

The Economic Consequences of the Loan Guarantees and Firm's Performance: A Moderate Role of Corporate Social Responsibility

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Abstract

This study examines the causal relationship between loan guarantee and firm's performance through a moderate role of corporate social responsibility (CSR). This study used 350 non-financial firms of China for data analysis. This study used annual panel data set from non-financial firms starting from 2009 to 2019. The findings show that a positive significant association exists among the relationship between loan guarantee and firm's performance. Moreover, a moderate role of Corporate Social Responsibility also strengthens the relationship between the loan guarantee and firm's performance. Furthermore, the logit regression results show that the loan guarantee, financial performances and CSR are negatively affecting the long-term zero-debts through all combinations. Also, the financial performances and loan guarantees are negatively influencing the constraints of firms in China, which shows that the financial performances and loan guarantee improvement of the firms lead to removing the constraints of firms in China.

Keywords

Economic consequence, loan guarantee, firm's performance, corporate social responsibility

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Introduction

Many criticisms of the Chinese banking system include different factors that inhibited the banks from providing loan grants to non-SOEs, for instance, the well-known fact that banks are State-Owned and pursue lending policies according to government directions rather than the commercial sector requirements. Cull and Xu (2003) documented that only 28% of non-SOEs have access to bank lending. Hence, it is difficult for the existing and new Chinese non-SOEs to secure loan grants without loan guarantees, firm–banks relationships and political connections. Similarly, due to the lack of a proper auditing system for Small Medium Enterprises (SMEs) and non-SOEs, banks intend a loan guarantee (LG) as a suitable instrument for mitigating their credit losses. One interesting and unsolved question related to bank lending originates that, whether the loan guarantee is compulsory for firms to obtain a bank loan in China? This question has importance because, on the one hand; SOEs have direct access to State-Owned Banks (SOBs) during lending decisions as well as the state provides an implicit guarantee and confirms that SOEs will not default on their repayments. On the other hand, various non-SOEs procure loan guarantees through guarantee circles and institutional guarantee services; as they consider that it is a useful tool in risk-controlling and flourishing relationships. Danos et al. (1989) documented that during the lending process the banks require historical data as well as forward-looking information, that is, management earning forecast (MEF) to determine whether the firms have the financial status and ability to repay the loan amount from their future obligations.

In the bank loan market, the role of information intermediaries', mainly financial analysts, is essential in mitigating information asymmetry problems, an analyst's coverage (N-Analyst) can affect the way banks structure their loans. Recent literature spotlighted the value of financial analysts and documented their two necessary functions. (a) Analysts regularly gather and examine private and public information on the firms they cover and afterwards distribute it to investors in a simple, understandable way. (b) Using the information collected, the financial analysts distinguish managers' misconduct promptly, and therefore act as external monitors to firms (Healy & Palepu, 2001). The empirical literature holds both the information and governance roles of analysts (e.g., Cavezzali et al., 2014; Chang et al., 2006; Chung & Jo, 1996; Hong et al., 2000; Irvine, 2003; Shabbir et al., 2020a,b; Yu, 2008).

Prior literature documented that quite a few studies have examined the economic consequences of the loan guarantee, which can be divided into two streams. One stream of studies suggests that loan guarantee mitigates the information asymmetry problem in capital markets and boosts the development of capital markets. These studies found that, as the capital markets are imperfect, the information asymmetry in the capital market restricts the financing activities of various firms; particularly for small-medium enterprises (SMEs) (Beck & Demirguc-Kunt, 2006; Laeven, 2003). Moreover, a loan guarantee can also mitigate the information asymmetry between banks and firms because guarantors are a large party with higher information disclosures that reduce the bank lending risk. This characteristic makes the loan guarantee system a wide-spread phenomenon in developed and developing countries (Cowling & Mitchell, 2003). Prior literature also showed that loan guarantee raises firms to access to external financing and reduces the firm's cost of debt (Khanna & Palepu, 2000; Saher et al., 2020; Sheng et al., 2016; Wang et al., 2014; Zhang & Jiao, 2017). Similarly, Samujh et al. (2012) found that although it is tough for startup firms to obtain bank lending due to lack of collaterals, however, the loan guarantee schemes by the government assist startup firms to procure loans at a lower interest rate.

