

Can Corporate Social Performance (CSP) Restrain Companies from Over-speed Growth? – Evidence from Chinese Listed Companies

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Corporate social performance (CSP) promotes coexistence and win-win situations of enterprises and various interest groups, which is consistent with the concept of sustainable growth and deviates from the original intention of over-speed growth. The question worth considering is whether fulfilling social responsibility will have some governance effect on the fast growth of enterprises? What governance paths exist? Based on the data of Chinese Listed Companies (Shanghai and Shenzhen A-shares) from 2010 to 2017, it was found that CSP had a significant inhibitory effect on over-speed growth of enterprises, and it also had significant inhibitory effect on over-speed growth of the higher quantile. In the current period, the fulfillment of corporate social responsibility by state-owned enterprises can significantly curb the over-speed growth of enterprises. The new investment expenditure level had the partial mediation effect between the CSP and the enterprise over-speed growth. Financial performance plays a positive regulating role between CSP and over-speed growth. The above conclusion remains valid after using a propensity score match (PSM), a two stage least square method (2SLS) of instrumental variable and a generalized method of moments (GMM) for robustness test.

Keywords: Corporate social performance; Investment expenditures; Over-speed enterprise growth

1. INTRODUCTION

The growth of the macro economy depends on the growth of micro enterprises. As a result, growth has become collectively appealing for enterprises' stakeholder groups and the main index of enterprise strategy formulation and performance evaluation. However, the growth of enterprises should be coordinated with the resources they command. If the growth rate is

too slow to make effective use of the enterprise's resources, this causes a survival crisis. Fast growth may lead to a shortage of enterprise resources, which may then lead to the enterprise's financial crisis or bankruptcy. Business operators can pay attention to and guard against the crisis caused by very slow growth while the risks brought by too fast growth are easily disguised by the "joy" of growth. Corporate social performance (CSP) reflects the satisfaction degree of enterprise social responsibility behavior to relevant interest groups, em-

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phasizes coexistence and win-win situations for relevant interest groups and enterprises, is consistent with the concept of long-term sustainable development of enterprises and deviates from the original intention of over-speed growth. Therefore, it is worth considering whether the fulfillment of social responsibility has any governance effect on the over-speed growth of enterprises. What is the role of investment expenditure in the governance path of corporate social responsibility. How does this relate to excessive growth? This is the question this paper is trying to answer.

The contribution of this paper is as follows: (1) Although many domestic and foreign scholars have studied the relationship between CSP, corporate value and financial performance, few scholars have analyzed the governance effect of CSP, from the perspective of corporate over-speed growth. Therefore, this paper enriches the literature on the economic consequences of CSR. (2) This paper analyzes the internal mechanism of CSP, influencing over-speed growth, which enriches the company growth theory and supplements the literature on the analysis of causes of over-speed growth; (3) In addition to the quantile regression method, the paper presents a detailed picture of the overall effect of CSP on the management of over-speed growth, which is helpful to clarify the differential impact of CSP on varying degrees of over-speed growth.

The remainder of the paper is organized as follows. The following section briefly reviews the domestic and foreign related literature. Section 3 puts forward the research hypothesis of this paper in combination with relevant theories and the reality of Chinese influence. Section 4 describes the data, defines variables and constructs model. Section 5 presents empirical results. Section 6 conducts some robustness test. Section 7 concludes the paper.

2. LITERATURE REVIEW

2.1 Economic consequences of CSP

Corporate social performance (CSP), also known as social performance, refers to the sum of the principle of corporate social responsibility, social response processes and observable results related to social relations (Wood, 1991). It reflects the influence of corporate social responsibility behavior on social welfare and stakeholders, reflects the result of corporate social responsibility fulfillment, represents the degree to which corporate behavior meets stakeholders, and depicts the real performance of corporate social responsibility. Since Bragdon and Malin first empirically tested the relationship between corporate social responsibility and financial performance in 1972, many domestic and foreign scholars have conducted research on this topic. However, due to the differences between corporate social responsibility and financial performance measurement methods, the research on the relationship between them has not reached consistent conclusions. In addition, the conclusion of positive, negative (or no relationship) between them has been confirmed in different literature (Margolis et al., 2009, Liu Yuhuan et al., 2014) depending on the research. Current research fails to distinguish the performance of social responsibility and the quality of social responsibility

disclosure strictly, and the selection of evaluation indicators is confusing, resulting in a lack of reliability of the current research conclusions. Later, scholars began to pay attention to the impact of corporate social responsibility on specific financial activities of enterprises, such as the impact of corporate social responsibility on investment activities (Benlemlih, 2016, Cao Yayong et al., 2013) and the impact on financing activities (EI Ghoul et al., 2011; Wu et al., 2014; Benlemlih, 2015; Xiao Xiang et al., 2013; Huang Jianyuan et al., 2016) as well as the impact on the disclosure of enterprise information (Choi and Pae, 2011; Cho et al., 2013; Cui et al., 2012).

2.2 Causes and economic consequences of over-speed enterprise growth

The benign growth of enterprises is sustainable growth, which requires enterprises to consider the development of society and the environment, while making full use of existing resources to pursue economic interests, so as to achieve sustainability and growth. Generally, the sustainable growth rate is used to measure the maximum rate of growth of company sales without exhausting financial resources (Robert C. Higgins, 1977). The over-speed growth is defined as the difference between the real growth rate and the sustainable growth rate. Many scholars have studied the economic consequences brought by the over-speed growth of enterprises and they believe that growth management is a crucial enterprise strategy. Excessive emphasis on growth may lead to a "growth fetish" (Zhou et al., 2013), excessive growth will reduce profitability (Zhang tao et al., 2016) and corporate financial flexibility (Zhou longbo et al., 2014), significantly increasing the probability of financial crisis (Cui xuegang, 2007). The research on factors influencing enterprise growth focuses on institutional and policy factors (Jia Liangding, 2005), enterprise scale and financial risk (Shi Ping, 2010), profitability (Zhang Tao et al., 2016), R&D expenditure (Sun Weifeng, 2013) and management characteristics (Guo Daoyan et al., 2016).

Although there is abundant research on social responsibility and over-speed growth, few scholars have conducted research on whether CSP affects the over-speed growth of enterprises and the mechanism of fulfilling social responsibility on over-speed growth of enterprises.

3. THEORETICAL ANALYSIS AND RESEARCH HYPOTHESES

From the perspective of stakeholders and the analysis of resource dependence theory, social responsibility is considered to be the economic and non-economic responsibility of consumers, suppliers, governments, employees, communities and non-profit institutions, while bearing the economic responsibility to shareholders, emphasizing the importance of resources provided by related interest groups and paying attention to the coexistence and win-win of enterprises and related interest groups. Sustainable growth advocates that enterprises should not sacrifice long-term interests for immediate interests. So, the concept of corporate social responsibility coincides with the idea of sustainable growth. Over-speed growth is a kind of growth beyond the constraint of internal and exter-

nal resources. In the long run, it is a kind of growth mode that cannot increase enterprise value. Based on the above analysis, the fulfillment of corporate social responsibility helps to achieve sustainable growth, which will restrain the over-speed growth of enterprises. In view of the above analysis, this paper proposes the following research hypotheses:

Hypothesis 1: Limiting other conditions, CSP has a significant inhibiting effect on over-speed growth

It is a fact that state-owned enterprises have natural political connections with the government. While pursuing the goal of maximizing profits, they also bear a series of special non-economic goals such as improving the local employment rate, protecting the environment and maintaining social stability (Li and Xia, 2008). Moreover, the social responsibility of state-owned enterprises is primarily to achieve these non-economic goals (Huang Sujian, 2006). Therefore, compared with non-state-owned enterprises, state-owned enterprises are a special enterprise organization undertaking both economic and non-economic goals (Bai et al., 2006). It can be seen that under the same conditions, state-owned enterprises undertake more social responsibilities than non-state-owned enterprises from the very beginning (Jing and McDermott, 2013; Yin, et al, 2014), and the high level of CSR performance of state-owned enterprises helps curb the over-speed growth of enterprises. The main goal of private enterprises is to maximize profits. However, in order to ease financing constraints, private enterprises establish political connections and fulfill their CSR. This has become a strategic behavior of many private enterprises (Li shu, Xie Xiaoyan, 2014). Therefore, private enterprises will also actively improve the performance level of CSR, which in turn will restrain the over-speed growth of enterprises. In view of this, this paper proposes the following research hypothesis:

