ABSTRACT: This paper investigates the impact of corporate social responsibility on the idiosyncratic risk of enterprises. We find that corporate social responsibility is negatively associated with the idiosyncratic risk of enterprises. This association is robust to a series of robustness checks, including the use of alternative indicators, exclusion of the effect of multicollinearity, and the addition of missing variables to address endogeneity concerns. Further analyses show that the impact of corporate social responsibility on idiosyncratic risk is more significant in state-owned enterprises, firms with poor corporate governance or low growth. Our findings support the notion that corporate social responsibility appears to improve corporate performance.

1 INTRODUCTION

Corporate social responsibility (hereafter, CSR) refers to that when an enterprise creates profits, it bears legal responsibility to shareholders and employees, as well as to consumers, community and environmental responsibility [1, 2, 3]. CSR requires enterprises must go beyond profit as the only goal of the traditional philosophy, put more emphasis on the value of people's attention in the process of production, and pay attention to the environment, consumers, and contribution to society.

The fulfilment of social responsibilities by enterprises will help solve the employment problem. In addition to increasing investment, adding new projects and expanding employment, the most important thing is to encourage enterprises to arrange their labour force scientifically [4], expand employment channels, create experiences that can increase efficiency without reducing the number of employees, and minimize the increasing pressure of employment by pushing people into the society [5]. In the past, under the guidance of ISO9000 and ISO140000 international certification, enterprises need to ensure the standard specified for the workers, like providing a healthy environment with clean air, eliminating safe hidden trouble, and not using child labour, etc. [6, 7]. Protecting the vital interests of the workers can not only attract labour resources, but also inspire them to create more value. More importantly, setting a good corporate image in this management can gain reputation and trust to realize the long-term goals [8]. In this sense, enterprises fulfil their social responsibilities and help solve the employment problem.

CSR is conducive to the protection of resources and the environment and the realization of sustainable development [2, 9]. Enterprise, as a social citizen, has unshrinkable social responsibility. To fulfill these responsibilities through technical innovation can not only first reduce production activity each link may cause pollution to the environment, but also can reduce energy consumption [10], save resources, reduce production cost, and make the products more competitive price [11]. Enterprises can also build environmental protection facilities together with communities through public welfare undertakings to purify the environment and protect the interests of communities and other citizens [12]. This will help alleviate the contradiction between the economic development of cities, especially those with concentrated industrial enterprises, and the serious environmental pollution and deterioration of human living environment.

The fulfilment of social responsibilities by enterprises can also help ease the gap between the rich and the poor, and eliminate the hidden dangers of social unrest [13]. On the one hand, large and medium-sized enterprises can concentrate the capital advantage, management and human resources advantages to develop the resources of the poor areas, and at the same time expand its production and operation, get the new growth point, which makes up the lack of funds in poverty-stricken areas and solves the problems of the local labour and idle resources, and finally help the local poverty to get rich [14]. On the other hand, enterprises can also through the act of charity to help
people in underdeveloped regions with education, social security and medical health undertakings, or with the help of government funds to assist step by step backward area development of social undertakings, achieving unparalleled appreciation through public welfare advertisement effect, which improves enterprise's image and consumer acceptance, therefore improving its market share [15].

In 1924, American scholar Oliver Sheldon proposed the concept of "corporate social responsibility" in his book "The Philosophy of Management" [16]. This is by far the earliest description of CSR from available sources. He linked CSR with the responsibility of the company operator to meet the human needs inside and outside the industry and believed that corporate social responsibility contains moral factors.

In the 1930s, there was the famous Dodd-Bailey debate in the field of corporate law in the United States. The two scholars had a great discussion on "whose trustees are the managers of the company". Professor Dodd was the first to point out that companies have social responsibilities to their employees, consumers and the public [17]. Although these social responsibilities may not be enshrined in law, they should become professional ethics for managers of companies to abide by. Subsequently, Berle immediately dissent: there is the sole purpose of business firms is a profit for shareholders, company managers but is equivalent to the responsibility of trustee, for shareholders if required managers responsible for anyone outside shareholders, so the owner control companies, the administrator shall be a fiduciary duty to the owner of the company law rules will be weakened and even subversion, in the name of CSR, the interests of the various communities will submit to the company property requirements, as a market economy based on private property will be shaken, the result will be similar to an economic civil war of the social wealth redistribution [18].

