is verified.

## 4.3. Cross-sectional analysis

### 4.3.1. Credit risk

As an effective mechanism to convey credit risk to the market (Badoer & Demiroglu, 2019), bond credit spreads are essentially the risk premium for credit risk undertaken by creditors. In the case where corporate targeted poverty alleviation is essentially embodied as value creation features, it can reduce the risk assessment of investors and lower risk premium charges, thus reducing bond credit spreads. Consequently, the effect of corporate poverty alleviation on bond credit spreads is stronger when the credit risk is lower.

Referring to Hu and Zhang (2020), we use the modified Z\_Score to measure credit risk, which is calculated as model (2).

$$Z\_Score_{i,t} = 0.517 - 0.460X1_{i,t} + 9.32X2_{i,t} + 0.388X3_{i,t} + 1.158X4_{i,t} \quad (2)$$

Among them:  $X1$  = total liabilities/total assets;  $X2$  = operating income/total assets;  $X3$  = working capital/total assets;  $X4$  = retained earnings/total assets. The modified Z\_Score value is negatively correlated with credit risk. We used the median of the modified Z\_score value in period t-1 to separate the sample into two groups. The results

**Table 2.** Descriptive statistics of the main variables.

Panel A: Full sample descriptive statistics						
	Observations	Mean	SD	Minimum	Median	Maximum
<i>CS1</i>	1226	2.389	1.768	-0.172	1.97	10.88
<i>Power1</i>	1226	5.980	7.222	0	0	19.25
<i>Tpa</i>	1226	0.416	0.493	0	0	1
<i>Audit</i>	1226	0.636	0.481	0	1	1
<i>Size</i>	1226	23.721	1.245	21.44	23.54	27.46
<i>Lev</i>	1226	0.561	0.156	0.197	0.565	0.862
<i>Ebit</i>	1226	8.350	15.153	-5.071	3.905	102.7
<i>Tobinq</i>	1226	1.024	0.858	0.107	0.775	4.381
<i>CFO</i>	1226	0.015	0.099	-0.292	0.02122	0.252
<i>State</i>	1226	0.467	0.499	0	0	1
<i>Bondrating</i>	1226	2.702	0.847	1	2	4
<i>Volatility</i>	1226	2.394	1.200	0.991	2.247	3.886
<i>Amount</i>	1226	11.661	12.862	0.5	8	160
<i>Coupon</i>	1226	5.613	1.264	2.89	5.6	9.2
<i>Ev</i>	1226	1.660	0.957	0.099	1.596	6.394
<i>Maturity</i>	1226	5.159	1.583	2	5	15
<i>Secured</i>	1226	0.323	0.468	0	0	1

  

Panel B: Subsample descriptive statistics						
	(1) Poverty alleviation		(2) Nonpoverty alleviation		(2) - (1) Difference test	
	Mean	Median	Mean	Median	Mean	Median
<i>CS1</i>	2.178	1.739	2.540	2.111	3.550***	4.254***
<i>Power1</i>	14.374	14.3	0.000	0	-180.00***	-33.390***
<i>Audit</i>	0.678	1	0.606	1	-2.598***	-2.592***
<i>Size</i>	24.189	23.96	23.387	23.23	-11.717***	-11.240***
<i>Lev</i>	0.594	0.593	0.538	0.535	-6.251***	-6.042***
<i>Ebit</i>	7.230	3.659	9.148	4.251	2.188**	2.331**
<i>Tobinq</i>	0.849	0.627	1.149	0.907	6.118***	7.081***
<i>CFO</i>	0.017	0.024	0.014	0.018	-0.519	-0.550
<i>State</i>	0.626	1	0.353	0	-9.766***	-9.410***
<i>Volatility</i>	2.509	2.247	2.313	2.247	-2.835***	-2.557**
<i>Bondrating</i>	2.929	3	2.541	2	-8.135***	-7.610***
<i>Amount</i>	14.702	10	9.496	7	-7.126***	-7.418***
<i>Coupon</i>	5.473	5.39	5.713	5.78	3.286***	3.550***
<i>Ev</i>	1.641	1.59	1.673	1.598	0.179	-0.020
<i>Maturity</i>	5.451	5	4.951	5	-5.514***	-4.419***
<i>Secured</i>	0.310	0	0.332	0	0.572	0.834
<i>Observations</i>	510		716			

Note: In Panel B, the mean difference test values are t-statistics, the median difference test values are z-statistics, and \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% significance levels, respectively.

are reported in Table 4. Table 4 shows that the coefficients of *Tpa* and *Power1* on bond credit spreads are significantly negative in the subsample with higher credit risk. However, it is statistically insignificant in those with lower credit risk.