The importance of a loan guarantee is extensively acknowledged in bank lending activities, as it secures loans and reduces borrower's default losses. The loan guarantee also serves as a vital mechanism to increase bank lending opportunities to SMEs, particularly in developing countries where the credit rationing process is operating. Some extensive studies concluded that the loan guarantee has a vital role in determining the cost and provides accessibility to bank loans, during the financial crisis as well. The

loan guarantees have a tremendous demand in the loan market because providing funds across Chinese firms is sternly regulated. According to the People's Bank of China (PBOC) general lending provision 1996, the lender of a loan to a firm or corporation must be a financial institution. This provision restricts the firms from providing funds to each other directly. According to Jiang (2015), more than 50% of Chinese firms are involved in the loan guarantee. However, the literature argued that a loan guarantee causes severe drawbacks to related parties; for instance, guaranteed loans are considered invalid lending contracts, for example, if the borrowing firm becomes the default, the guarantor cannot claim interest on a loan in a court case. The loan guarantee provided by the guarantor's firm does not count as debt in the balance sheet, so it will not increase the leverage ratio of the guarantor as well. Furthermore, the payment of the loan guarantee cannot be a trial, because only a few per cent of the total loan amount is paid to the guarantor when the contract is signed. Therefore, guarantors have to involve banks to act as serving agents; these contracts are called entrusted loans.

From the perspective of the bank–firm lending relationship, we examine this vital issue in China for two reasons. First, we examine whether the loan guarantee reduces the bank loan interest rate at the cost of information asymmetry and benefits firms with lower COD. The conventional wisdom of the banking community suggests that a third-party loan guarantee is less risky because it would carry a lower interest rate. However, the loan guarantee is usually associated with low-quality or risky borrowers that affects the information asymmetry problems such as adverse selection and moral hazards. The information asymmetry cannot be neglected because it is the critical factor that determines the viability of different financing arrangements (Holmström, 1979; Holmström & Tirole, 1997), as well as it impacts the design of a loan contract (Liu, 2015). At the beginning of a lending relationship, banks tackle adverse selection problems due to low-quality or riskier borrowers, which are more likely to default, and willing to take loans at a higher interest rate. Once the loan is released, the borrowers have the incentives to invest in self-interested schemes at the cost of debt-holders. Furthermore, the role of SOEs in China is quite evident in obtaining more bank loans on a soft information basis; however, our study provides robust evidence that non-SOEs have more opportunities to obtain credit loans on an information basis and reduce their COD. Since the interest rate liberalization reforms solved the unprincipled bank lending, it is reasonable that the firms that rely more on their loan guarantee would suffer in information problems more during the post-interest-rate liberalization period. However, our study has the latest, as it discusses that the firms are receiving a loan guarantee to increase the guarantor's and banks' default risk.

Literature Review

While banks poorly examined borrowing firm's characteristics as well as act indolent in their screening and monitoring role as credit risk shifted to guarantors under the risk-sharing system. Also, this loan guarantee covenant undermines the importance of information asymmetry, which leads to adverse selection and moral hazard issue as well as increases banks and guarantor's firm default and litigation risks. Thus, in the presence of LG, the importance of information asymmetry reduces between the borrowing firm and bank. Since the guarantor takes the credit risk and provides additional safety to the bank in the lending process, these results are consistent with the theoretical prediction that in the presence of information opacity, a loan guarantee is a useful device to reduce the importance of information asymmetry that arises between bank and firms and benefit the loan guarantee firms with a lower cost of debt (Beck et al., 2010; Riding & Haines, 2001).

Prior studies about loan guarantee in China discussed the motivation of loan guarantees (e.g., Arasu et al., 2021; Beck et al., 2010; Chang & Hong, 2000; Fisman & Wang, 2010; Kumari et al., 2021; Shim, 2006; Uesugi et al., 2010; Wang, 2004), determinants of loan guarantee (e.g., Chen et al., 2011; Feng et al., 2005; Jian & Xu, 2012; Li, 2010; Luo & Tang 2007; Wang & Lin, 2007;) and economic consequences of loan guarantee (e.g. Beck & Demircuc-Kunt, 2006; Chatterjee, 2019; Ehsan et al., 2021; Gao & Song, 2007; Gong & Wu, 2005; Jun et al., 2021; Khanna & Palepu, 2000; Laeven, 2003; Liu et al., 2020; Ma et al., 2014; Matloob et al., 2020; Nguyen et al., 2020; Saleem et al., 2019; Samujh et al., 2012; Shabbir & Wisdom, 2020; Shabbir et al., 2020a,b; Sheng et al., 2016; Uroos et al., 2021; Wang & Luo, 2006; Yu et al., 2020; Wang et al., 2014; Zhang & Jiao, 2017).