However, the modern debate on CSR didn't really begin until 1953, when Howard R. Bowen published "The Businessman's Social Responsibility" [19]. In his article, Bowen defined CSR as the obligation of businessmen to get close to relevant policies, make corresponding decisions and take ideal concrete actions in accordance with social goals and values.

Of course, there are also many arguments and voices against the "corporate social responsibility" scholars. Gunness (1994) points out that the criticism that CSR reflects a belief that companies are directly responsible for solving the problems plaguing society, and that they can do so alone, is at best an unrealistic hope [20]. He argues that the term "corporate social responsibility" is vague. On that basis it has lost its purpose. In his view, CSR "is nothing more than a propaganda tool". The term never describes standards of business behavior but is merely a tool for a battle between companies, governments and consumer groups [21].

Thus, CSR is a rather complex concept, which has aroused extensive debate and discussion among experts and scholars. The concept of CSR has been gradually clarified and clarified in the debate between proponents and opponents.

In 1979, a comprehensive definition was given, which seemed to sum up the debates on the concept of CSR at this stage. It is believed that CSR refers to the sum of the economic, legal, ethical and charitable expectations of the society on the organization within a given period. The concept gained widespread acceptance for a long time afterwards.

In our study, we utilize the data from Chinese stock market (Shenzhen Stock Exchange and Shanghai Stock Exchange from year 2010 to 2018). We add to the CSR and its spreading extent on enterprises and relative stakeholders and focus on the role of CSR in reducing idiosyncratic risk. We find that the more enterprises overtake their corporate social responsibility, the less idiosyncratic risk they will have. To ensure the robustness of the regression results, we conduct cluster analysis on all regression results at the company level and further analyses its significance through a series of hypothesis testing, robustness testing, and variable change methods, to draw corresponding conclusions.

This study contributes to the extant literature in the following ways. First, it expands the relevant research of CSR on the economic consequences' approach [22, 23]. Secondly, it expands the relevant research on the influencing factors of the listed companies' idiosyncratic risk [24, 25]. Last but not the least, it can provide useful reference for listed companies to prevent or reduce the impact of idiosyncratic risk. It also contributes to the extant literature in how enterprises treat CSR will have a significant impact on their idiosyncratic risk. And we innovatively integrate CSR as an influencing factor into the assessment of enterprise trait risk.

2 HYPOTHESES DEVELOPMENT

CSR increasingly cause the attention of the theoretical circle and the social from all walks of life, in the fierce market competition, business ethics and social responsibility has become the enterprise to obtain competitive advantage and realize the sustainable development of the key link, the mature business link CSR and corporate strategy, CSR has been from the past "the merchant's social responsibility" has become a strategic competitive resources, and high-level decision-making closely linked with the enterprise. At the same time, according to the ISO26000: Social Responsibility Guide, enterprises must follow the 7 principles including responsibility, transparency, moral behaviour, respect for the interests of stakeholders, respect for the rule of law, respect for international codes of conduct, respect for human rights to regulate and constrain the behaviour of enterprises [26], in order to assume the corresponding social responsibility. That is, enterprises that actively undertake corresponding social responsibilities must be honest in operation, transparent in information, meet the expectations of stakeholders and maintain the sustainable development of the social environment. Therefore, based on the principle and practice of social responsibility, CSR will have an impact on stock idiosyncratic risk. Existing literature shows that good social responsibility performance is conducive to the continuous accumulation.
of social capital by enterprises, which helps enterprises to form competitive advantages, enhance their operating ability, and thus reduce their operating risks, mainly reflected in the following 2 aspects:

First, good social responsibility performance can bring about good reputation effect, by not only motivating employees or retaining customers and suppliers, but also attracting the favour of investors, which helps enterprises to establish a harmonious relationship with broader stakeholders such as news media, government departments and communities [21]. For instance, consumers will actively respond to CSR behaviour. With the increasingly fierce market competition, enterprises are trying to retain more potential customers to improve their performance, which contributes to competitiveness. In this way, through assuming CSR activities, consumers will have a favourable attitude towards enterprises and products, which will lead to purchase choices beyond the nature of products [27]. Hence, enterprises can be more confident to retain customers by improving their brand loyalty in order to improve the ability to continue operation, which is beneficial to resisting the adverse impacts. Meanwhile, the intangible resources generated by this way can provide a stable economic strength for the enterprise and reduce enterprise risks, especially the idiosyncratic risk of itself.

In addition, CSR is a signal transmission mechanism [28]. As an illustration, the information disclosure presented by enterprises every year or every quarter is an effective tool for managers to communicate with stakeholders, which is also conducive to creating a good social image for enterprises. Specifically, enterprises can form different strategies and good performances of social duties. Moreover, timely and accurate information release are helpful to convey positive signals to the outside world, such as law-based operations, excellent performances, concerns for employees, environmental protections, etc. Under this situation, these signals will attract the attention and support of their belonging stakeholders, keeping a stable and harmonious relationship with stakeholders, which greatly devote to a positive reputation effect. At the same time, the good reputation can generate many conveniences, such as easing the financing constraints or lowering the cost of financing [29], so that can the high risk of enterprise operation be reduced enormously.

However, based on other types of theories, some scholars believe that a good act on CSR will have a negative impact on the enterprise, thus increasing the risk of it. On the one hand, according to the view of neoclassical economics, the final goal of an enterprise is to maximize the value of shareholders, therefore it is such a burden for corporation itself to undertake social responsibility, which may cause losses to the short-term interests of enterprises [30]. Under the premise of running in accordance with the law, an enterprise bearing too much social responsibility will occupy resources, which can be used to increase the wealth of shareholders instead. It is undeniable that in this case, carrying too much CSR will weaken the core competitiveness of the enterprise, and increase the risk during the operation to some extent, or even damage the potential value of the enterprise.

On the other hand, taking the principal-agent theory into account, enterprise managers often have a purpose in accordance with their own interests, characterized by being selectively to undertake social responsibility investment. In some way, these actions are harmful to the wealth of shareholders, especially some short-term or long-term interests. Besides, due to the information asymmetry, the arguing conflicts between managers and shareholders will be more serious, managers are likely to focus on their self-interest rather than take care of the enterprise, by consuming limited resources for these investments, which will absolutely put the whole corporation under a riskier circumstance. According to Zhang (2020), CSR provides managers with the discretion to manipulate earnings and the opportunity to consolidate their position because this behaviour meets the needs of themselves [31], so managers often take advantage of their positions through this way without considering the actual situation of the enterprise. This is mainly because they seek to build a satisfying personal image for future development prospects or tend to chase an impossible goal for improving their own social influence under huge public pressure. In this sense, Ma and Yu (2020) point out that long-term shareholders can supervise managers on following CSR strategies to reduce the risk of major accidents [32].

In sum, managers are more likely to be motivated by opportunistic behaviours, and it is possible that managers make concerned investment decisions out of the pursuit of personal interests, which is contrary to the sustainable development of the enterprise.

Based on the above theoretical analysis, we propose the following two competing research hypotheses:

H1a: Undertaking social responsibility can reduce the idiosyncratic risk of enterprises.

H1b: Undertaking social responsibility can exacerbate the idiosyncratic risk of enterprises.

3 RESEARCH DESIGN

3.1. Construction of sample

This paper selects all A-shares listed on Shenzhen Stock Exchange and Shanghai Stock Exchange from 2010 to 2018 as our research object, among which the data of corporate social responsibility comes from Run Ling Global, and other corporate financial data comes from China Stock Market & Accounting Research Database (hereafter, CSMAR) [33]. At the same time, we excluded the financial industry as well as the companies of ST. We also carried out the reduction of 1% for all continuous variables. To ensure the robustness of the regression results, we conducted cluster analysis on all regression results at the company level.