#### 4.3.2. Bond credit ratings

As an important creditor benefits protection mechanism, bond credit ratings can aid investors in promptly identifying the potential default risk of bond issuers. Then, it may influence investors' decision-making by alleviating information asymmetry and investment uncertainty between investors and bond issuers (Nayar & Rozeff, 1994; Gray et al., 2006). Bond investors are more sensitive to the information conveyed by corporate

**Table 3.** Basic model regression results.

	(1)	(2)
	CS1	CS1
<i>Tpa</i>	-0.439** (-2.13)	
<i>Power1</i>		-0.030** (-2.23)
<i>Audit</i>	0.205 (0.89)	0.201 (0.88)
<i>Size</i>	-0.252*** (-4.46)	-0.238*** (-4.03)
<i>Lev</i>	1.069 (0.90)	1.036 (0.87)
<i>Ebit</i>	-0.003 (-0.71)	-0.003 (-0.67)
<i>Tobinq</i>	-0.417 (-1.33)	-0.416 (-1.33)
<i>CFO</i>	-3.915 (-1.45)	-3.903 (-1.46)
<i>State</i>	-0.673*** (-5.34)	-0.692*** (-5.39)
<i>Bondrating</i>	0.052 (0.50)	0.050 (0.48)
<i>Amount</i>	0.013 (1.35)	0.013 (1.39)
<i>Volatility</i>	0.842*** (3.82)	0.844*** (3.82)
<i>Coupon</i>	0.334 (1.51)	0.330 (1.49)
<i>Ev</i>	1.705* (1.78)	1.705* (1.78)
<i>Maturity</i>	-0.335 (-1.56)	-0.333 (-1.56)
<i>Secured</i>	-0.342* (-1.77)	-0.334* (-1.78)
<i>Cons</i>	1.893 (1.32)	1.610 (1.03)
<i>Industry/Year</i>	Yes	Yes
<i>Observations</i>	1226	1226
<i>Adj-R<sup>2</sup></i>	0.128	0.128

Note: \*, \*\*, and \*\*\* indicate statistical significance at the 10%, 5%, and 1% levels, respectively. Standard errors are double clustered at the industry and year levels, and the t-statistics are given in parentheses. The same applies below.

**Table 4.** The cross-sectional analysis of credit risk.

	(1)	(2)	(3)	(4)
	Higher	Lower	Higher	Lower
	CS1	CS1	CS1	CS1
<i>Tpa</i>	-0.226* (-1.91)	0.011 (0.09)		
<i>Power1</i>			-0.016** (-2.04)	0.002 (0.22)
<i>Cons</i>	2.217 (1.24)	2.186 (1.21)	2.103 (1.17)	2.243 (1.25)
<i>Industry/Year/Controls</i>	Yes	Yes	Yes	Yes
<i>Observations</i>	610	616	610	616
<i>Adj-R<sup>2</sup></i>	0.545	0.443	0.545	0.443

**Table 5.** The cross-sectional analysis of bond credit ratings.

	(1)	(2)	(3)	(4)
	Lower	Higher	Lower	Higher
	CS1	CS1	CS1	CS1
<i>Tpa</i>	-0.214* (-1.96)	-0.076 (-0.86)		
<i>Power1</i>			-0.015** (-2.01)	-0.006 (-0.93)
<i>Cons</i>	0.574 (0.29)	0.628 (0.47)	0.443 (0.23)	0.545 (0.41)
<i>Industry/Year/Controls</i>	Yes	Yes	Yes	Yes
<i>Observations</i>	697	529	697	529
<i>Adj-R<sup>2</sup></i>	0.498	0.493	0.498	0.494

targeted poverty alleviation if the credit ratings are low. Therefore, the effect of corporate targeted poverty alleviation on bond credit spreads is greater in the subsample with lower credit ratings.

We refer to Yang and Pan (2019) to assign values to bond credit ratings. We use the median of credit ratings at the beginning of each year to separate the sample into two groups. The results are reported in Table 5. We find that the effect of corporate targeted poverty reduction on bond credit spreads is significant in the subsample with lower credit ratings. However, it is statistically insignificant in the subsample with higher credit ratings.