Hirst et al. (2008) suggested that MEF is a critical voluntary disclosure mechanism that can influence a firm's reputation by providing a transparent and accurate report about the firm's credibility. MEF assists in building a firm's reputation by presenting accurate information over an extended time, which usually is not quickly changeable. While reducing information asymmetry between the firm and other parties may happen more readily. Mazumdar and Sengupta (2005); Shabbir et al. (2019); Hamid and Yunus (2020); Saleem et al. (2020); Liu et al. (2020); Arif and Shabbir (2019); Lambert et al. (2012) documented that firms are disclosing more regular and timely information disclosures, especially, MEF can achieve diverse market objectives such as lower cost of capital/debt. Management Earnings forecasts MEF and the COD has firm theoretical underpinnings, for example, the study by Sengupta (1998) is the initial work that provided evidence about the negative relationship between disclosure quality and the COD. This study follows Lee et al. (2012), who argued that MEF accuracy in a prior period indicates a firm's ability to deliver accurate forward-looking information about a firm's credibility and repayment ability of debt.

On the other hand, a higher CFO may pull the higher cost of debt if the lender identifies that a firm with surplus free cash flows is likely to make little return or even value-destroying investment as argued by Jensen (1986). Firms' age (FA) is controlled, as mature firms seeking external financing tend to use debt (Ayyagari et al., 2010). Revenue growth (Grow) is included because prior studies found that debt financing is more significant for firms with higher revenue (Ayyagari et al., 2010; World Bank, 2006; World Bank-People's Bank of China, 2006). A negative coefficient is proposed, as firms experiencing growth would be deemed less likely to fail to pay on their loans. We controlled the return on equity (ROE) as a measure of the availability of internal finance, that is, a higher ROE is associated with lower credit constraints. However, a higher ROE may also point out higher growth opportunities, which may produce more severe constraints. A negative and significant sign of ROE suggests that firms with higher profitability, that is, with an improved access to internal finance and less likely to be credit constrained (Chong et al., 2013).

We also controlled Tobin's Q , measured as the sum of the market value of equity plus book value of debt scaled by the firm's total assets. Finally, our study also follows Francis and Wang (2008) to control industry dummies and year fixed effects. In contrast, higher leverage beyond a specific limit increases the cost of debt and default risk. The outcome of leverage on the cost of debt is thus an empirical question. Besides, newly established firms are likely to be riskier and have a higher rate of default than old established firms (Leeth & Scott, 1989). Consequently, newly-established firms have a higher cost of debt than older firms. The cash flow from operations (CFO); is controlled as firms with higher cash flow may relish lower cost of debt as they are in a superior situation to serve their debts. Calcagnini et al. (2014) stated that a negative coefficient of SOE on COD represents that the state controls large numbers of firms in China with superior access to state-owned banks in the lending process with lower interest rates and reduce the importance of information asymmetry at the time of loan inception.

Methodology

This study collects a dataset of 11 years regarding loan guarantee, firm's performance, CSR disclosures and control variables from the China Securities Markets and Accounting Research (CSMAR) Database starting from 2009 to 2019. We focussed on A-share listed firms because these firms structure the central part of the listed firms in China, and a change in the cost of debt for these firms can have a significant result on China's capital market. The independent variable loan guarantee is calculated through the size of the outstanding guarantee divided by total assets at the end of the year. Whereas, returns on equity (ROE) and firm size (FS) are used as a proxy of the dependent variable firm performance (FP). FS, calculates as the natural logarithm of the firm's total assets at the end of the firm year. Boubakri and Ghouma (2010) found that FS is negatively related to a firm's COD, a negative coefficient of FS, indicates that large firms take less risk due to higher assets and better growth opportunities. Our study includes a set of different control variables in regression models, such as several financial analysts releasing earnings forecast (N-Analyst) used as a proxy for information asymmetry such as Arif et al. (2020); Badertscher et al. (2015); Sadiq et al. (2021); Anser et al. (2021); Al-Hadi et al. (2017). Whereas, Shu and Chiou (2017) considered that N-Analyst is a key exterior mechanism that reduces information asymmetry issues between bank and firm and generally, the lower N-Analyst entails a higher degree of information asymmetry.

We control the firm's leverage (LEV) used as a proxy for firm's default risk, it is calculated as a ratio of total liabilities scaled by total assets; a higher borrowing may point out that it can finance with a lower cost of debt, in contrast, higher leverage beyond a specific limit increases the cost of debt and default risk. The outcome of leverage on the cost of debt is thus an empirical question. State-owned enterprises (SOE) measure as if the firm is directly owned or controlled by state agencies at the beginning of year value is 1 and 0 otherwise (a negative coefficient expected due to implicit loan guarantee by the state) (Liu et al., 2016). Tobin's Q is measured as the sum of the market value of equity plus the book value of debt, scaled by the firm's total assets. This study uses two indicator variables for moderate variable CSR, environmental disclosure score (ENV), and social disclosure score (SOC). Equations (1) and (2) show (t) as the period (2009–2019) and (i) denotes a list of selected non-financial firms.