Hypothesis 2: The inhibiting effect of CSP on the over-speed growth of enterprises does not change due to the nature of enterprise property rights

Based on the “tool hypothesis” of managerialism (Quan Xi-aofeng et al., 2015), enterprises engaged in social responsibility serve the interests of management rather than shareholders. The benefits are enjoyed by management, while risks and costs are paid by shareholders (Friedman, 1970). Following the theoretical line of neoclassical economics, it is believed that corporate social responsibility increases the unnecessary costs in companies (Aupperle et al., 1985; Mc Williams & Siegel, 2000; Jensen, 2002), crowding out company resources, thus reducing the investment expenditure of enterprises. Since the implementation of domestic investment stimulus policies in 2008, capital investment has been the main driver of China’s rapid macroeconomic growth and the rate of capital investment has been rising. For micro-enterprises, management’s application of four basic financial strategies—financing, investment, operation and profit distribution—is the internal cause of the enterprise’s over-speed growth, while investment activity is the key link to the enterprise’s over-speed growth and the increase of investment expenditure is one of

the preconditions for the enterprise’s over-speed growth. As mentioned above, the increase of enterprise investment expenditure will lead to the over-speed growth of enterprises. Therefore, it can be speculated that the fulfillment of corporate social responsibility squeezes the investment expenditure and thus reduces the over-speed growth of enterprises. In view of this, this paper proposes the following research hypothesis:

Hypothesis 3: CSP restrains the over-speed growth by “squeezing” the new investment expenditure; that is, the level of newly increased investment expenditure plays a mediating effect role between the CSP and over-speed growth

The improvement of financial performance will lead to the increase of internal capital accumulation (Zhang Tao, 2016) and promote enterprise growth (Cowling, 2004; Zhang Tao, 2016). If hypothesis 1 is established, that is, CSP has an inhibitory effect on the over-speed growth of enterprises, then with the improvement of financial performance, enterprises are likely to experience over-speed growth. Therefore, the inhibiting effect of social responsibility on the over-speed growth of enterprises will be enhanced with the improvement of financial performance, that is, financial performance plays a regulating role between the CSP and the over-speed growth of enterprises. In view of this, this paper proposes the following research hypothesis:

Hypothesis 4:

Financial performance plays a positive regulating role between CSP and over-speed growth, that is, with the improvement of financial performance, the inhibiting effect of CSP on over-speed growth will be enhanced.

4. RESEARCH DESIGN

4.1 Sample selection and data sources

This study adopted the data of A-share listed companies in Shanghai and Shenzhen from 2010 to 2017 and made the following screening: (1) excluding financial and insurance listed companies; (2) eliminating listed companies with missing data; (3) excluding *ST and ST companies; (4) eliminating samples with negative real growth rate; (5) eliminating samples with negative sustainable growth rate. In order to ensure the robustness of the results in the analysis, the main continuous variables were winsorized at the top and bottom 1

4.2 Variable definitions

(1) over-speed growth

The classic model of sustainable growth rate is Higgins’ model of sustainable growth and Van Horn’s model of sustainable growth. Considering the availability of data and referring to the research of Guo Daoyan et al. (2016), the sustainable growth model of Higgins’ was adopted to measure the sustainable growth rate of enterprises and the excess growth of

companies was the difference between the actual growth level and the sustainable growth level of enterprises. Overgrowth is used for over-speed growth and undergrowth is used for low-speed growth. The specific calculation formula is as follows:

$$\text{Overgrowth} = RGR - SGR = RGR - L_t(t-1) \times P_t \times R_t(t-1) \times T_t \quad (\text{if } RGR > SGR)$$

$$\text{Undergrowth} = RGR - SGR = RGR - L_t(t-1) \times P_t \times R_t(t-1) \times T_t \quad (\text{if } RGR < SGR)$$

RGR is the growth rate of operating revenue and represents the actual growth level of the company. SGR is the company's sustainable growth rate. L_{t-1} is the company's asset turnover rate in the previous year. P_t is the company's net sales rate in the current year. R_{t-1} is the company's equity multiplier in the previous year and T_t is the company's retained earnings in the current year. If $RGR > SGR$, it is overgrowth; otherwise, it is undergrowth.

(2) Corporate social performance

Among many western measurement tools for corporate social performance, the most influential are Clarkson's RDAP scale, Hopkins' SRE scale, the KLD index developed by the KLD company in the United States and the fortune reputation index. What these tools have in common is that they are all multidimensional. The existing domestic literature classifies the measurement methods of social responsibility performance, according to data sources, including the following: (1) Based on annual report data, such as enterprise donation expenditure (Tang Yuejun et al., 2014; Wang Xin et al., 2015) and social contribution per share (Qi Huaijin et al., 2018); (2) Based on the content of the social responsibility report, the social responsibility rating standard of the enterprise was constructed and the performance of social responsibility was graded (Lanis and Richardson, 2012). (3) Based on external independent third-party evaluation agency data, such as the HeXun corporate social responsibility rating scale (Jia xingping et al, 2014; Wen wen et al, 2017). The manifestation of corporate social responsibility is a multi-dimensional structure system, which should reflect the comprehensive responsibility of the enterprise to the society (Chen Xin, 2013). The HeXun professional evaluation system of social responsibility report is divided into 13 secondary indicators and 37 tertiary indicators for evaluation from five aspects: shareholder responsibility, employee responsibility, supplier, customer and consumer rights and interests responsibility, environmental responsibility and social responsibility. Scholars have applied this evaluation system to carry out research and verify the reliability of the data. Therefore, the data of CSP in this paper is taken from the database and divided by 100.

(3) New investment expenditure

Referring to the research of Cao Yayong et al. (2012, 2013) and Hou Qiaoming et al. (2017), in this paper, the cash paid by the purchase and construction of fixed assets, intangible assets and other long-term assets was subtracted from the cash collected from the sales of fixed assets, intangible assets and other long-term assets to obtain a difference. The ratio of this difference to the starting total assets was then used to measure the level of new investment spending that year.

(4) Control variable

According to the existing literature (Jin Qinglu et al. (2010), Shi Ping (2010), Guo Daoyan et al. (2016)), the cash flow level, market process, company size, financial risk, property nature, equity concentration, proportion of independent directors, age of establishment, financial performance, industry and annual dummy variables were selected as control variables. The variable definition and measurement methods are shown in Table 1.

(4) Model building

To verify the research hypotheses3 proposed in this paper, the following model was established:

$$\begin{aligned} \text{Overgrowth}_{i,t} = & \beta_0 + \beta_1 \text{CSP}_{i,t} + \beta_2 \text{Ncf}_{i,t} + \beta_3 \text{Market}_{i,t} \\ & + \beta_4 \text{Size}_{i,t} + \beta_5 \text{Lev}_{i,t} + \beta_6 \text{Soe}_{i,t} + \beta_7 \text{Share1}_{i,t} \\ & + \beta_8 \text{Idr}_{i,t} + \beta_9 \text{Eage}_{i,t} + \beta_{10} \text{Roe}_{i,t} + \sum \text{Ind} \\ & + \sum \text{Year} + \varepsilon \end{aligned}$$