## 5. Further research

### 5.1. Corporate motivation for targeted poverty alleviation

Targeted poverty alleviation has become the most important livelihood project for units and governments at all levels in China. Then, the engaged enterprises may not be entirely out of their own will but invisible pressure from local governments to some extent. Whether engaged enterprises due to invisible pressure from local governments or take the initiative to undertake out of the patriotic sentiment of 'reaching out and helping the world'. If bond investors attend to corporate targeted poverty alleviation, the market reaction is likely to be manifested in the form of bond credit spreads. To better identify motivations for engaged enterprises, we conduct cross-sectional tests at both the regional and corporate characteristics levels.

#### 5.1.1. Regional characteristics

**5.1.1.1. Institutional environment.** In regions with a better institutional environment where there is less government intervention in enterprises, the distribution of resources is relatively fair and reasonable. In addition, the source and release of information are relatively open and transparent, and the legitimate rights and interests of enterprises are effectively protected (Li et al., 2018). Therefore, in regions with a better institutional environment, enterprises engaged in targeted poverty alleviation reflect more of their independent will. Additionally, the timely release of information on targeted poverty alleviation by enterprises can reduce information asymmetry and enhance investors'

willingness to invest. Consequently, corporate targeted poverty alleviation has a stronger reduction effect on bond credit spread in regions with a better institutional environment.

We use the marketisation process index from the China Marketisation Index compiled by Fan and Wang (2018) to measure the institutional environment. Afterwards, we divide the sample into two subsamples according to the annual median in year  $t-1$ . The results are shown in Table 6. We find that the reduction effect of corporate targeted poverty alleviation on bond credit spreads is significant at the 1% level in the subsample with a better institutional environment. However, it is statistically insignificant in the subsample with a weaker institutional environment.

**5.1.1.2. Regional fiscal pressure.** In the context of a highly centralised government in China, local governments have a strong political motivation to launch targeted poverty alleviation and completely eradicate absolute poverty under the current standards. When local governments face greater fiscal pressure, they have the need and ability to mobilise enterprises to engage (Nie et al., 2020). In areas where the local government is under greater fiscal pressure, companies may participate out of the political pressure from the local government. Instead, in areas where the local government is under less fiscal pressure, companies are more willing to take the initiative to undertake targeted poverty alleviation.

Referring to Han (2016), we use the urban registered unemployment rate and the ratio of fiscal expenditure to revenue in the province where an enterprise is registered to measure fiscal pressure. Then, we separate the sample into two subsamples by the annual median fiscal pressure in year  $t-1$ . The results are reported in Table 7. The results indicate that the impact of corporate targeted poverty alleviation on bond credit spreads is significantly negative in the subsample with lower local fiscal pressure. However, it is statistically insignificant in that there is higher local fiscal pressure.

**5.1.1.3. National-level poverty-stricken counties.** The targeted poverty alleviation areas of enterprises can be divided into local poverty alleviation and off-site poverty alleviation. In all probability, if enterprises help the poor locally, they are more likely to help the local government lessen the poverty alleviation assessment pressure. If they help the poor off-site, it is more probable that they take the initiative to undertake that in response to the national call. However, since the specific areas of targeted poverty

**Table 6.** The subgroup analysis results of the institutional environment.

	(1)	(2)	(3)	(4)
	Better	Weaker	Better	Weaker
	CS1	CS1	CS1	CS1
<i>Tpa</i>	-0.304*** (-3.07)	0.007 (0.06)		
<i>Power1</i>			-0.018*** (-2.61)	-0.001 (-0.07)
<i>Cons</i>	-0.055 (-0.04)	2.383 (1.10)	-0.105 (-0.07)	2.335 (1.08)
<i>Industry/Year/Controls</i>	Yes	Yes	Yes	Yes
<i>Observations</i>	626	600	626	600
<i>Adj- R<sup>2</sup></i>	0.517	0.483	0.515	0.483

Note: Controls represent that all control variables of model (1) are controlled, the same below.