3.2. Models

The hypothesis to be tested are that idiosyncratic risk is a function of “Run Ling Global” corporate social responsibility and other control variables. The basic empirical model is as following:
\[
IR_t = \beta_0 + \beta_1 \cdot CSR_t + \Sigma \beta_q \cdot \text{Control Variable}_t + \varepsilon_t \tag{1}
\]

where \(\beta_0\) represents regression coefficient, \(\varepsilon_t\) is an error term. Control variable constrains \(Age_t\), \(Lev_t\), \(BM_t\), \(Rnds_t\), \(Growth_t\), etc. \(IR_t\) measures idiosyncratic risk, whereas \(CSR_t\) represent “Run Ling Global” Corporate social responsibility. A negative \(\beta_1\) suggests that \(CSR_t\) tends to decrease idiosyncratic risk. All the main variables are defined in table 1.

### 3.3. Variables

#### 3.3.1 Dependent variable: idiosyncratic risks

There are many ways to extract the idiosyncratic risk. Following Deng & Zheng [16], we are going to mainly focused on the Fama French three-factor method. Fama French three-factor model is the main method being used in existing domestic and foreign researches. Firstly, we can perform the linear regression of the Fama French three-factor model in (2) using the daily data of individual stocks. Specifically, we are going to perform the following regression on the rate of return \(r_{i,t,T}\):

\[
r_{i,t,T} - r_{eff} = \alpha_{i,t} + \beta_{MKT,i,t}(MKT_{t,T} - r_{eff}) + \beta_{SMB,i,t}(SMB_{i,t}) + \beta_{HML,i,t}(HML_{i,t}) + \varepsilon_{i,t,T} \tag{2}
\]

Here, \(r_{i,t,T}\) is the return rate of the stock \(i\) on the \(T_{th}\) day of the \(t_{th}\) month; \(r_{eff}\) is the risk-free interest rate on the \(T_{th}\) day of the \(t_{th}\) month. \(MKT_{t,T}, SMB_{t,T}, HML_{t,T}\) are the market portfolio returns on the \(T_{th}\) day of the \(t_{th}\) month, the portfolio return based on the company size on the \(T_{th}\) day of the \(t_{th}\) month and the portfolio return based on the book-to-market ratio on the \(T_{th}\) day of the \(t_{th}\) month respectively. Moreover, \(\alpha_{i,t}\) is the regression constant term of the stock \(i\) on the \(T_{th}\) month and \(\varepsilon_{i,t,T}\) is the residuals of the stock \(i\) on the \(T_{th}\) day of the \(t_{th}\) month. Then, we are able to use the sample standard deviation of the regression residual to get the idiosyncratic risk for this month. In order to unify the unit, we will get the standard deviation in month. The method is to multiply the standard deviation by the square root of the stock’s trading day of the month. In this way, we can get the idiosyncratic risk of the stock \(i\) in the \(t_{th}\) month, which is \(IVOL_{i,t}\):

\[
IVOL_{i,t} = \text{Std}(\varepsilon_i, t_{i,T}) \times \sqrt{T_{i,t}}. \tag{3}
\]

where \(\text{Std}(\varepsilon_i, t_{i,T})\) represents the standard deviation of residuals \(\varepsilon_i, t_{i,T}\); \(T_{i,t}\) represents the trading days of stock \(i\) in month \(t\).

#### 3.3.2 Test variable: CSR

There exists a long-going debate on how to measure CSR so there is no unified standard of it. At the present stage, there are mainly several commonly used measurement methods: Content Analysis Method [34], Reputation Index Method [35] and several questionnaire survey methods. Since 2007, "Run Ling Global" rating system actively respond to the call of International Social Responsibility Standard (ISO26000) [6], objectively and fairly disclose the social responsibility information of listed companies for their stakeholders and has been unanimously praised by the industry and widely adopted by scholars.