In order to test the research hypothesis 3 and make it easy to judge and explain whether the new investment expenditure has a mediation effect between the performance of CSR and the over-speed growth of enterprises. According to the practice of Feng Liyan (2017), the transformation was carried out. The value of CSP was multiplied by (-1) to get NCSP (NCSP=-CSP) as the measurement standard of CSR performance. The smaller the NCSP, the better the CSR performance, otherwise, the worse. The meaning of other control variables is as mentioned above. Referring to the studies of Huang Hexia et al. (2017) and Wen Zhonglin (2004), the following test model was constructed:

$$\begin{aligned} \text{Overgrowth}_{i,t} = & a_0 + a_1 \text{NCSP}_{i,t} + a_2 \text{Ncf}_{i,t} + a_3 \text{Market}_{i,t} + a_4 \text{Size}_{i,t} \\ & + a_5 \text{Lev}_{i,t} + a_6 \text{Soe}_{i,t} + a_7 \text{Share1}_{i,t} + a_8 \text{Idr}_{i,t} \\ & + a_9 \text{Eage}_{i,t} + a_{10} \text{Roe}_{i,t} \\ & + \sum \text{Ind} + \sum \text{Year} + \varepsilon \end{aligned}$$

$$\begin{aligned} \text{Invest}_{i,t} = & \beta_0 + \beta_1 \text{NCSP}_{i,t} + \beta_2 \text{Ncf}_{i,t} + \beta_3 \text{Market}_{i,t} \\ & + \beta_4 \text{Size}_{i,t} + \beta_5 \text{Lev}_{i,t} + \beta_6 \text{Soe}_{i,t} \\ & + \beta_7 \text{Share1}_{i,t} + \beta_8 \text{Idr}_{i,t} + \beta_9 \text{Eage}_{i,t} \\ & + \beta_{10} \text{Roe}_{i,t} + \sum \text{Ind} + \sum \text{Year} + \varepsilon \end{aligned}$$

$$\begin{aligned} \text{Overgrowth}_{i,t} = & r_0 + r_1 \text{NCSP}_{i,t} + r_2 \text{Invest}_{i,t} + r_3 \text{Ncf}_{i,t} \\ & + r_4 \text{Market}_{i,t} + r_5 \text{Size}_{i,t} + r_6 \text{Lev}_{i,t} + r_7 \text{Soe}_{i,t} \\ & + r_8 \text{Share1}_{i,t} + r_9 \text{Idr}_{i,t} + r_{10} \text{Eage}_{i,t} \\ & + r_{11} \text{Roe}_{i,t} + \sum \text{Ind} + \sum \text{Year} + \varepsilon \end{aligned}$$

To test research hypothesis 4, the following test model was constructed. If the fitting degree of Model B is higher than that of Model A, or the coefficient test of $\text{CSP} \times \text{Roe}$ is significant, it indicates the existence of regulating effect.

$$\begin{aligned} \text{Overgrowth}_{i,t} = & a_0 + a_1 \text{CSP}_{i,t} + a_2 \text{Roe}_{i,t} + a_3 \text{Invest}_{i,t} \\ & + a_4 \text{Ncf}_{i,t} + a_5 \text{Market}_{i,t} + a_6 \text{Size}_{i,t} + a_7 \text{Lev}_{i,t} \end{aligned}$$

Table 1 Variable definition and measurement methods.

variable categories	variable name	Variables identify	measurement
dependent variable	enterprise over-speed growth	Overgrowth	The actual growth rate of the company minus the sustainable growth rate and the difference is greater than 0, $Overgrowth = RGR - SGR$ (if $RGR > SGR$)
independent variable	corporate social performance	CSP	The data comes from HeXun corporate social performance rating scale from 2010 to 2017, which is divided by 100
mediated variable	new investment expenditure	Invest	(cash paid by the purchase and construction of fixed assets, intangible assets and other long-term assets - cash collected from the sales of fixed assets, intangible assets and other long-term assets)/ previous year's total assets
control variable	cash flow level	Ncf	balance of cash and cash equivalents at end of term /Total assets
	marketization process	Market	marketization process index, come from the Marketization index of China's province NERI report 2016, divide the data by 10
	company size	Size	the logarithm of a firm's total assets
	financial risk	Lev	asset-liability ratio
	nature of property right	Soe	the property of state-owned property is 1, and the property of non-state-owned property is 0
	ownership concentration	Share1	shareholding ratio of the largest shareholder
	ratio of independent directors	Idr	the proportion of independent directors in the total number of board members
	established years	Eage	data disclosure year minus company establishment year
	financial performance	Roe	return on equity
	industry dummy variable	Industry	Seven annual dummy variables were set in the 2010-2017 year
	annual dummy variable	Year	According to the "industry classification guidelines for listed companies" (2012) issued by the China Securities Regulatory Commission, the manufacturing industry takes the first two digits and the other industry codes the first digit, and there are 21 industries and 20 industry dummy variables.

$$+ a_8Soe_{i,t} + a_9Share1_{i,t} + a_{10}Idr_{i,t} + a_{11}Eage_{i,t} + \sum Ind + \sum Year + \varepsilon$$

$$Overgrowth_{i,t} = a_0 + a_1CSP_{i,t} + a_2Roe_{i,t} + a_3CSP \times Roe + a_4Invest_{i,t} + a_5Ncf_{i,t} + a_6Market_{i,t} + a_7Size_{i,t} + a_8Lev_{i,t} + a_9Soe_{i,t} + a_{10}Share1_{i,t} + a_{11}Idr_{i,t} + a_{12}Eage_{i,t} + \sum Ind + \sum Year + \varepsilon$$

5. EMPIRICAL TEST RESULTS

5.1 Descriptive statistics

Descriptive statistics of major variables are shown in Table 2. From the descriptive statistical results of the main variables, the mean value of over-speed growth (overgrowth) was 0.398,

the median was 0.180 and the standard deviation was 0.832, reflecting the large difference in the degree of overgrowth between enterprises. The mean value of CSP was 0.279 with a median of 0.232, indicating that the average level of CSR performance was low. The minimum value was 0.052 and the maximum value was 0.757, indicating that the level of CSP among enterprises is uneven. The average value of investment expenditure was 0.080, the standard deviation was 0.094, and the median was 0.050, indicating that there is a relatively large differences in investment expenditure between enterprises. The standard deviation of the established years (Eage) of the control variable is large, the mean value of other control variables is close to the median, and the overall distribution is symmetric, which ensures the robustness of data analysis.

5.2 Correlation analysis

The correlation coefficient of major variables are shown in Table 3. The Pearson correlation coefficient showed that cor-

Table 2 Descriptive statistical results of major variables.

variable	mean	sd	min	max	A quarter quantile	median	Three quarters quantile
Overgrowth	0.398	0.823	0.003	6.343	0.079	0.180	0.369
CSP	0.279	0.159	0.052	0.757	0.186	0.232	0.288
Ncf	0.189	0.150	0.015	0.709	0.082	0.141	0.251
Invest	0.080	0.094	-0.010	0.583	0.021	0.050	0.100
Market	0.787	0.185	0	0.995	0.679	0.823	0.935
Size	21.99	1.243	19.82	25.85	21.075	21.809	22.692
Lev	0.406	0.203	0.048	0.848	0.240	0.397	0.559
Soe	0.325	0.468	0	1	0	0	1
Share1	0.320	0.172	0.003	0.750	0.200	0.310	0.440
Idr	0.373	0.053	0.333	0.571	0.333	0.333	0.429
Eage	14.97	5.77	0	50	11	15	19
Roe	0.103	0.069	0.004	0.362	0.053	0.091	0.136

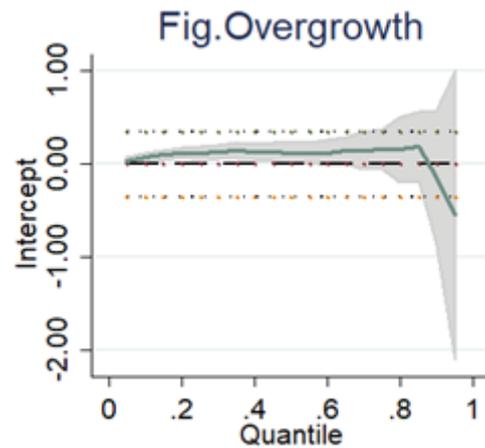
porate social performance (CSP) was significantly negatively correlated with over-speed growth (overgrowth), investment expenditure (Invest) was significantly positively correlated with over-speed growth (overgrowth). Corporate social performance (CSP) was significantly negatively correlated with investment expenditure (Invest), but not significantly. Corporate social performance (CSP) is negatively correlated with financial performance (Roe), but not significantly, which preliminarily verified the research hypothesis of this paper. In addition, the variance inflation factor (VIF) was used to test the existence of multicollinearity between variables and the range of VIF values of all variables was small. Therefore, it can be seen that there is no multicollinearity between the above variables.