**Table 7.** The subgroup analysis results of regional fiscal pressure.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Urban Registered Unemployment Rate				The Ratio of Fiscal Expenditure to Revenue			
	Higher	lower	Higher	lower	Higher	lower	Higher	lower
	CS1	CS1	CS1	CS1	CS1	CS1	CS1	CS1
<i>Tpa</i>	0.019 (0.16)	-0.334*** (-3.10)			0.000 (0.00)	-0.295*** (-3.03)		
<i>Power1</i>			0.000 (0.02)	-0.022*** (-2.93)			-0.000 (-0.05)	-0.018*** (-2.70)
<i>Cons</i>	2.201 (1.05)	0.792 (0.50)	2.150 (1.04)	0.620 (0.39)	2.343 (1.07)	0.457 (0.32)	2.324 (1.07)	0.367 (0.25)
<i>Industry/Year/Controls</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Observations</i>	571	655	571	655	585	641	585	641
<i>Adj- R<sup>2</sup></i>	0.473	0.526	0.473	0.525	0.483	0.526	0.483	0.525

alleviation by enterprises have not been disclosed, the limitation of data availability makes it impossible to inspect now. Note that the targets of targeted poverty alleviation are the households with established cards in national-level poverty-stricken counties, which are mainly located in less economically developed areas. To ensure the successful completion of poverty alleviation tasks, local governments tend to mobilise local enterprises to engage actively. As a result, if there are national-level poverty-stricken counties in an area where an enterprise is registered, the enterprise is more likely to help local government to complete the task of poverty alleviation. Instead, if there are no national-level poverty-stricken counties in an area, the engaged enterprise is more likely out of the patriotism of 'reaching out and helping the world', which can be identified by bond investors.

This paper downloads the list of 832 poverty-stricken counties nationwide in 2014 from the State Council Poverty Alleviation Office and collates them in provinces. The subgroup analysis is carried out according to whether there are national-level poverty-stricken counties where the enterprise is registered. The results are shown in Table 8. In the subsample without national-level poverty-stricken counties, corporate targeted poverty alleviation is significantly and negatively related to bond credit spreads. However, the relationship is statistically insignificant in the subsample with national-level poverty-stricken counties.

**Table 8.** The subgroup analysis results of whether there is a national poverty-stricken county.

	(1)	(2)	(3)	(4)
	No	YES	No	YES
	CS1	CS1	CS1	CS1
	<i>Tpa</i>	-0.163* (-1.78)	-0.037 (-0.24)	
<i>Power1</i>			-0.011* (-1.79)	-0.002 (-0.17)
<i>Cons</i>	3.501** (2.30)	-1.087 (-0.44)	3.403** (2.23)	-1.058 (-0.43)
<i>Industry/Year/Controls</i>	Yes	Yes	Yes	Yes
<i>Observations</i>	808	418	808	418
<i>Adj- R<sup>2</sup></i>	0.497	0.497	0.497	0.497

### 5.1.2. Corporate characteristics

**5.1.2.1. Nature of property rights.** In the work of poverty alleviation, the roles of enterprises with different properties are different. State-owned enterprises are an important pillar and rely on force for the party in ruling and prospering the country. They have an obligatory political responsibility and social responsibility to firmly implement the decision and deployment of the Party Central Committee to fight poverty and help win the battle against poverty. Correspondingly, the nonstate-owned enterprises engaged in targeted poverty alleviation are more of a voluntary act.

Therefore, we perform group tests based on the nature of property rights of enterprises. The results are presented in Table 9. We find that the effect of corporate targeted poverty alleviation on bond credit spreads is significantly negative in nonstate-owned enterprises. However, it is statistically insignificant in state-owned enterprises.

**5.1.2.2. Corporate profitability.** Traditional Chinese culture has the value of 'if you are poor, you will be good to yourself; if you are rich, you will help the world'. Generally, firms with better profitability are more likely to participate in targeted poverty alleviation out of the patriotism of 'reaching out and helping the world'. Conversely, engaged enterprises with poorer profitability may be due to self-interest motivation or invisible pressure from local governments. As bond investors are asymmetric in terms of risk and return after bond issuance, the safety of the principal is their primary concern. As a result, bond investors are normally able to identify the information conveyed by the enterprises and are sceptical or even negative attitudes towards the motivation of less profitable participating enterprises.

We use ROE to measure corporate profitability and separate the sample into two groups with its annual median in year  $t-1$ . The results are reported in Table 10. The results indicate that the reduction effect of corporate targeted poverty alleviation on bond credit spreads is significant in the subsample with higher ROE and statistically insignificant in the subsample with lower ROE.