$$\text{Firm's performances}_{it} = \beta_0 + \beta_1 \text{LG}_{it} + \beta_2 \text{CSR}_{it} + \beta_3 \text{ control variables}_{it} + U_{it} \quad (1)$$

The following model (1) has described the relationship as;

$$\text{FP}_{it} = B_0 + B_1 \text{LG}_{it} + B_2 \text{ENV}_{it} + B_3 \text{SOC}_{it} + B_4 \text{N-Analyst}_{it} + B_5 \text{LEV}_{it} + B_6 \text{SOE}_{it} + \beta_7 \text{Tobin's } Q_{it} + \varepsilon_{it} \quad (2)$$

Results and Discussion

Table 1 shows the descriptive analysis of the study.

Table 1 shows the descriptive statistics of the study in the form of observations, mean value, standard deviation, minimum value and maximum value. Firm performance shows the mean value of 0.095 with a minimum value of 0.014 and a maximum value of 1.532 that show the financial performances of the Chinese non-financial sector from 2009 to 2019 is 9.5% on average. Similarly, the Loan guarantee shows the mean value of 0.054 with a minimum value of 0.022 and a maximum value of 1.339. Corporate social responsibility shows a mean value of 0.581 with a minimum value of 0.051 and a maximum value of 1.0.

Table 1. Descriptive Statistics.

Variable	Observations	Mean	Std. Dev.	Min.	Max.
FP	3450	0.095	0.136	0.014	1.532
LG	3450	0.054	0.089	0.022	1.339
CSR	3450	0.581	0.486	0.051	1.000
N-Analyst	3450	4.654	6.776	0.016	3.761
LEV	3450	0.441	0.215	0.005	3.238
SOE	3450	0.079	0.073	0.001	0.431
Tobin's <i>Q</i>	3450	0.638	0.472	0.004	1.003
ROE	3450	0.047	0.201	0.007	1.024
FS	3450	0.541	0.413	0.000	3.773
ENV	3450	0.044	0.074	1.623	0.423
SOC	3450	0.077	0.237	0.976	2.515

Source: The authors.

Whereas the N-Analyst shows the mean value of 4.654 with a minimum value of 0.016 and a maximum value of 3.761. Leverage ratio shows the mean value of 0.441 with a minimum value of 0.005 and a maximum value of 3.238. State ownership shows the mean value 0.079 with a minimum value of 0.001 and a maximum value of 0.431. Tobin *Q* shows the mean value of 0.638 with a minimum value of 0.004 and a maximum value of 1.003. ROE shows the mean value of 0.047 with a minimum value of 0.007 and a maximum value of 1.024. Firm size shows the mean value of 0.541 with a minimum value of 0 and a maximum value of 3.773. Environmental disclosures scores show the mean value of 0.044 with a minimum value of 1.623 and a maximum value of 0.423. Social disclosures scores show the mean value of 0.077 with a minimum value of 0.976 and a maximum value of 2.515.

Correlation Results

The reported result of the correlation matrix is presented in Table 2. A significant and negative correlation is found between COD and the leading independent variables. LG (<0.001), supports our first hypothesis H_1 that firms receiving loan guarantees enjoy a lower cost of debt. MEF and COD are also negatively correlated (at $p < 0.10$), supporting our second hypothesis H_2 , that MEF reduces the cost of debt. N-Analyst negatively correlated (at $p < 0.001$). We also found a negative and significant correlation between COD and LEV, SOE, FA (at $p < 0.001$ and FS (at $p < 0.10$). Further, we found a positive and significant correlation between COD and Tobin's *Q*. However, the correlation between COD and B4AQ, Grow is insignificant.

Regression Results

Table 3 presents the main regression results. The significant negative coefficient of LG, that is, 0.048% on COD in (column 1) supports our hypothesis H_1 ; the firms receive loan guarantee, reduce their COD.

Table 2. Correlation Analysis.

Variables	COD	LG	MEF	NA	LEV	ROE	SOE	B4AQ	TOBQ	FA	CFO	FS
COD	1											
LG	-0.881***	1										
MEF	-0.7859*	0.810***	1									
NA	-0.911***	0.613	0.901***	1								
LEV	-0.921***	0.710*	-0.871***	-0.921***	1							
ROE	0.912***	-0.897***	-0.820***	0.790**	-0.900***	1						
SOE	-0.7720***	-0.799	-0.810***	-0.789**	0.860***	-0.6017	1					
B4AQ	0.667	-0.868***	-0.787*	-0.724	0.802***	0.833***	0.883***	1				
Tobin's Q	0.888***	0.823***	0.815**	0.844***	-0.936***	0.950***	-0.958***	-0.860***	1			
FA	-0.875***	0.936	-0.893***	-0.885***	0.912***	-0.792*	0.915***	0.7944***	-0.9591***	1		
CFO	0.812***	-0.751*	-0.798***	0.879	-0.913***	0.813***	-0.781	0.790***	0.913***	0.812***	1	
FS	-0.912*	-0.9743***	-0.891***	-0.795*	0.8857***	0.938***	0.891***	0.913***	-0.845***	0.915***	0.8924***	1

AQ: 5 Source: The authors.