5.3 Regression analysis

Total sample regression and grouping regression results of CSP-Overgrowth are shown in Table 4. F test showed that the fixed effect model FE was significantly superior to the mixed regression OLS. Hausman test showed that FE fixed effect model should be used instead of RE random effect model. The fixed effect model in Table 4 showed that corporate social performance (CSP) and over-speed growth (overgrowth) were both significantly negatively correlated at the 1

As the quantile regression has relatively loose requirements for the distribution hypothesis and conditions, it can reflect the overall information of the entire conditional distribution and is not easily affected by outliers, which makes the estimation results more robust. So, this paper supplements using quantile regression in order to depict $\{Overgrowth|CSP\}$ as a whole. Quantile regression results are shown in Table 5. It indicate that the fitting degree and significance level were low before quantiles 0.4. Further analysis found that the effect of corporate social performance (CSP) on the high quantile of over-speed growth (overgrowth) distribution was significantly greater than that on the low quantile. This suggests that CSP has a limited inhibitory effect on the lower level of over-speed growth while it has a significant inhibitory effect on the higher level of over-speed growth.

Figure 1 shows the quantile variation of over-speed growth

**Figure 1** Quantile variation diagram of the Overgrowth.

(overgrowth). It can be seen that with the increase of the quantile, the over-speed growth (overgrowth) of an enterprise presents a sharp decrease in the vicinity of the quantile 0.8, indicating that the overgrowth level drops abruptly after reaching a certain value. Figure 2 shows the quantile regression coefficient change of CSP. It is not hard to see that the regression coefficient of CSP shows a trend of gradual decline with the increase of the quantile, indicating that the higher the level of CSP, the lower the level of overgrowth. In other words, CSP has a greater inhibitory effect on the overgrowth level of enterprises. It is worth noting that the regression coefficient of CSP's quantile is still in the vicinity of the quantile 0.8, which further indicates that CSP's inhibiting effect on over-speed growth (overgrowth) of enterprises with higher scores is significantly enhanced.

The mediation effect model tests results of CSP-Invest-Overgrowth as shown in Table 6. It can be seen that the coefficient $a_1(0.483^{***})$ of NCSP in Path A is significant and illustrates that the smaller the value of NCSP, that is, the better the CSR performance and the lower the over-speed growth level of enterprises. The coefficient ($\beta_1(0.019^{***})$) of NCSP in Path B is significant and shows that the smaller the value of NCSP, that is, the better the CSR performance and

Table 3 Correlation coefficient of major variables.

	Overgrowth	CSP	Invest	Ncf	Market	Size	Lev	Soe	Share1	Idr	Eage	Roe
Over growth	1											
CSP	-0.046***	1										
Invest	0.215***	-0.011	1									
Ncf	0.0081	0.0283***	0.06***	1								
Market	-0.035***	-0.027***	-0.094***	0.013	1							
Size	0.023**	0.325***	-0.065***	-0.307***	-0.054***	1						
Lev	0.057***	0.091***	-0.075***	-0.468***	-0.113***	0.572***	1					
Soe	-0.068***	0.191***	-0.114***	-0.140***	-0.237***	0.370***	0.334***	1				
Share1	0.007	0.153***	0.050***	0.032***	-0.10***	0.183***	0.127***	0.237***	1			
Idr	0.024**	0.014	-0.024**	0.011	0.045***	0.012	-0.012	-0.053***	0.031***	1		
Eage	0.052***	-0.012	-0.198***	-0.220***	0.056***	0.212***	0.225***	0.180***	-0.149***	-0.02**	1	
Roe	0.136***	0.271***	0.147***	0.170***	0.050***	0.056***	0.002	-0.094***	0.085***	0.0001	-0.08***	1

*, ** and *** present 10%, 5% and 1% significance levels respectively.

Table 4 Total sample regression and grouping regression results of CSP-Overgrowth.

variable	OLS	fixed effect model	random effects model	Nature of property rights (grouping regression)	
				state-owned enterprise	fixed effect model non state-owned enterprises
CSP	-0.523*** (-9.31)	-0.302*** (-3.83)	-0.489*** (-7.77)	-0.309*** (-3.18)	-0.293** (-2.44)
Ncf	0.070 (0.87)	0.213** (2.21)	0.128* (1.68)	0.784*** (4.31)	-0.04 (-0.39)
Market	-0.299*** (-6.01)	-0.205 (-0.80)	-0.344*** (-5.32)	-0.558 (-1.53)	-0.035 (-0.10)
Size	0.0025 (0.22)	0.354** (13.97)	0.032*** (2.78)	0.453*** (11.37)	0.317*** (9.40)
Lev	0.212*** (3.09)	0.078 (0.76)	0.197*** (2.91)	0.325** (1.99)	0.062 (0.46)
Soe	-0.177*** (-8.53)	-0.127* (-1.71)	-0.204*** (-7.54)		
Share1	0.032 (0.54)	0.601*** (5.03)	0.065 (0.95)	0.658*** (3.35)	0.475*** (3.05)
Idr	0.386** (2.34)	0.243 (0.92)	0.416** (2.31)	0.266 (0.71)	0.039 (0.11)
Eage	0.008*** (4.32)	0.003 (0.05)	0.011*** (4.50)	-0.007 (-0.10)	-0.010 (-0.14)
Roe	1.91*** (9.26)	2.914*** (16.09)	2.402*** (17.15)	1.572*** (5.89)	3.588*** (14.76)
constant	0.134 (0.58)	-4.706*** (-3.77)	-0.550** (-2.11)	-10.00*** (-8.24)	-3.69** (-2.49)
Ind	Control	Control	Control	Control	Control
Year	Control	Control	Control	Control	Control
R ²	0.0578	Within = 0.1124	Within = 0.0492	Within = 0.0892	Within = 0.0844
F value	7.76***	22.98**		13.90***	16.97***
N	10318	10318	10318	3590	6728
F test that all $u_i = 0$:	F(2818, 7471) = 1.88 Prob > F = 0.0000				
Hausman Test	chi2(28)=372.54 Prob > chi2 = 0.0000				

*, ** and *** present 10%, 5% and 1% significance levels respectively.

Table 5 Quantile regression results.