**5.1.2.3. Corporate social responsibility performance.** CSR reports have provided information on the level of CSR management and performance (Zhu, 2011). Enterprises with high social responsibility report ratings can reflect their historical performance and

**Table 9.** The subgroup analysis results of the nature of property rights.

	(1)	(2)	(3)	(4)
	State-owned	Nonstate-owned	State-owned	Nonstate-owned
	CS1	CS1	CS1	CS1
<i>Tpa</i>	-0.088 (-0.84)	-0.485* (-1.88)		
<i>Power1</i>			-0.004 (-0.62)	-0.034** (-1.98)
<i>Controls</i>	Yes	Yes	Yes	Yes
<i>Cons</i>	-1.450 (-0.96)	4.757 (1.64)	-1.461 (-0.95)	4.458 (1.53)
<i>Observations</i>	572	654	572	654
<i>Industry/Year/Controls</i>	Yes	Yes	Yes	Yes
<i>Year</i>	Yes	Yes	Yes	Yes
<i>Adj- R<sup>2</sup></i>	0.383	0.272	0.383	0.272

**Table 10.** The subgroup analysis results of corporate profitability.

	(1)	(2)	(3)	(4)
	Higher ROE	Lower ROE	Higher ROE	Lower ROE
	CS1	CS1	CS1	CS1
<i>Tpa</i>	-0.191** (-2.02)	-0.029 (-0.23)		
<i>Power1</i>			-0.011* (-1.69)	-0.003 (-0.38)
<i>Controls</i>	Yes	Yes	Yes	Yes
<i>Cons</i>	1.082 (0.63)	-0.502 (-0.29)	1.018 (0.59)	-0.575 (-0.34)
<i>Observations</i>	598	628	598	628
<i>Industry/Year/Controls</i>	Yes	Yes	Yes	Yes
<i>Year</i>	Yes	Yes	Yes	Yes
<i>Adj- R<sup>2</sup></i>	0.466	0.500	0.465	0.500

determination to serve and contribute to society somewhat. Ergo, if the enterprises engaged in targeted poverty alleviation with better CSR performance, in all probability, reflects the willingness of enterprises independently.

We refer to Feng et al. (2016) using the Hexun CSR composite score as a measure of CSR performance. The annual median is employed to separate the sample into two subsamples. The results are shown in Table 11, suggesting that the relationship between corporate targeted poverty alleviation and bond credit spreads is significantly negative at the 1% level in the subsample with better CSR performance. However, it is statistically insignificant in the subsample with worse CSR performance.

**5.1.2.4. Engaged in agriculture-related poverty alleviation projects or not.** Targeted poverty alleviation is a new way for corporations to fulfill CSR, and it is different from general CSR. The enterprises engaged in targeted poverty alleviation give full play to the innate advantages of industrial poverty alleviation and implement 'blood-making' poverty alleviation. Simultaneously, it can assist engaged enterprises in obtaining a larger development platform. In addition, engaging in agriculture-related poverty alleviation projects is a new business for enterprises to extend their influence and amplify their market share. For this reason, we divide the sample by whether they participate in agriculture-related projects. The results are reported in Table 12. We find that corporate

**Table 11.** The subgroup analysis results of CSR performance.

	(1)	(2)	(3)	(4)
	Better	Worse	Better	Worse
	CS1	CS1	CS1	CS1
<i>Tpa</i>	-0.242*** (-2.68)	0.046 (0.32)		
<i>Power1</i>			-0.016*** (-2.62)	0.002 (0.25)
<i>Cons</i>	0.285 (0.16)	0.985 (0.50)	0.069 (0.04)	0.975 (0.50)
<i>Industry/Year/Controls</i>	Yes	Yes	Yes	Yes
<i>Observations</i>	602	619	602	619
<i>Adj- R<sup>2</sup></i>	0.580	0.404	0.580	0.404

**Table 12.** The subgroup analysis results of engagement in agriculture-related projects.

	Full sample		Poverty alleviation sample	
	Yes	No	Yes	No
	CS1	CS1	CS1	CS1
<i>Power1</i>	-0.161** (-1.97)	-0.013** (-2.47)	-0.161** (-1.97)	-0.035 (-1.01)
<i>Controls</i>	Yes	Yes	Yes	Yes
<i>Cons</i>	-3.246 (-0.98)	2.158* (1.66)	-3.246 (-0.98)	-1.544 (-0.79)
<i>Industry/Year/Controls</i>	Yes	Yes	Yes	Yes
<i>Observations</i>	186	1039	186	324
<i>Adj- R<sup>2</sup></i>	0.408	0.513	0.408	0.521
Test for differences between groups				
P value	0.000		0.053	

targeted poverty alleviation has a significantly negative effect on bond credit spreads regardless of whether the enterprise is involved in agricultural-related poverty alleviation projects. The difference test finds that it is more significant in the subsample involved in agriculture-related projects than in the subsample not engaged.