Note: *, **, and *** Presents level of significance at 10%, 5% and 1%, respectively.

Moreover, the coefficient of N-Analyst negative and significant indicates that during the lending process, banks rely on higher analyst coverage and provide loans to guaranteed firms at less intensive covenant restrictions, a lower likelihood of requiring collateral and a lower likelihood of having performance-pricing provisions. Since the guarantor takes the credit risk and provides additional safety to the bank in the lending process, these results are consistent with the theoretical prediction that in presence of information opacity, a loan guarantee is a useful device to reduce the importance of information asymmetry that arises between bank and firms and benefits the loan guarantee firms with the lower cost of debt (Beck et al., 2010; Calcagnini et al., 2014; Khanna & Palepu, 2000; Riding & Haines, 2001). In addition to this, a negative coefficient of SOE on COD represents that the state controls large numbers of firms in China with superior access to state-owned banks in the lending process with lower interest rate and reduces the importance of information asymmetry at the time of loan inception. The rest of the results of Column-1 are economically significant, as moving from LG top to bottom deciles is related to a reduction in COD.

Table 3 (model 2) presents the role of MEF in the presence of LG for lowering the firm's COD. Nevertheless, the negative coefficient of LG indicates that firms receiving loan guarantee have a 0.079% lower COD subsample. However, the magnitude of the negative coefficient of MEF, that is, 0.0128%, suggests a preponderant role in lowering COD. These results are consistent with our second hypothesis H_2 and validate the findings of prior studies (Sengupta, 1998;). More importantly, the primary variable of interest in model 2 is the interaction term between the LG and MEF with a positive coefficient, that is, 0.0382%, is according to the expectation of our second hypothesis H_2 . These results provide a base that quality information through MEF has a substitution effect on a loan guarantee to reduce the information asymmetry problem between bank and firm and benefits firms through lowering COD. Overall, our study found that the impact of management earnings forecast on bank lending is economically significant.

Additional Analysis

We further examined the mean difference in firm characteristics between the SOE and the NSOE firms in Table 4. The table presents the test statistics for the mean difference in firm characteristics, the SOE (treated group) and NSOE (control group). We found that these two groups are not significantly different in terms of their expected propensity scores. They are similar in firm size, sales growth, leverage and cash from operating activities. It should be noted that the matching standard employed in other studies is 30%, or even more significant. For instance, Used a deviation of <30% to identify the most comparable unlisted SOE for each listed SOE. Altogether, these test findings present that our matching is reasonably accurate.

The dependent variables in the first-stage probit regression include LGD measured as the value is 1 if a firm has a loan guarantee at the end of the year and 0 otherwise, N-Analyst, LEV, ROE, B4AQ, Tobin's Q , FA, CFO, Grow and FS. We added SOE, as Ayyagari et al. (2010) documented that state-owned firms use more bank loans. The first-stage probit model results are presented in Table 5, which shows that most of the variables are significantly related to LG.

Table 6 presents the Heckman second-stage regression results. In the second stage, coefficients of IMR for both models are 0.776 and 0.847, respectively, and significant at the 1% level. Hence, the error terms of the COD equation in (models 1 and 2) are associated with the firms receiving LG, which is consistent with the LG decision not being exogenous. Nevertheless, after incorporating the IMR variable to control possible endogeneity, the LG and MEF variables are still negative and significant in model 2.

Table 3. Main Regression Results.

Variables	Model 1 COD	Model 2 COD
LG	-0.068** (0.02)	-0.079*** (0.025)
MEF		-0.042** (0.005)
LG × MEF		0.038* (0.02)
N-Analyst	-0.011* (0.00)	-0.0238* (0.00)
Lev	-0.222*** (0.014)	-0.096*** (0.015)
ROE	0.161*** (0.033)	0.147*** (0.038)
SOE	-0.038** (0.026)	-0.033** (0.016)
B4AQ	0.044** (0.018)	0.050** (0.019)
Tobin's Q	-0.002 (0.001)	-0.004** (0.001)
FA	-0.017 (0.004)	-0.012 (0.006)
CFO	0.045* (0.024)	0.042 (0.026)
FS	-0.029*** (0.005)	-0.044*** (0.006)
Constant	0.848*** (0.125)	1.154*** (0.139)
Industry FE	Yes	Yes
Year FE	Yes	Yes
R-squared	0.708	0.776
Hausman χ^2	206.05	225.92
Observations	3450	3450

Source:The authors.