"Run Ling Global" rating system comprehensively and objectively evaluates corporate social responsibility performance from four dimensions, which are MacrocOSm (M), Content (C), Technique (T), and Industry (I). Among them, the MacrocOSm (M) evaluates the CSR strategy and involved in the implementation of social responsibility strategy and the concerns of stakeholders; [36, 37]. Content (C) mainly measures the implementation of CSR, such as employee welfare, environmental protection and community activities; The Technique (T) dimension, on the other hand, focuses on the details and quality of CSR information disclosure, such as information accuracy, transparency, objectivity, etc. Finally, Industry (I) dimension is based on industry attributes. The evaluation of the above four dimensions and scores were weighted (MacrocOSm (M) weights 30%; Content (C) weights 45%; Technique (T) weighting 15%; and Industry (I) takes 10%) [36]. The total score is calculated to measure a firm’s CSR performance.

### 3.3.3 Control variables

We choose to control some factors that have been shown to have effect on future stock price idiosyncratic risk in previous findings. The variable \(IR_t\) is the fluctuation of the random error term and all influencing factors that cannot be priced and can reflect the company's own constitution in year \(t\). As \(CSR_t\) is negatively associated with idiosyncratic risk, we add the variable \(Age_t\), which is the age of the cooperation in year \(t\). We control for firm financial leverage (\(Lev_t\)), which is measured by the book value of the total debt divided by the book value of the total assets.

In order to avoid that the firms with low book-to-market ratios which could have more stochastic bubbles and a higher crash risk, we also control Book-to-market ratio (\(BM_t\)), which is calculated by the book value of equity divided by the market value of equity in year \(t\). At the same time, we take research and development expenditure (\(Rnds_t\)), the increased percentage of sales growth (\(Growth_t\)), and the first big proportion of shareholding (\(FrS_t\)) in year \(t\) in to account. Table 1 provides the definitions of all variables used in our regression analysis and all continuous variables are winsorized at 1% at both tails.

### Table 1. Variable definitions

| Variables | Definitions |
|-----------|-------------|
| \(IR_t\)  | The fluctuation of the random error term and all influencing factors that cannot be priced and can reflect the company's own constitution in year \(t\) |
| \("Run Ling Global"\) variable | \(CSR_t\) A dummy variable that equals 1 if the firms that issued a standalone CSR report in year \(t\) and 0 otherwise |
| Other variables | \(Age_t\) The corporate age in year \(t\) |
4 EMPIRICAL ANALYSE

4.1. Descriptive Statistics

Table 2 shown below provide us the descriptive statistics for the variables used in our analysis. The methods of the future stock price idiosyncratic risk measures, variable $I_{r,t}$, are 0.810, which is similar to the estimates of [38]. The mean of the corporate age ($Age_t$) is 2.839. An average leverage is 0.493 and an average book-to-market ratio is of 0.683. The average of research and development expenditure ($Rnds_t$) is of 0.024, the average increased percentage of sales growth ($Growth_t$) at 0.151. The average of the first big proportion of shareholding ($Fr_{t,s}$) in year $t$ is at 0.379, while the mean of the natural logarithm of the sum of the number of analysis plus 1 in year $t$ is at. The average of the $SOE_t$ takes values at 0.625, while $Isduality_t$ and $Big4_t$ takes value at 0.013 and 0.156 respectively.

Table 2. Descriptive statistics

| Variables | Definitions |
|-----------|-------------|
| $Lev_t$ | Firm financial leverage, calculate by the book value of total debt divided by the book value of total assets in year $t$ |
| $BM_t$ | Book-to-market ratio, calculated by the book value of equity divided by the market value of equity in year $t$ |
| $Rnds_t$ | Research and development expenditure in year $t$ |
| $Growth_t$ | The increased percentage of sales growth in year $t$ |
| $Fr_{t,s}$ | The first big proportion of shareholding in year $t$ |
| Analysts | The natural logarithm of the sum of the number of analysis plus 1 in year $t$ |
| $SOE_t$ | A dummy variable that equals 1 if the ultimate controlling shareholder of a listed firm is the state in year $t$ and 0 otherwise |
| $Isduality_t$ | A dummy variable that equals 1 if the CEO and chairman are the same person in year $t$ and 0 otherwise |
| $Big4_t$ | A dummy variable that equals 1 if the firm hires an international Big 4 accounting firm in year $t$ and 0 otherwise |

4.2. Correlation Analysis

We calculated Pearson and Spearman correlation coefficients between our variables in our analysis. The untabulated results demonstrated that the $CSR_t$ is negatively correlated with $IR_t$. The results also suggest that the correlations between the independent variables in our study are relatively low.