Combining the results demonstrated above, it implies that the effect of corporate targeted poverty alleviation on bond credit spreads is significant mainly in subsamples that of active participants. This conclusion indicates that bond investors can well identify the real motivation and are more favourable to the targeted poverty alleviation actively undertaken by corporations.

## 5.2. The proof of value creation hypothesis of corporate targeted poverty alleviation

The previous findings suggest that corporate targeted poverty alleviation is essentially a value creation feature rather than an instrumental feature in the Chinese capital market. In this section, we demonstrate the value creation hypothesis of corporate targeted poverty alleviation by examining how it affects strategic resource acquisition, information asymmetry, corporate reputation, and agency costs.

### 5.2.1. Corporate targeted poverty alleviation and strategic resource acquisition

The enterprise actively engaged in targeted poverty alleviation is a new way to fulfill CSR, which may be rewarded with strategic resources such as government subsidies, financing offers, tax incentives and project support (Li et al., 2016; Dai et al., 2014; Zhang et al., 2013). For this reason, we examine how the targeted poverty alleviation of enterprises affects the acquisition of strategic resources such as government subsidies, financing offers, tax incentives, and investment opportunities. The results are reported in Table 13. The comprehensive findings indicate that enterprises engaged in targeted poverty alleviation have gained competitive advantages in strategic resource allocation, which contributes to achieving the long-term profitability and stable development of enterprises and correspondingly reducing the risk of bond default.

**Table 13.** The results of targeted poverty alleviation on strategic resource acquisition.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Financing Cost		Effective Tax Rate		Government Subsidy		New Investment	
<i>Tpa</i>	-0.013* (-1.81)		-0.002** (-2.33)		0.365** (1.99)		0.359 (1.54)	
<i>Power1</i>		-0.001** (-2.03)		-0.000** (-2.55)		0.025* (1.92)		0.032* (1.93)
<i>Cons</i>	0.358*** (2.76)	0.347*** (2.64)	-0.010 (-0.93)	-0.011 (-1.01)	-2.276 (-0.83)	-2.070 (-0.75)	-12.726*** (-3.55)	-12.109*** (-3.36)
<i>Industry/Year/Controls</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Observations</i>	1162	1162	1203	1203	1217	1217	1226	1226
<i>Adj-R<sup>2</sup></i>	0.151	0.151	0.045	0.045	0.081	0.081	0.118	0.118

### 5.2.2. Corporate targeted poverty alleviation and reputation

Enterprises actively engaged in targeted poverty alleviation are beneficial to improving their corporate image and reputation. It is conducive to building close relationships with stakeholders and obtaining value integration between engaged companies and investors. Additionally, it is useful to attain the favour of investors easily and enlarge the investors' group. According to the general equilibrium model (Merton, 1987), bond credit spreads are significantly negative with bond investment scale. For this reason, we examine how the targeted poverty alleviation of enterprises influences reputation. We use the reputation score, number of positive media coverages, whether the enterprise receives awards for poverty alleviation and the score for targeted poverty alleviation awards comprehensively to measure corporate reputation. The results are presented in Table 14. The comprehensive results indicate that enterprises participating in targeted poverty alleviation can establish a highly socially responsible corporate image and improve their reputation.

### 5.2.3. Corporate targeted poverty alleviation and information asymmetry

Information asymmetry is an important factor affecting bond credit spreads (Lin et al., 2013; Wu & Wang, 2016). In addition, information uncertainty between bond issuers and bond investors is also an important aspect of information asymmetry. Bond credit spreads are usually positively related to information uncertainty and information asymmetry. We employ the number of analysts tracking to gauge information uncertainty and accrual earnings management level according to the modified Jones model (Dechow et al., 1996) to assess information asymmetry. Afterwards, we examine how corporate targeted poverty alleviation affects information asymmetry. The results are reported in Table 15. The comprehensive results