Note: Dependent variable: COD, the cost of debt. Independent variable: LG, loan guarantee. Adjustment variable: MEF, management earnings forecasts; rest are control variables. The t-statistics values are reported as robust standard errors, *, ** and *** Presents level of significance at 10%, 5% and 1%, respectively. The description of variables is given in Table 1.

Table 4.Result of Mean Difference Test.

Z	SOE Firms = 1		NSOE Firms = 0		Mean Difference (= Treated – Control)	t-Statistics
	N	Treated	N	Control		
COD	2300	0.189	1150	0.41	-0.221	4.876***
LG	2300	0.229	1150	0.231	-0.002	0.908*
MEF	2300	0.646	1150	0.85	-0.204	6.992***
LG × MEF	2300	0.321	1150	0.127	0.194	2.953**
N-Analyst	2300	6.447	1150	6.307	0.14	2.959**
Lev	2300	0.954	1150	0.491	0.463	-9.989***
ROE	2300	0.28	1150	0.283	-0.003	1.908***
B4AQ	2300	0.324	1150	0.128	0.196	-3.795***
Fin Q	2300	2.81	1150	2.239	0.571	6.879***
FA	2300	10.549	1150	8.858	1.691	-4.986***
CFO	2300	0.648	1150	0.051	0.597	1.984
FS	2300	28.152	1150	23.78	4.372	-10.982***

Source:The authors.

Note: Dependent variable: COD, the cost of debt. Independent variable: LG, loan guarantee. Adjustment variable: MEF, management earning forecasts; rest is control variables. The t-statistics values are reported as robust standard errors, *, ** and *** Presents level of significance at 10%, 5% and 1%, respectively. The description of variables is given in Table 1.

Table 5. First-stage Probit Analysis Results.

Variables	Heckman First Stage	
	LGD	
N-Analyst	0.015** (0.003)	
Lev	1.834*** (0.324)	
ROE	-4.509*** (0.003)	
SOE	-0.772* (0.073)	
B4AQ	-0.874** (0.111)	
Tobin's Q	0.668*** (0.015)	
FA	0.321*** (0.001)	
CFO	-0.794* (0.09)	
FS	-0.108 (0.223)	
Constant	-0.507 (0.605)	
LR χ^2 (10) Pseudo R ²	376.97 0.099	
Observations	3,450	

Source:The authors.

Note: Dependent variable: COD, the cost of debt. Independent variable: LG, loan guarantee. Adjustment variable: MEF, management earning forecasts; rest is control variables. The t-statistics values are reported as robust standard errors, *, ** and *** Presents level of significance at 10%, 5% and 1%, respectively. The description of variables is given in Table 6.

Table 6. Second-stage Regression Analysis Results.

Heckman 2nd Stage Variables	Model 1 COD	Model 2 COD
LG	-0.058** (0.049)	-0.177*** (0.022)
MEF		-0.209** (0.004)
LG × MEF		0.238** (0.049)
N-Analyst	-0.102*** (0.000)	-0.326*** (0.000)
Lev	0.763*** (0.001)	0.629*** (0.747)
ROE	-1.598*** (0.002)	-3.224*** (0.002)
SOE	-0.134*** (0.001)	-0.248*** (0.007)
B4AQ	-0.614*** (0.001)	-0.185*** (0.010)
Tobin's Q	0.526*** (0.004)	0.128*** (0.005)
FA	0.485 (0.450)	0.311*** (0.001)
CFO	-0.724*** (0.008)	-0.983*** (0.003)
FS	-0.987*** (0.005)	-0.416*** (0.002)
Lambda	1.776*** (0.006)	1.847*** (0.005)
Constant	-0.629** (0.050)	-1.671*** (0.001)
R-squared	0.810	0.794
Observations	3450	3450

Source: The authors.

Notes: Dependent variable: COD, the cost of debt. Independent variable: LG, loan guarantee. Adjustment variable: MEF, management earnings forecasts; rest are control variables. The t-statistics values are reported as robust standard errors. *, ** and *** Presents level of significance at 10%, 5% and 1%, respectively. The description of the variables is given in Table 1.

It indicates that a 1% increase in LG for an average firm in the sample is related to 7.78 basis points, lowering the COD, while a 1% increase in MEF reduces 0.90 basis point reductions in COD. Therefore, these findings robust the results that MEF has the potential or/and substitution effect on LG in lowering COD. Overall, the results of our study are robust after controlling the selection bias issue.