4.2.1 Variance inflation factor (VIF)

In order to find out whether the multicollinearity is absent or not in our analysis, we compute the variance inflation factor (VIF) for independent variables and the largest one is 1.450, which is well below the rule of thumb cutoff of 10.00 for multiple regression models [33]. Therefore, we are able to conclude that multicollinearity is unlikely to be a serious issue for our study.

Table 3. Variance inflation factor

| Variable | VIF | 1/VIF |
|----------|-----|-------|
| $BM_t$ | 1.450 | 0.690 |
| $CSR_t$ | 1.200 | 0.831 |
| $Age_t$ | 1.120 | 0.895 |
| $Lev_t$ | 1.380 | 0.727 |
| $Rnds_t$ | 1.220 | 0.822 |
| $Growth_t$ | 1.060 | 0.947 |
| $Fr_{t,s}$ | 1.250 | 0.801 |
| Analysts | 1.160 | 0.859 |
| $Isduality_t$ | 1.010 | 0.989 |
| $Big4_t$ | 1.210 | 0.830 |
| Mean | 1.210 | |

4.3. Univariate Analysis

In Table 4. shown below, we divide all of the idiosyncratic risk measures we chose for our study into two different groups (G1 and G2) by their median value. The ones that higher than the median are regarded as group in High idiosyncratic risk (High $IR_t$) and ones that lower than the median are grouped in low idiosyncratic risk (low $IR_t$). We list the difference between the two means as out variances (MeanDiff) and check whether there is difference under the different idiosyncratic risk measures of the company.

Table 4. Univariate analysis

| Variables | $G1(0)$ | Mean1 | $G2(1)$ | Mean2 | MeanDiff | $t$-Value |
|-----------|--------|-------|--------|-------|---------|----------|
| $CSR_t$ | 2605 | 40.59 | 2605 | 37.92 | 2.670 | 8.804*** |
| $Age_t$ | 2605 | 2.854 | 2605 | 2.825 | 0.029 | 3.117*** |
| $Lev_t$ | 2605 | 0.504 | 2605 | 0.482 | 0.022 | 3.952*** |
| $BM_t$ | 2605 | 0.768 | 2605 | 0.597 | 0.171 | 25.604*** |
| $Rnds_t$ | 2605 | 0.020 | 2605 | 0.028 | -0.008 | -8.536*** |
| $Growth_t$ | 2605 | 0.130 | 2605 | 0.172 | -0.042 | -5.218*** |
| $Fr_{t,s}$ | 2605 | 0.391 | 2605 | 0.367 | 0.023 | 5.302*** |
| Analysts | 2605 | 1.992 | 2605 | 1.983 | 0.009 | 0.279 |
| $SOE_t$ | 2605 | 0.675 | 2605 | 0.575 | 0.100 | 7.537*** |
| $Isduality_t$ | 2605 | 0.013 | 2605 | 0.013 | 0.000 | 0.000 |
| $Big4_t$ | 2605 | 0.194 | 2605 | 0.118 | 0.076 | 7.560*** |

* This table demonstrates the results of univariate tests of our important variables used in this study.
4.4. Multivariate Result

Table 5. shown below displays the results of two regression models used to test our hypotheses. These models are derived from the same measures of the future stock price idiosyncratic risk. The coefficients of the variable $CSR_t$ in columns (1) and (2) are -0.002 and -0.001, both statistically significant at the 1% level, indicating that the “Run Ling Global” Corporate social responsibility reduces the likelihood of future idiosyncratic risk. This result is consistent with the notion that due to monitoring from “Run Ling Global”, the firms are less likely to hoard bad news and exhibit a higher level of transparency, leading to lower future stock price idiosyncratic risk.