**Table 14.** The results of corporate targeted poverty alleviation on reputation.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Reputation	Reputation	Media	Media	Award	Award	AwardScore	AwardScore
<i>Tpa</i>	0.05*		0.11*		2.18***		0.74***	
	(1.81)		(1.83)		(7.15)		(5.26)	
<i>Power1</i>		0.00**		0.01**		0.13***		0.07***
		(2.13)		(2.20)		(9.01)		(5.62)
<i>Cons</i>	-16.08***	-16.02***	-9.66***	-9.50***	-10.8***	-7.61***	-14.91***	-13.71***
	(-34.15)	(-33.85)	(-10.99)	(-10.65)	(-4.85)	(-3.28)	(-3.50)	(-3.28)
<i>Industry/Year/ Controls</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Observations</i>	1225	1225	1226	1226	1161	1161	1226	1226
<i>Adj-R<sup>2</sup>/Pseudo R<sup>2</sup></i>	0.818	0.818	0.552	0.553	0.342	0.344	0.108	0.114

**Table 15.** The results of corporate targeted poverty alleviation on information asymmetry.

	(1)	(2)	(5)	(6)
	Analyst	Analyst	DA	DA
<i>Tpa</i>	0.133**		-0.009***	
	(2.22)		(-2.77)	
<i>Power1</i>		0.010**		-0.001***
		(2.55)		(-3.12)
<i>Cons</i>	-9.439***	-9.294***	0.158***	0.149***
	(-10.55)	(-10.26)	(3.20)	(3.00)
<i>Industry/Year/Controls</i>	Yes	Yes	Yes	Yes
<i>Observations</i>	1226	1226	1192	1192
<i>Adj-R<sup>2</sup></i>	0.326	0.327	0.103	0.104

**Table 16.** The results of corporate targeted poverty alleviation on agency costs.

	(1)	(2)	(3)	(4)
	Turnover	Turnover	Mfee	Mfee
<i>Tpa</i>	0.072*** (3.15)		-0.013** (-1.98)	
<i>Power1</i>		0.006*** (3.57)		-0.001* (-1.96)
<i>Cons</i>	-0.188 (-0.55)	-0.097 (-0.28)	0.211*** (2.65)	0.200** (2.42)
<i>Industry/Year/Controls</i>	Yes	Yes	Yes	Yes
<i>Observations</i>	1226	1226	1226	1226
<i>Adj-R<sup>2</sup></i>	0.354	0.356	0.012	0.012

demonstrate that enterprises engaged in targeted poverty alleviation significantly reduce information asymmetry.

#### 5.2.4. Corporate targeted poverty alleviation and agency costs

First, managers choosing to participate in poverty alleviation have the signalling effect of 'good management'. This causes the stakeholder group to have faith in the competence and credibility of the management team and reduces the principal-agent risk (Oikonomou et al., 2014; Waddock & Graves, 1997). In addition, corporate targeted poverty alleviation captures stakeholder groups' attention and forms invisible external supervision. This can motivate managers to work harder and inhibit their self-interested behaviour. Accordingly, we examine how corporate targeted poverty alleviation affects agency costs. The results are reported in Table 16. The results are indicative of corporate targeted poverty alleviation both urging managers to work hard and restraining management's self-interest, thus reducing principal-agent risk.

## 6. Robustness tests

### 6.1. Alternative proxies for the key variable

Referring to Wang et al. (2015), we use the bond yield to maturity minus the risk-free interest rate to measure CS2. Where the risk-free interest rate is the benchmark interest rate announced by the People's Bank of China.

Considering that for material inputs, there is the possibility of enterprise inventory clearance and material valuation deviation. Then, we use the natural logarithm of the sum of capital inputs invested in targeted poverty alleviation by bond-issuing enterprises (in yuan) plus 1 to measure Power2. We also use the relative strength variable to proxy for corporate targeted poverty alleviation power, which is measured by total input\*100/total assets (Power3) and total input\*100/total income (Power4).

Together, untabulated results indicate that the conclusion remains unchanged when we use alternative proxies for robustness checks.

## **6.2. Change the sample selection method**

For robustness checks, we retain all the bonds traded by the same company in a year. In addition, we select to retain the bond with the longest issue term and the bond with the largest issue amount. To further test the robustness of the results, we use corporate bond issuance data in the primary market for empirical analysis.

Together, untabulated results indicate that the reduction effect of corporate targeted poverty alleviation on bond credit spreads remains unchanged when we change the sample selection method for robustness checks.