Where the dummy variable interest rate liberalization (IRL) is defined as one for the period after 2013 (including 2013), the coefficient of interest is in model 4 β_3 and model 5 β_4 which captures the extent to which the firms reduce the cost of debt who take loan guarantee is more affected than that of firms which do not take loan guarantee. Following the completion of interest rate liberalization, we expect model 4 β_3 and model 5 β_4 to be positive and significant if the dependent variable is COD. Table 7 reports the findings. In columns (1) and (3), we tested the impact of loan guarantee on firms' cost of debt under the interest rate shock without using fixed effects. In contrast, in columns (2) and (4) we repeated the regressions after including industry and year fixed effects to control for unobserved heterogeneity across industry and years. The dummy variable IRL is dropped from the regressions because of the inclusion of year fixed effects. As presented in Table 7, the coefficient on the interaction term in model 4 β_3 and model 5 β_4 is positive and significant with the dependent variable is COD. These findings present that the interest rate liberalization shock is associated with a lower level of cost of debt for loan guarantee firms relative to their non-loan guarantee counterparts, which support our argument. Overall, by using the interest rate liberalization reform in China as a natural experiment, our study employs a DID estimate to confirm the causal relationship of the loan guarantee, management earnings forecasts with firms' cost of debt.

Placebo Tests (Difference in Difference)

A most likely concern with our findings in Table 8 is that our study employs a single occasion, namely the interest rate reform, as an exogenous shock to identify the impact of loan guarantee on the cost of debt. If there are differential trends across bank lending before the interest rate reform, we may erroneously attribute these trends to the interest rate reform shock. To examine whether our findings are forced by differential trends before the interest rate liberalization reform, our study conducts placebo (falsification) tests.

Table 7. Robustness Analysis.

Robustness Analysis					
Panel A	Model 1	Model 2	Panel B	Model 1	Model 2
Variables	COD	COD	Variables	SBL	SBL
LG	-2.093** (0.051)	-5.04*** (0.002)	LG	-1.798*** (0.001)	-2.32*** (0.001)
MEF		-1.004** (0.004)	MEF		-1.591* (0.072)
LGC × MEF		1.0902* (0.070)	LGC × MEF		1.174** (0.003)

(Table 7 continued)

(Table 7 continued)

Robustness Analysis					
Panel A	Model 1	Model 2	Panel B	Model 1	Model 2
Variables	COD	COD	Variables	SBL	SBL
N-Analyst	-0.500 (0.220)	-0.508 (0.230)	N-Analyst	-0.902 (0.210)	-1.028 (0.451)
Lev	-1.287*** (0.009)	-1.994*** (0.001)	Lev	1.023* (0.060)	2.042* (0.090)
ROA	6.080** (0.06)	3.036** (0.043)	ROE	0.239 (0.980)	0.716 (0.312)
SOE	-1.061** (0.607)	-1.433** (0.001)	SOE	-1.287 (0.560)	-0.265 (0.559)
B4AQ	1.041** (0.069)	1.065** (0.019)	B4AQ	-0.597 (0.590)	-0.03 (0.759)
Tobin's Q	-1.073 (0.340)	-01.033* (0.005)	Tobin's Q	1.549*** (0.001)	1.105*** (0.001)
FA	-0.731 (0.484)	-1.056 (0.641)	FA	0.231* (0.031)	0.120* (0.031)
CFO	1.082*** (0.002)	1.080*** (0.001)	CFO	1.121 (0.230)	0.126 (0.322)
BTM	1.542*** (0.009)	-0.237 (0.123)	Grow	0.021 (0.700)	0.039 (0.670)
FS	-1.133*** (0.005)	-1.044*** (0.006)	FS	-1.236 (0.231)	-1.238 (0.515)
Constant	1.579*** (0.003)	2.248*** (0.002)	Constant	1.062 (0.116)	0.124 (0.346)
Industry	Yes	Yes	Industry	Yes	Yes
Year	Yes	Yes	Year	Yes	Yes
R-squared	0.806	0.780	R-squared	0.854	0.789
Observations	3450	3450	Observations	3450	3450

Source: The authors.

Note: Robustness panel A—dependent variable: COD, the cost of debt. Whereas, in Robustness panel B—dependent variable: SBL, the stock of bank loans. Independent variable: LGC, loan guarantee continuous. Adjustment variable: MEF, management earnings forecasts rest are control variables. The t-statistics values are reported as robust standard errors. *, ** and *** Presents level of significance at 10%, 5% and 1%, respectively. The description of variables is given in Table 1.

Table 8. Difference in Difference (Regression Analysis).