The coefficients of the control variables are generally consistent with prior studies [33] Firms with lower age, higher leverage, lower Book-to-market ratio, higher research and development expenditure, larger growth, smaller first big proportion of shareholding, higher Analyst, and lower Isduality, and Big4 are associated with higher future stock price idiosyncratic risk.

Table 5. presents the results from the ordinary least squares regression of the impact of corporate social responsibility on future idiosyncratic risk. The dependent variable $IR_t$ is measured over year $t$. The test variable is $CSR_t$ Reported in parentheses are values based on robust standard errors clustered by both firm and year. All variables are defined in Table 1.

|       | (1)  | (2)  |
|-------|------|------|
| $IR_t$ | $-0.002^{***}$ | $-0.001^{***}$ |
| $Age_t$ | $-0.017$ | $-0.017$ |
| $Lev_t$ | $0.171^{***}$ | $0.171^{***}$ |
| $BM_t$ | $-0.402^{***}$ | $(-19.52)$ |
| $Rnds_t$ | $0.142$ | $(1.05)$ |
| $Growth_t$ | $0.064^{***}$ | $(6.21)$ |
| $Fr_t$ | $-0.034$ | $(-1.34)$ |
| $Analyst_t$ | $0.001$ | $(0.16)$ |
| $SOE_t$ | $0.002$ | $(0.17)$ |
| $Isduality_t$ | $-0.003$ | $(-0.12)$ |
| $Big4_t$ | $-0.018$ | $(-1.47)$ |
| _cons | $1.065^{***}$ | $1.155^{***}$ |

Table 6. Robustness check

|       | (1)  | (2)  | (3)  | (4)  |
|-------|------|------|------|------|
| $IR_t$ | $-0.001^{***}$ | $-0.001^{***}$ | $-0.001^{***}$ | $-0.001^{***}$ |
| $r_{lcsr_t}$ | $-0.001^{**}$ | $-0.001^{**}$ | $-0.001^{**}$ | $-0.001^{**}$ |
| $Age_t$ | $0.007$ | $-0.022$ | $-0.017$ | $-0.017$ |
| $Lev_t$ | $0.158^{***}$ | $0.117^{***}$ | $0.158^{***}$ | $0.133^{***}$ |
| $BM_t$ | $-0.409^{***}$ | $-0.456^{***}$ | $-0.408^{***}$ | $-0.243^{***}$ |
| $Rnds_t$ | $0.120$ | $-0.217$ | $0.196$ | $0.388^{**}$ |

5 ROBUSTNESS CHECKS

In order to further test the robustness of our result, we choose to use “He Xun” CSR (hereafter $hxcsr$) to replace “Run Ling” CSR (which is $rlcsr$ in table 6 above) and replacing using company’s individual effect. We also add missing variables in order to avoid the problem of endogeneity and reverse causation.
When we use the CSR indicators constructed by He Xun, we still can find that CSR will significantly decrease the industry’s idiosyncratic risk. Moreover, when we use annual and individual company fixed effects, we still can conclude that CSR will significantly decrease the industry’s idiosyncratic risk at 1% significant level. Also, when we add other variables that affect the company’s idiosyncratic risks, such as gender, age, GDP and inflation, we can draw a conclusion, which is also meaningful. Furthermore, for next term, we can see that our conclusion that CSR will still decrease the industry’s idiosyncratic risk at 1% significant level.

Which is also meaningful. Furthermore, for next term, we can see that our conclusion that CSR will still decrease the industry’s idiosyncratic risk at 1% significant level.