variable	quantile								
	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
CSP	0.001 (0.19)	-0.015* (-1.67)	-0.016 (-1.51)	-0.03*** (-2.60)	-0.057*** (-3.98)	-0.084*** (-4.92)	-0.157*** (-6.36)	-0.246*** (-7.19)	-0.577*** (-7.62)
Ncf	0.003 (0.35)	-0.009 (0.85)	-0.007 (-0.51)	-0.003 (-0.02)	0.008 (0.36)	0.013 (0.50)	0.026 (0.73)	0.049 (1.07)	0.133 (1.00)
Market	-0.005 (-0.93)	0.004 (0.58)	-0.009 (-0.93)	-0.03*** (-2.72)	-0.04*** (-2.59)	-0.056*** (-2.94)	-0.11*** (-4.06)	-0.182*** (-4.52)	-0.487*** (-4.43)
Size	-0.001 (-0.55)	-0.001 (-0.41)	-0.001 (-0.88)	-0.002 (-0.81)	-0.001 (-0.38)	-0.001 (-0.17)	0.001 (0.25)	-0.008 (-1.35)	0.008 (0.52)
Lev	0.011** (1.33)	0.030*** (3.73)	0.046*** (4.65)	0.066*** (4.58)	0.08*** (4.62)	0.10*** (4.70)	0.109*** (3.58)	0.193*** (4.23)	0.24*** (2.62)
Soe	-0.016*** (-6.80)	-0.03*** (-10.14)	-0.04*** (-11.80)	-0.05*** (-11.00)	-0.06*** (-10.93)	-0.08*** (-10.11)	-0.10*** (-9.72)	-0.12*** (-7.61)	-0.19*** (-6.03)
Share1	-0.012* (-1.81)	-0.011 (-1.31)	-0.018* (-1.76)	-0.022 (-1.62)	-0.03* (-1.68)	-0.049** (-2.33)	-0.054** (-2.04)	-0.064 (1.64)	-0.04 (-0.48)
Idr	0.026 (1.50)	0.04* (1.76)	0.062** (2.07)	0.11*** (2.84)	0.09** (2.26)	0.08 (1.58)	0.056 (0.79)	0.042 (-0.42)	0.010 (0.04)
Eage	-0.0004* (-1.82)	-0.001*** (-4.24)	-0.001*** (-5.05)	-0.002*** (-4.61)	-0.002*** (-3.11)	-0.001** (-2.03)	-0.001 (-1.33)	-0.0001 (-0.04)	0.011*** (3.31)
Roe	0.021 (1.43)	0.081*** (3.61)	0.115*** (3.92)	0.162*** (4.34)	0.228*** (4.99)	0.38*** (6.54)	0.562*** (7.60)	1.098*** (8.42)	3.23*** (7.02)
constant	0.067*** (2.84)	0.108*** (3.74)	0.18*** (4.95)	0.227*** (5.11)	0.265*** (4.59)	0.307*** (4.45)	0.443*** (3.89)	0.761*** (5.87)	1.13*** (3.27)
Ind	Control								
Year	Control								
R ²	0.0075	0.0139	0.0184	0.0208	0.0236	0.0270	0.0306	0.0372	0.0583
N	10318	10318	10318	10318	10318	10318	10318	10318	10318

(1)*, ** and *** present 10%, 5% and 1% significance levels respectively.

(2)The quantile regression method was used to calculate the covariance matrix, and the self-help method was set to repeat 400 times.

the lower the investment expenditure level of the enterprises. The coefficient r_2 (2.137***)) of Invest in Path C is significant and the coefficient r_1 (0.420***) of NCSP is significantly and

lower than a_1 (0.438***), the probability of the Sobel Z value is 0.0000, which is statistically significant. This shows that the new investment expenditure (Invest) has a significant me-

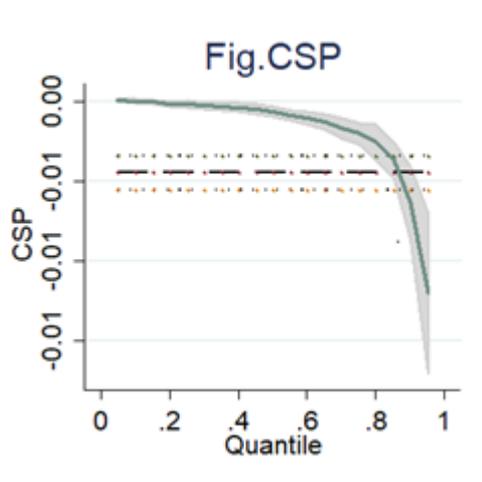


Figure 2 Quantile regression coefficient variation of CSP.

diation effect. However, it is a partial mediation effect, with the mediation effect ratio of 13.14% and the direct effect ratio of 86.86%. The result of mediation effect test shows that CSR performance (CSP) negatively affects the level of new investment and expenditure of enterprises, and thus reduces the over-speed growth of enterprises, which verifies Hypothesis 5. However, it is worth noting that it may be due to the generally low level of CSR performance in China at present. Therefore, the mediation effect of “squeezing” the level of new investment spending to curb the over-speed growth of enterprises is limited.

The regulatory effect test of Roe are shown in Table 7. It is observed that R^2 value of Model A was 10.51% and that of Model B was 10.66%. It shows that the fitting degree of the whole equation is improved after adding the adjustment term $CSP \times Roe$. According to the regression coefficient test, $CSP \times Roe$ was -2.675, which was significant at the 1% level. The test results indicate that financial performance (Roe) has a significant positive regulating effect between CSP and over-growth, in other words, with the improvement of financial performance (Roe), the inhibiting effect of social responsibility performance on the over-speed growth of enterprises will be greatly enhanced. Combined with the analysis of the previous quantile regression results, this should be because with the improvement of financial performance (Roe), the over-speed growth level of enterprises is also improved. However, corporate social performance (CSP) has a significant inhibitory effect on over-speed growth (overgrowth) of enterprises with high quantile. Therefore, with the improvement of financial performance (Roe), the inhibiting effect of corporate social performance (CSP) on the over-speed growth of enterprises will be enhanced, which verifies the research hypothesis 4 proposed in this paper.

6. ROBUSTNESS TEST

6.1 Instrumental variable method

In the above study, there may be some endogenous problems in corporate social performance (CSP). In order to control the

endogenous problem of variables, the previous year's CSP (CSPt1) and the last two year's CSP (CSPt2) were selected as the instrumental variables of corporate social performance (CSP). Two-stage least square (2SLS) was used to test the robustness of the main effect regression model 1. The test results of instrumental variables are shown in Table 8.

The P value corresponding to the Hansen J statistic is 0.7231 and so the original hypothesis is accepted. It can be considered that the CSPt1 and CSPt2 are exogenous and are not correlated with the random disturbance term. Shea's Partial R^2 is 0.35, the F value is 333.283, the P value of the F statistic is 0.0000, which means the correlation between instrumental variables and endogenous variables. The results of tool variable redundancy test (IV redundancy test) indicate that the original hypothesis of CSPt2 as a redundant tool variable is strongly rejected. The results of over-identification test and weak tool variable test show that the tool variable selected in this paper is effective.

The two-stage least square regression and GMM regression results are basically consistent as shown in Table 9. The inhibition effect of CSP on over-speed growth (overgrowth) is still significant, indicating that research hypothesis 1 proposed in this paper is still valid. The asset Size (Size), equity nature (Soe) and financial performance (Roe) of the control variable are consistent with the above conclusions. The level of cash flow (Ncf) and ownership concentration (Share1) are greatly different from the above conclusions, which should be further discussed in the following research. The results show that the performance of social responsibility of state-owned enterprises and non-state-owned enterprises in the current period can exert significant inhibiting effect on the over-speed growth of enterprises by using the two-stage least square method to group regression according to the property rights, which again verifies the research hypothesis 2 proposed in this paper.

GMM is used to test the robustness of whether new investment levels (Invest) play a mediation effect between corporate social performance (CSP) and corporate over-speed growth. The results are shown in Table 10. The test results showed that the coefficient r_2 (1.353***) of Invest in Path C was significant, and the coefficient r_1 (0.502***) of NCSP was significant and decreased compared with a_1 (0.584***). The mediation effect ratio is 15.52%, indicating that the new investment level plays a part of the mediation effect between the CSR performance and the over-speed growth of enterprises. Hypothesis 3 is verified here.