## **6.3. The placebo test**

Referring to Liu et al. (2020), we construct a placebo test to determine whether the reduction effect of corporate targeted poverty alleviation on bond credit spreads is caused by other randomness factors. First, we randomly generate treatment groups to determine whether a firm engaged in targeted poverty alleviation and generate a simulated dummy variable. Second, we repeat 1000 regressions on bond credit spreads using this dummy variable. Third, we calculate the estimated coefficient and make a density function graph under the corresponding explained variable and compare it with the above true regression coefficient. Untabulated results show that the coefficients of Tpa after 1000 random treatments are concentrated approximately at 0, and only very few regression coefficients are smaller than the true value, which indicates that enterprises engaged in targeted poverty alleviation do play a role in reducing bond credit spreads.

## **6.4. DID test**

We refer to Zhang and Dong (2020) using a multiperiod difference in difference (DID) model for a robustness check. Untabulated results indicate that the participation of enterprises in targeted poverty alleviation does have a reduction effect on bond credit spreads.

## **6.5. Instrumental variable test**

We use an instrumental variable (IV) approach to alleviate the endogeneity problem of omitted variables. The number of poor counties in the provinces where the listed companies are registered is selected as an instrumental variable for the targeted poverty alleviation of enterprises. Generally, the greater the number of poor countries where enterprises are located, the greater the pressure of local government to alleviate poverty and the stronger the motivation of local enterprises to participate in targeted poverty alleviation. Instead, the poverty situation of enterprise location does not directly affect corporate bond credit spreads. Therefore, the exogenous requirement for the instrumental variables selected in this paper hold. In addition, it passed the weak instrumental variable test and relevance test.

Untabulated results indicate that the reduction effect of corporate targeted poverty alleviation on bond credit spreads remains unchanged when we address the problem of omitted variables.

### **6.6. Entropy balancing test**

Referring to Yang and Rui (2020), we adopt the entropy balancing method to mitigate the sample selection bias endogeneity problem. Untabulated results show that the significant negative effects of enterprise targeted poverty alleviation on bond credit spreads remain unchanged when we address the sample selection bias endogeneity problem.

### **6.7. Change model test**

To eliminate the effect of firm heterogeneity that does not vary over time, we use the change model for robustness checks. Untabulated results show that the significant negative effects of corporate targeted poverty alleviation on bond credit spreads remain unchanged.

## **7. Conclusions and recommendations**

This paper applies a sample of A-share listed companies that issued corporate bonds from 2016 to 2018 to study the impact and mechanism of corporate targeted poverty alleviation on bond credit spreads. We find that bond-issuing companies' targeted poverty alleviation can significantly reduce bond credit spreads, which are more pronounced in subsamples with higher credit risk and lower credit rating and of active participants. In addition, targeted poverty alleviation has improved corporate reputation and strategic resource acquisition and reduced information asymmetry and agency costs. These results suggest that bond investors not only attend to corporate targeted poverty alleviation but also give a positive market reaction. Investors also pay more attention to voluntary behaviour, which indicates that it is essentially embodied as value features, not tool features, and bond investors can identify the true motivations of engaged enterprises.

The policy recommendations are listed as follows. First, enterprises ought to respond to the call of the state and participate in targeted poverty alleviation, which is able to capture attention and receive positive market reactions from bond investors. Our findings provide important implications for managers on credit risk management and government departments on establishing a long-term poverty reduction mechanism.

Second, this study reveals the mechanisms between corporate poverty alleviation and bond credit spreads to some extent. This helps to understand the motivation of enterprises to participate in targeted poverty alleviation. In the context of working hard to overcome the impact of COVID-19 and coordinating the promotion of epidemic prevention and control and poverty alleviation, it provides useful ideas for relevant departments to design long-term poverty reduction mechanisms.

Third, the research results imply that investors in the Chinese bond market have excellent risk identification ability, and they can evaluate the credit risk accurately behind bond issuers according to their public information. Accordingly, further improving the information disclosure system of bond issuers is conducive to preventing and managing bond defaults. It is beneficial to protect bond investors' benefits and promote the bond market's prosperity and stability.

Finally, enterprises can make production and business decisions by combining their own needs and national development. It is rewarding for achieving the value integration of 'becoming a big self' and 'a small self' and being conducive to long-term and high-quality development.

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