### 6 FURTHER ANALYSIS

We can conclude that only for SOE, CSR will significantly decrease the industry’s idiosyncratic risk, not for non-SOE. Also, for non-big4 with high agency costs and low growth, CSR will also significantly decrease the industry’s idiosyncratic risk.
Table 7. Heterogeneity analysis

|     | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Non SOP | Big4 | Low Agency costs | High Growth | SOP | Non Big4 | High Agency costs | Low Growth |
| rLcsr | -0.001 | -0.000 | -0.001 | -0.001 | -0.001** | -0.001** | -0.002** | -0.001** |
| Age | -0.051*** | 0.025 | -0.013 | -0.026 | 0.018 | -0.030*** | -0.016 | -0.007 |
| Lev | (2.83) | (0.76) | (2.80) | (1.50) | (0.98) | (2.23) | (0.86) | (2.43) |
| BM | (3.93) | (4.93) | (4.90) | (4.69) | (1.745) | (5.60) | (4.82) | (4.53) |
| ROA | (1.95) | (2.48) | (4.56) | (5.30) | (4.10) | (5.72) | (3.73) | (0.86) |
| Growth | (0.079) | 0.075 | 0.069 | 0.055** | 0.054** | 0.062** | 0.064** | 0.024 |
| Big4 | (4.14) | (2.44) | (5.46) | (5.30) | (4.10) | (5.72) | (3.73) | (0.86) |
| ROA | (0.331) | 0.309 | 0.211 | 0.068 | -0.074 | 0.114 | 0.149 | 0.195 |
| Indulgy | (1.71) | -0.81 | (0.89) | (0.38) | -0.39 | (0.81) | (0.73) | (1.16) |
| SOE | (4.13) | (2.48) | (4.56) | (5.30) | (4.10) | (5.72) | (3.73) | (0.86) |
| Growth | 0.017 | 0.014 | 0.003 | -0.017 | -0.010 | -0.003 | -0.002 | 0.003 |
| Big4 | (0.54) | (0.23) | (0.08) | (0.48) | (0.22) | (0.11) | (0.05) | (0.08) |
| ROA | 0.004 | -0.010 | -0.021 | -0.018 | -0.007* | -0.014 | |
| SOE | (0.13) | -0.038 | -0.003 | -0.015 | 0.006 | 0.004 | 0.0017 | |
| Industry fixed effect | 1.220** | 0.934** | 1.138*** | 1.166*** | 1.221*** | 1.206** | 1.166** | 1.133*** |
| N | (17.51) | (8.56) | (14.96) | (17.68) | (23.83) | (21.94) | (17.05) | (16.66) |
| Industry fixed effect | YES | YES | YES | YES | YES | YES | YES | YES |
| Year fixed effect | YES | YES | YES | YES | YES | YES | YES | YES |
| r2_a | 0.289 | 0.434 | 0.380 | 0.327 | 0.405 | 0.342 | 0.320 | 0.371 |

7 CONCLUSION

Using a unique data set of corporate social responsibility from “Run Ling Global”, we examine the impact of CSR on idiosyncratic risk of enterprises. We find that the more enterprises overtake their CSR, the less idiosyncratic risk they will have, which means that corporate social responsibility is negatively associated with idiosyncratic risk after controlling for other predictors of idiosyncratic risk, supposing that taking up CSR reduces idiosyncratic risk and appears to improve corporate performance. Further analyses show that the influence of CSR on future idiosyncratic risk is more pronounced in state-owned enterprises, enterprises with low corporate governance or enterprises with low growth.

Overall, our findings provide support to the notion that CSR appears to improve corporate performance. This is different from those views that serve CSR as a barrier or a useless, even a harmful factor for operation of enterprises. While in our studies, it is evidently shown that through shoudering proper CSR, enterprises are not only able to effectively reduce their idiosyncratic risk, but also strongly improve whole performance with further reputation and highly ensured financing support.

Our study adds to the CSR and its spreading extent on enterprises and relative stakeholders. We focus on the role of CSR in reducing idiosyncratic risk and provide new supportive evidence on the positive consequences of it. We also extend prior studies on idiosyncratic risk by identifying a new factor that has an incremental mitigating effect on future idiosyncratic risk. Our results are of vital importance and benefits to enterprises and their stakeholders who want to manage idiosyncratic risk in the capital market. Our findings also have outstanding implications for government regulations. As information about CSR has a significant impact on corporate idiosyncratic risk, China’s authorities’ restrictions should consider requiring disclosure of CSR.

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