6.2 Propensity score match (PSM) test

There may be self-selection problem for listed companies to fulfill social responsibility. That is, companies do not randomly determine the performance level of social responsibility. Even if we observe that enterprises with a high level of social responsibility performance have a low level of over-speed growth, this may be caused by the differences of the companies themselves and whether it is because the enterprises fulfill social responsibility that leads to a lower level of over-speed growth, which cannot be observed. Therefore, in this case, an OLS regression is applied directly and the regression results will have a certain deviation. In consequence, when comparing the difference of over-speed growth between

Table 6 Mediation effect model test results of CSP-Invest-Overgrowth.

variable	mediation effect test model			
	PathA (Overgrowth)	PathB (Invest)	PathC (Overgrowth)	
NCSP	0.483*** (8.69)	0.030*** (5.16)	0.420*** (7.73)	
Invest			2.137*** (22.89)	
Ncf	0.039 (0.57)	-0.036*** (-5.05)	0.114* (1.73)	
Market	-0.310*** (-6.76)	-0.028*** (-5.82)	-0.251*** (-5.60)	
Size	-0.008 (-0.87)	0.004*** (4.27)	-0.016* (-1.86)	
Lev	0.223*** (3.99)	-0.006 (-1.09)	0.237*** (4.34)	
Soe	-0.163*** (-8.31)	-0.025*** (-12.43)	-0.109*** (-5.66)	
Share1	0.037 (0.69)	-0.003 (-0.62)	0.045 (0.85)	
Idr	0.308** (2.10)	0.006 (0.43)	0.294** (2.06)	
Eage	0.008*** (5.31)	-0.001*** (-5.76)	0.010*** (6.74)	
Roe	1.81*** (14.46)	0.193*** (14.96)	1.39*** (11.30)	
constant	0.387* (1.93)	0.060*** (2.89)	0.259 (1.32)	
Ind	Control	Control	Control	
Year	Control	Control	Control	
R ²	0.0589	0.1236	0.1049	
F value	17.70***	39.89***	32.27***	
N	10224	10224	10224	
sobel		coef	z	p
		0.0635	5.038	0.000
Indirect effect		0.0635	5.038	0.000
Direct effect		0.4199	7.730	0.000
Total effect		0.4834	8.692	0.000
Proportion of total effect that is mediated		0.1314		
Ratio of indirect to direct effect		0.1513		
Ratio of total to direct effect		1.1513		

*, ** and *** present 10%, 5% and 1% significance levels respectively.

Table 7 Regulatory effect test of Roe.

variable	regulatory effect test model	
	Model A (Overgrowth)	Model B (Roe)
CSP	-0.421*** (-8.33)	-0.416*** (-8.32)
Roe	1.393*** (7.47)	1.484*** (7.65)
CSP × Roe		-2.675*** (-3.96)
Invest	2.139*** (9.86)	2.114*** (9.77)
Ncf	0.115 (1.48)	0.110 (1.41)
Market	-0.250*** (-5.31)	-0.253*** (-5.38)
Size	-0.016 (-1.55)	-0.015 (-1.40)
Lev	0.236*** (3.53)	0.232*** (3.48)
Soe	-0.109*** (-5.63)	-0.110*** (-5.66)
Share1	0.047 (0.83)	0.042 (0.75)
Idr	0.301* (1.94)	0.305** (1.97)
Eage	0.011*** (5.98)	0.011*** (5.98)
constant	0.249 (1.15)	0.227 (1.05)
Ind	Control	Control
Year	Control	Control
R ²	0.1051	0.1066
F value	8.89***	8.74***
N	10224	10224

*, ** and *** present 10%, 5% and 1% significance levels respectively.

Table 8 Instrumental variable test results.

First-stage regression summary statistics					
R-sq.	Adjusted R-sq.	Shea' s Partial R-sq.	Adj.Shea' s Partial R-sq.	Robust F(3,3980)	Prob>f
0.5518	0.5460	0.3545	0.3454	333.283	0.000
Underidentification test (Kleibergen-Paap rk LM statistic): 360.067					
Chi-sq(2)p-val= 0.0000					
IV redundancy test(LM test of redundancy of specified instruments):39.062					
Chi-sq(1)p-val= 0.0000					
Hansen J statistic(overidentification test of all instruments): 0.126					
Chi-sq(1)p-val= 0.7231					
Sargan statistic(overidentification test of all instruments):					
Sargan statistic=0.069			Chi-sq(1) P-val=0.7926		

Table 9 Regression analysis results.

	First-stage regressions (CSP)	Instrumental variables (2SLS) regression	GMM estimation	Instrumental variables (2SLS) regression	
				nature of property right	
				State-owned enterprises	non state-owned enterprises
CSP	-0.595*** (-4.73)	-0.585*** (-4.77)	-0.581** (-2.42)		-0.626*** (-3.87)
Ncf	0.008 (0.39)	-0.066 (-0.69)	-0.070 (-0.74)	0.052 (0.21)	-0.106 (-1.00)
Market	-0.002 (-0.16)	-0.060 (-1.01)	-0.061 (-1.03)	-0.061 (-0.69)	-0.051 (-0.61)
Size	0.016*** (4.64)	0.040*** (3.37)	0.040*** (3.37)	0.030 (1.32)	0.046*** (2.84)
Lev	-0.072*** (-4.36)	0.094 (1.42)	0.097 (1.47)	0.168 (1.74)	0.1056 (0.65)
Soe	0.024*** (3.43)	-0.05** (-2.11)	-0.052** (-2.20)		
Share1	0.002 (0.11)	-0.122** (-2.10)	-0.123** (-2.13)	-0.033 (-0.18)	-0.175*** (-2.77)
Idr	0.047 (1.09)	0.009 (0.06)	0.015 (0.11)	-0.287 (-1.05)	0.123 (0.70)
Eage	0.0004 (0.80)	-0.002 (-1.39)	-0.002 (-1.42)	-0.001 (-0.17)	-0.002 (-1.11)
Roe	0.329*** (6.90)	0.816*** (2.93)	0.803*** (2.91)	0.546** (2.01)	0.923** (2.34)
CSPt1	0.395*** (12.74)				
CSPt2	0.228*** (6.85)				
_cons	-0.330*** (-4.28)	-0.502** (-2.11)	-0.503** (2.12)	-0.227 (-0.51)	-0.658** (-1.99)
Ind	Control	Control	Control	Control	Control
Year	Control	Control	Control	Control	Control
R ²	0.5518	0.0408	0.0415	0.0480	0.0429
F value	80.43***				
Wald chi2		167.85***	169.22***	70.82***	11663.07***
N	2686	2686	2686	733	1953

(1)*, ** and *** present 10%, 5% and 1% significance levels respectively.

(2)The two-stage least square regression was conducted according to the property rights and the regression results of the first stage are omitted in the table.

listed companies with high social responsibility performance and those with low social responsibility performance, other aspects should be as similar as possible to avoid sample selection bias. According to the research of Zeng Yamin, Zhang Junsheng (2014) and Wen Wen (2017), in order to solve the self-selection problem, PSM was adopted in this paper.

A high level of corporate social performance (CSP) may affect the over-speed growth of some enterprises, while the failure to perform or the low level of CSP may make the over-speed growth of enterprises not affected or not significantly affected. The variable CSPI was set based on HeXun corporate social performance (CSP) rating scale. For enterprises with grades A, B and C, the CSP rating interval was [40,100], and the CSP level was high. As a treatment group, CSPI value was 1. For enterprises with grade D and E, their social responsibility performance score is less than 40, failure to perform social responsibility or low level of social responsibility per-

formance, then as a control group, the CSPI value is 0. The following selection model is established for regression:

$$\begin{aligned}
 CSPI_{i,t} = & a_0 + a_1Market_{i,t} + a_2Size_{i,t} + a_3Lev_{i,t} \\
 & + a_4Soe_{i,t} + a_5Share1_{i,t} + a_6Idr_{i,t} \\
 & + a_7listage_{i,t} + a_8Roe_{i,t} + a_9LP \\
 & + \sum Ind + \sum Year + \varepsilon
 \end{aligned}$$

Among them, explanatory variables include Market process index (Market), company size (Size), financial risk (Lev), enterprise nature (Soe), share proportion of the largest shareholder (Share1), ratio of independent directors (Idr), listed years (listage_{*i,t*}), return on equity (Roe)and listed place (LP), as well as controlling annual and industrial factors. Regression was conducted for the selection model and the selection tendency was scored. The listed companies with the lowest social responsibility performance grade in the same year with

Table 10 GMM of mediation effect of Invest.