Regression (diff-in-diff) Variables	Without-FE Model 1 COD	With-FE Model 1 COD	Without-FE Model 2 COD	With-FE Model 2 COD
LGD	-1.019*** (0.005)	-4.024*** (0.006)	-1.019*** (0.002)	-0.120*** (0.001)
MEF			-1.909** (0.0051)	-0.611** (0.005)
LGD × IRL	0.745* (0.090)	0.017*** (0.006)		
IRL	-2.012*** (0.004)		-0.811*** (0.003)	
LGD × MEF × IRL			1.4941** (0.004)	1.809** (0.004)
N-Analyst	-3.410* (0.008)	-1.140* (0.006)	-2.037* (0.006)	-2.149** (0.005)
LEV	-7.246*** (0.001)	-8.221*** (0.001)	-3.224*** (0.001)	-0.803*** (0.001)
ROE	1.228*** (0.001)	2.163*** (0.003)	1.262*** (0.001)	2.185*** (0.002)
SOE	-2.144 (0.661)	-1.729** (0.067)	-2.061 (0.230)	-1.032** (0.055)
B4AQ	1.034** (0.053)	2.044** (0.052)	2.035*** (0.000)	1.047** (0.061)
Tobin's Q	-1.032 (0.340)	-4.002 (0.310)	-2.134 (0.211)	-3.255*** (0.001)
FA	-1.000 (0.230)	-1.009* (0.071)	-1.086 (0.230)	-2.003 (0.430)
CFO	5.085*** (0.002)	1.042* (0.072)	2.073*** (0.002)	1.041 (0.910)
FS	-1.0983*** (0.003)	-2.063*** (0.005)	-2.103*** (0.003)	-1.076*** (0.005)
Constant	1.421*** (0.007)	1.828*** (0.005)	2.520*** (0.006)	1.116*** (0.001)
Industry	No	Yes	No	Yes
Year	No	Yes	No	Yes
R-squared	0.089	0.671	0.776	0.899
Observations	3450	3450	3450	3450

Source:The authors.

Note: Standard errors in parentheses *** $p < 0.01$, ** $p < 0.05$ and * $p < 0.1$.

Conclusion

The result shows that a significantly positive association exists between the loan guarantee and financial performances and the moderating effect of the CSR also strengthens the positive effect of loan guarantee on the financial performances. The result shows that the loan guarantee, financial performances and CSR are negatively affecting the long-term zero-debts through all combinations. That shows that the financial performances, loan guarantee and corporate social responsibility led to the decrease in the long-term debts in the non-financial firms in China. The financial performances and loan guarantees are negatively influencing the constraints of firms in China. That shows that the financial performances and loan guarantee improvement of the firms led to removing the constraints of firms in China.

The results of this study show that the MEF coefficient is negative and statistically significant with the firm's COD, which presents that MEF has a vital role in the bank lending process. According to Diamond and Verrecchia (1991); and Easley and O'Hara (2004), firms that are willing to disclose more information efficiently can reduce information asymmetry issues quickly. Therefore, precise MEF can build a firm's reputation and improves the credit loan opportunities to benefit firms with lower COD. The study also found that the interaction term between a loan guarantee and MEF has a positive and significant coefficient of 0.0382%, which suggests that MEF has the substitution effect on loan guarantee and solves the information asymmetry problem between bank–firm and reduces the firm's COD. Although the role of SOEs in China is quite evident in obtaining more bank loans on a soft information basis, however, our study provides robust evidence that non-SOEs have more opportunities to obtain credit loans on an information basis and reduce their COD. Overall, our study found that the impact of management earnings forecast on bank lending is economically significant.

Moreover, to identify the causal impact of loan guarantee in reducing the cost of debt, we used a quasi-nature experiment of the recent interest rate liberalization reform by People's Bank of China (PBOC) since 2013 as an exogenous shock to bank lending between loan guarantee firms and cost of debt. The unprecedented liberalization reform has an immense effect on bank lending, which is used to facilitate non-SOE firms that have limited access to bank loans. Hence, interest rate liberalization reform is plausibly exogenous at the level of Chinese banks and permits us to develop the casual effect between loan guarantee firms and cost of debt. We analysed a difference-in-differences (DID) regression, and a DID estimator compares changes in bank lending around the launch of the interest rate liberalization between a firm with and without loan guarantee connected firms. Since the interest rate liberalization solves the unprincipled bank lending, it is reasonable that the firms that rely more on their loan guarantee would suffer in information problems more during the post-interest-rate liberalization period. Our findings prove this conjecture, and our results held when we used the robustness analysis approach, the results show that a loan guarantee reduces the cost of debt, but it also harms the importance of information issues between the parties.

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