variable	mediation effect test model		
	Path A	Path B	Path C
	(Overgrowth)	(Invest)	(Overgrowth)
NCSP	0.584*** (4.77)	0.067*** (3.98)	0.502*** (4.77)
Invest	1.353*** (3.61)		
Ncf	-0.070 (-0.74)	-0.045*** (-2.94)	-0.008 (-0.08)
Market	-0.061 (-1.03)	-0.022** (-2.25)	-0.031 (-0.55)
Size	0.040*** (3.73)	0.009*** (4.36)	0.028** (2.50)
Lev	0.097 (1.47)	0.015 (1.40)	0.074 (1.16)
Soe	-0.052** (-2.20)	-0.021*** (-5.61)	-0.021 (-0.81)
Share1	-0.123** (-2.13)	0.004 (0.44)	-0.127** (-2.23)
Idr	0.015 (0.11)	0.026 (1.05)	-0.032 (-0.24)
Eage	-0.002 (-1.42)	-0.001*** (-2.81)	-0.001 (-0.76)
Roe	0.803*** (2.91)	0.093*** (2.6)	0.690*** (2.73)
constant	-0.502** (-2.12)	0.041 (-0.83)	-0.433* (-1.88)
Ind	Control	Control	Control
Year	Control	Control	Control
R ²	0.0415	0.1189	0.0957
Wald chi2	169.22***	522.84***	182.32***
N	2686	2708	2686

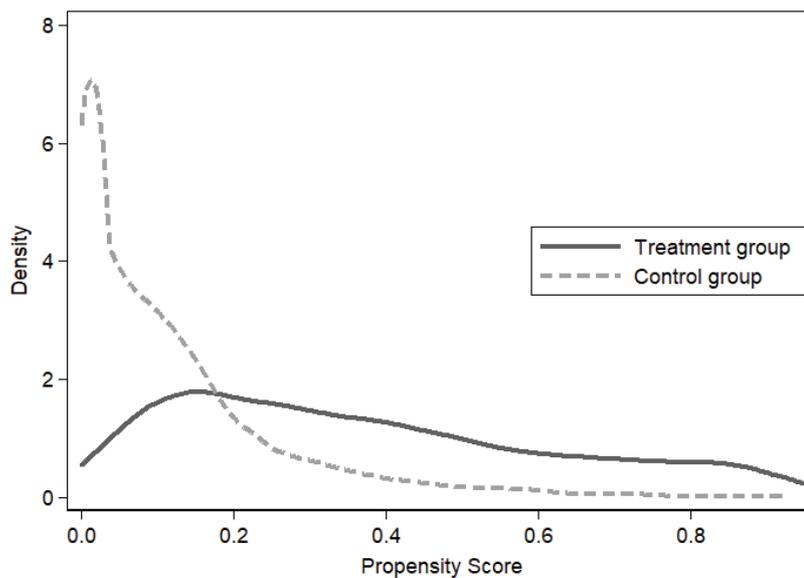


Figure 3 The Pscore kernel density function before matching.

the closest probability score were searched for as the matched samples.

Because there are many comparable individuals in the control group, a pair of four matched within a caliper ($\epsilon = 0.005$) is used to improve the matching efficiency. The corresponding Pseudo R^2 was 25.79%, the control group treatment effect ATT was -0.1389 (T-stat=-4.16), which is significant at the 1% level. The kernel density function of the sample's tendency score (Pscore) before and after matching is shown in Figure 3 and Figure 4. It can be seen that the pattern of the first two groups of tendency score was different, possibly because the control group included the samples with large differences from the treatment group. In comparison, the trend of the ker-

nel density function of the matched tendency score is similar, and the characteristics of all aspects converge. In addition, the balance of data was evaluated through the double t distribution test of single covariates and the reduction of standardized deviation before and after matching. It was found that after the balance analysis process, the deviation degree of all the conditional variables between the two groups decreased by 86.06% on average, and the P value of the matched samples increased, indicating that the conditional variables of the treatment group and the control group were basically consistent in distribution.

Regression analysis was performed for model 1. The PSM test results of CSP-Overgrowth are shown in Table 11. It

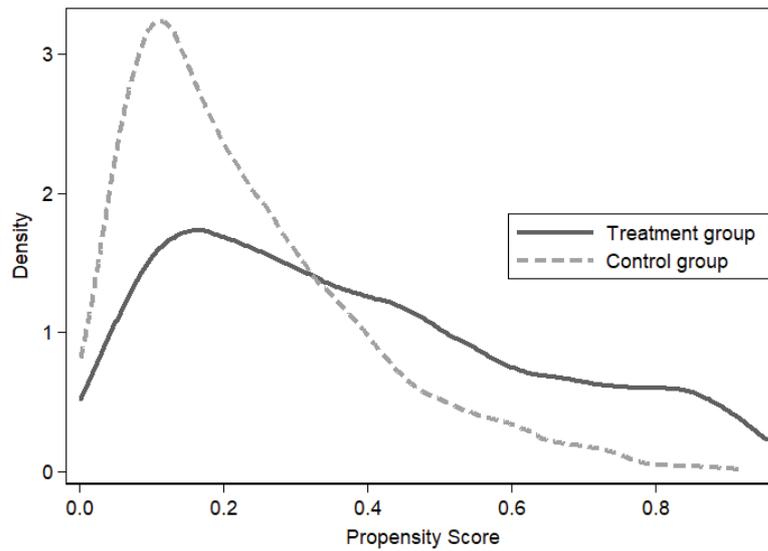


Figure 4 The PScore kernel density function after matching.

Table 11 PSM test results of CSP-Overgrowth.

variable	OLS	fixed effects model	random effects model	fixed effects model	
				nature of property right	
				state-owned enterprise	non state-owned enterprises
CSP	-0.510*** (-7.63)	-0.206*** (-1.80)	-0.468*** (-5.92)	-0.255** (-1.97)	-0.145 (0.73)
Ncf	0.006 (0.05)	0.393** (2.20)	0.114 (0.91)	0.196 (0.74)	0.182 (0.70)
Market	-0.402*** (-5.42)	-1.01* (-1.94)	-0.486*** (-4.73)	-0.598 (-0.97)	-1.393* (-1.65)
Size	0.012 (0.81)	0.340*** (7.04)	0.046** (2.37)	0.462*** (7.45)	0.353*** (4.51)
Lev	0.136** (1.45)	0.176 (0.91)	0.090 (0.79)	0.678*** (2.84)	-0.160 (-0.52)
Soe	-0.205*** (-6.85)	0.045 (0.33)	-0.237*** (-5.76)		
Share1	0.090 (1.01)	0.997*** (3.67)	0.133 (1.14)	0.143 (0.43)	1.39*** (3.14)
Idr	0.432** (2.12)	0.381 (0.84)	0.463 (1.63)	0.418 (0.80)	0.10 (0.14)
Eage	0.008*** (2.86)	0.058 (0.34)	0.010*** (2.78)	0.049 (0.34)	0.002 (0.00)
Roe	1.85*** (9.81)	2.40*** (8.09)	2.31*** (11.00)	1.246*** (3.38)	3.497*** (7.49)
Ind	Control	Control	Control	Control	Control
Year	Control	Control	Control	Control	Control
constant	0.082 (0.25)	-6.03*** (-5.13)	-0.824*** (-2.92)	-10.87*** (-4.43)	-6.79 (-0.55)
R ²	0.0667	Within = 0.0854	Within = 0.0462	Within = 0.0838	Within = 0.1161
F value	9.16***	10.20***	7.07***	8.05***	
N	4519	4519	4519	2125	2394
F test	F(1981,2515) = 2.06 Prob > F = 0.0000				
Hausman Test	chi2 = 158.13 Prob > chi2 = 0.0000				

*, ** and *** present 10%, 5% and 1% significance levels respectively.

shows that for Model 1, it is still applicable to the fixed effect Model. The research hypothesis 1 put forward in this paper, that is, the performance of social responsibility has an inhibitory effect on the over-speed growth of enterprises, still holds. However, through the regression of the matched samples according to the property rights, the study found that the corporate social performance (CSP) of state-owned enterprises had a significant inhibitory effect on the over-speed growth of enterprises, while the corporate social performance (CSP) of non-state-owned enterprises had an inhibitory effect on the over-speed growth of enterprises, but it was not significant.

As the samples after the tendency score matching are close to a random sample, the results obtained will be more robust when the samples after matching are used for analysis.

Therefore, the Model 1 was subjected to quantile regression using the matched samples. The quantile regression results of PSM samples are shown in Table 12. It indicates that after quantile 0.6, the CSP had a significant inhibitory effect on the over-speed growth of enterprises, which further indicated that the CSP had a significant inhibitory effect on the over-speed growth of the high quantile.

The matched sample is used to test the mediating effect of new investment expenditure and results are shown in table 13. The conclusion is consistent with the previous one and hypothesis 3 is verified.

The matched sample was used to test the regulatory effect of financial performance. The results are shown in Table 14. The conclusion consistent with the above, financial performance

Table 12 Quantile regression results of PSM samples.

variable	Quantile								
	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
CSP	0.014** (2.15)	0.004 (0.4)	0.00 (0.24)	-0.001 (-0.08)	-0.02 (-1.30)	-0.045** (-2.16)	-0.11*** (-3.86)	-0.20** (-4.64)	-0.640*** (-5.84)
Ncf	-0.007 (-0.52)	-0.016 (-0.97)	-0.02 (-0.95)	-0.014 (-0.58)	-0.03 (-0.75)	-0.02 (-0.45)	0.015 (0.26)	0.05 (0.54)	0.23 (1.16)
Market	0.002 (0.29)	-0.009 (-0.80)	-0.01 (-0.81)	-0.023 (-1.52)	-0.034* (-1.7)	-0.04 (-1.65)	-0.10** (-2.45)	-0.20*** (-3.30)	-0.653*** (-4.45)
Size	-0.0002 (0.14)	-0.002 (-1.00)	-0.002 (-0.86)	-0.001 (-0.33)	-0.003 (-0.72)	-0.002 (-0.37)	-0.0002 (-0.03)	-0.01 (-0.58)	0.013 (0.6)
Lev	0.016 (1.46)	0.03** (2.47)	0.04** (2.42)	0.064*** (3.19)	0.086*** (3.38)	0.1** (2.46)	0.08* (1.92)	0.10 (1.43)	0.20 (1.4)
Soe	-0.015*** (-4.22)	-0.03*** (-6.19)	-0.04*** (-7.57)	-0.053*** (-7.97)	-0.06*** (-7.46)	-0.08*** (-7.27)	-0.11*** (-7.88)	-0.12*** (-5.07)	-0.18*** (-3.70)
Share1	-0.023** (-2.11)	-0.02 (-1.09)	-0.014 (-0.86)	-0.033* (-1.59)	-0.06* (-1.86)	-0.08** (-2.54)	-0.10** (-2.33)	-0.06*(-0.93)	-0.02 (-0.14)
Idr	0.031 (1.08)	0.052 (1.51)	0.063 (1.52)	0.065 (1.14)	0.10 (1.42)	0.10 (1.24)	0.06 (0.61)	0.11 (0.71)	0.60 (1.31)
Eage	-0.001** (-2.17)	-0.001*** (-3.2)	-0.001*** (-2.60)	-0.002*** (-3.17)	-0.003*** (-2.72)	-0.002*** (-2.31)	-0.002 (-1.25)	0.0004 (0.20)	0.01** (1.96)
Roe	0.032 (1.44)	0.056* (1.90)	0.09** (2.34)	0.101** (2.09)	0.182*** (2.88)	0.30*** (3.45)	0.44*** (4.25)	0.93*** (5.11)	2.50*** (4.02)
constant	0.07** (1.97)	0.165*** (3.32)	0.219*** (3.72)	0.248*** (4.18)	0.36*** (3.95)	0.46*** (3.65)	0.56*** (3.35)	0.73*** (3.16)	0.39 (0.68)
Ind	Control	Control	Control	Control	Control	Control	Control	Control	Control
Year	Control	Control	Control	Control	Control	Control	Control	Control	Control
R ²	0.0101	0.0152	0.0206	0.0245	0.0283	0.0321	0.0352	0.0393	0.0653
N	4519	4519	4519	4519	4519	4519	4519	4519	4519

Table 13 CSP-Invest-Overgrowth Sobel-Goodman mediation Test of PSM samples.

variable	mediation effect test model			
	PathA (Overgrowth)	PathB (Invest)	PathC (Overgrowth)	
NCSP	0.461*** (7.17)	0.027*** (3.99)	0.394*** (6.34)	
Invest			2.465*** (17.95)	
Ncf	-0.039 (-0.36)	-0.036*** (-3.16)	0.05 (0.49)	
Market	-0.416*** (-5.84)	-0.052*** (-6.97)	-0.287*** (-4.14)	
Size	-0.009 (-0.61)	0.006*** (3.89)	-0.023* (-1.67)	
Lev	0.175* (1.95)	-0.012 (-1.27)	0.205** (2.36)	
Soe	-0.180*** (-6.26)	-0.026*** (-8.52)	-0.116*** (-4.15)	
Share1	0.090 (1.05)	0.002 (-0.26)	0.096 (1.16)	
Idr	0.314 (1.37)	0.004 (0.15)	0.305 (1.38)	
Eage	0.010*** (3.76)	-0.001*** (-4.54)	0.013*** (5.11)	
Roe	1.77*** (9.77)	0.157*** (8.20)	1.38*** (7.84)	
constant	0.547* (1.75)	0.044 (1.33)	0.44 (1.46)	
Ind	Control	Control	Control	
Year	Control	Control	Control	
R ²	0.0693	0.1289	0.1325	
F value	9.43***	18.73***	18.78***	
N	4465	4465	4465	
sobel		coef	z	p
I		0.0668	3.894	0.000
Proportion of total effect that is mediated			0.1449	
Ratio of indirect to direct effect			0.1694	
Ratio of total to direct effect			1.1694	

*, ** and *** present 10%, 5% and 1% significance levels respectively.

can enhance the inhibiting effect of CSP on enterprise’s over-speed growth, and hypothesis 4 can be verified.

7. CONCLUSIONS AND IMPLICATIONS

This study attempts to answer the following two questions: Will the fulfillment of social responsibility have some governance effect on the over-speed growth of enterprises? What is the role of new investment expenditure in the governance path of corporate social responsibility for over-speed growth? This paper takes the data of Chinese listed companies (A-shares in

Shanghai and Shenzhen) from 2010 to 2017 as the research sample. It was found that CSP has a significant inhibitory effect on over-speed growth. Further analysis by quantile regression showed that CSP had limited inhibitory effect on over-speed growth of the lower quantile, but had significant inhibitory effect on the higher quantile. The state-owned enterprises that fulfill their social responsibilities in the current period can significantly inhibited the over-speed growth of enterprises. The CSP will negatively affect the mediated variable (variable new investment and expenditure of enterprises) and reduce the over-speed growth of enterprises. Financial per-

Table 14 Regulatory effect test of Roe.

variable	regulatory effect test model	
	Model A	Model B
	(Overgrowth)	(Overgrowth)
CSP	-0.394*** (-6.34)	-0.398*** (-6.40)
Roe	1.38*** (7.84)	1.428*** (8.10)
CSP×Roe		-2.773*** (-3.14)
Invest	2.465*** (17.95)	2.438*** (17.75)
Ncf	0.050 (0.48)	0.046 (0.44)
Market	-0.287*** (-4.14)	-0.289*** (-4.19)
Size	-0.023* (-1.67)	-0.021 (-1.51)
Lev	0.206** (2.36)	0.201** (2.31)
Soe	-0.116*** (-4.15)	-0.118*** (-4.20)
Share1	0.096 (1.16)	0.087 (1.05)
Idr	0.305* (1.38)	0.305** (1.38)
Eage	0.013*** (5.11)	0.012*** (5.03)
constant	0.439 (1.46)	0.410 (1.36)
Ind	Control	Control
Year	Control	Control
R ²	0.1325	0.1347
F value	18.78***	18.63***
N	4465	4465

*, ** and *** present 10%, 5% and 1% significance levels respectively.

formance plays a positive regulating role between CSP and over-speed growth. That is, with the improvement of financial performance, the inhibiting effect of CSP on over-speed growth will be enhanced. The above conclusion is still valid after using PSM, a two stage least square method of instrumental variable and a GMM for the robustness test.

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