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Customer Concentration and Corporate Social Responsibility——An Empirical Study Based on Chinese Agricultural Listed Companies

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Abstract Taking the agricultural companies listed in the A-share markets in Shanghai and Shenzhen as samples, the relationship between customer concentration and corporate social responsibility was studied. In addition, the regulatory role of property rights and regional factors was examined. The results showed that the degree of customer concentration is negatively related to the degree of fulfillment of corporate social responsibility; for companies with different property rights and regions, there are significant differences in the influence of customer concentration on corporate social responsibility. In non-state-owned enterprises and mid-western areas, customer concentration has a greater impact on corporate social responsibility.

Key words Customer concentration, Corporate social responsibility, Nature of property right

1 Introduction

The violation of corporate social responsibility often leads to strong reactions from stakeholders such as investors and consumers. It has a serious impact on corporate reputation and continuing operations. The social responsibilities of corporations are widely concerned by scholars, and they have also become the focus of government supervision. Currently, the stakeholder theory is considered to be the closest theoretical framework to corporate social responsibility research^[1]. In this theoretical framework, corporate social responsibility is clearly defined in the relationship between business and related stakeholders. Zhang Zhaoguo *et al.*^[2] believe that corporate social responsibility is not a simple form of altruism. Instead, it can obtain dedicated assets and a good business environment from other stakeholders outside the shareholders, which can translate into a steady increase in financial returns. The customer is one of the important stakeholders. The level of trust and cooperation between companies and customers will directly affect corporate social responsibility. Existing research considers that the customer's impact on the business has both advantages and disadvantages. How will customer concentration affect the fulfillment of corporate social responsibility? Although many scholars study the influencing factors of corporate social responsibility, the factor of customer concentration has not yet been involved. The central document No. 1 of the year is related to the "three rural issues". It suggests that under the unique economic background of China, agriculture is still the most basic material production department in the national economy. The development of agriculture directly affects and dictates the overall development of the national economy. From a social perspective, agriculture is the foundation of social stability, and it is the industry that stabilizes the world^[3-4]. From a political perspective, agriculture is the foundation of the country's self-reliance, and whether the foundation status of agri-

culture is firm concerns the vital interests of the people, the stability of society, and the development of the entire national economy. It is also a big issue that concerns whether China can maintain its independent status in international competition^[5].

In this article, empirical research was used to determine the relationship between customer concentration and the social responsibility of China's agricultural listed companies. In the context of different property rights and different regions, the influence of customer concentration on corporate social responsibility and possible differences were discussed. This will provide certain policy recommendations and experience support for promoting the healthy and sustainable development of China's agricultural listed companies.

2 Relevant literature review and theoretical hypothesis

2.1 Customer concentration and corporate social responsibility Since the mid-1980s, companies have increasingly tended to establish closer supplier-customer relationships. As the main stakeholder, the customer can have a significant impact on the production and operation of the company. On the one hand, due to the existence of relationship-specific investment, customers are more concerned about business conditions and actively involved in business management, pursuing maximum self-interest^[6]. In order to maintain customer relationships, companies will continue to improve management^[7]. A properly concentrated customer base can guarantee the stability of the company's future sales. It helps to reduce management costs and sales costs^[8]. The presence of large customers helps stabilize the company's supply chain and ensure its long-term stable profitability. On the other hand, the presence of large customers may force companies to make concessions, affecting the financial status. Due to the asymmetry of supplier-client relationships, suppliers face enormous risks from customers. If the major customers fall into bankruptcy crisis or face lower conversion costs, the bargaining power of the major customers has been relatively increased, making the company's debt level higher, bringing potential business risks and financial risks to the com-

pany^[9-11]. Large clients are likely to require companies to conduct more relationship-specific investment, which in turn increases their operation risk and cash flow risk and may also lead to financial difficulties^[12]. Therefore, compared to the enterprises with dispersed customers, the companies with higher customer concentration tend to hold more cash, pay less dividends^[13] and carry out more tax avoidance activities^[14].

Stakeholder theory believes that in the case of asymmetric information, there will be a dynamic game between enterprises and various stakeholders. Various stakeholders want to make decisions with real and effective information^[15]. The network of relationships formed by companies and their customers, the typical stakeholders, actually contains a large amount of information transactions^[16-17], and the reputation of the contracting parties will affect the value of information transactions. Customers tend to use a large amount of information resources to evaluate the reputation of their suppliers to meet their implicit needs^[18-19]. More and more literature mentioned that firms will increase the tendency of auditors to issue continuous business opinions through the use of earnings management^[9, 20], thus sending a positive signal to the market and major customers. Companies use signal transmission mechanisms to reduce information asymmetry in supplier-customer relationships. By implying that they are different from others, companies gain the trust of customers. However, customers will not easily believe this kind of signal. Enterprises need to pay a certain amount of cost to transmit signals that are relatively difficult to imitate. Corporate social responsibility is such a signalling mechanism^[15].

Corporate social responsibility activities are often seen as an important measure to obtain stakeholder support, ensure the effective use of organization resources, gain positive media coverage, pass on legitimacy to society, and reduce the supervision of investors and employees^[21]. Jones believes that the business relationship between the company and its stakeholders is based on trust and tends to demonstrate sincere ethical commitments. The company's ethical behavior enables it to obtain a lasting competitive advantage and establish a productive partnership with its stakeholders (including customers)^[1]. It suggests that the customer is indeed an important factor affecting corporate social responsibility, and companies have a strong incentive to conduct additional information disclosure. Through the fulfillment and disclosure of corporate social responsibility, the adverse effect of asymmetric information on the supplier-customer relationship is reduced^[22]. However, studies have shown that the impact of this information asymmetry problem is weaker when the company's customer concentration is higher. The maintenance of major customers requires companies to invest a great deal in relationship-specific investment. During this period, a large number of private information exchanges have also been accompanied. Relatively speaking, large customers have certain information advantages. The evaluation of a company does not depend on the disclosure of the company's public information. On the contrary, for companies

with dispersed customers, the cost of exchanging private information with customers is too high. In the face of a dispersed customer base, only through public means can companies send positive signals to customers. Therefore, they will pay more attention to the fulfillment of corporate social responsibility. Based on the above analysis, this paper proposes hypothesis **H1**: customer concentration is negatively related to the degree of fulfillment of corporate social responsibility.

2.2 Effects of nature of property right, regional factors and customer concentration on corporate social responsibility fulfillment

Under China's unique institutional system, the government's management for state-owned enterprises has shown a marked popularization between administration and property right, namely, administrative "super-control" and "ultra-weak control" in property right, making many of the state-owned enterprises' management behaviors have a strong "political tone". This may have an impact on the management and decision-making behavior of state-owned listed companies and further affect the fulfillment of corporate social responsibility^[23]. Non-state-owned enterprises, to a certain extent, enjoy more independent decision-making power and pursue the maximization of corporate value. Around this goal, all business activities of the company are carried out, including the fulfillment of corporate social responsibility. Wang^[23] analyzed the social responsibility data in the 2005 – 2006 annual report of the petrochemical companies listed in the Shenzhen Stock Exchange Market and pointed out that state-owned enterprises have a natural preference for corporate social responsibility. Under certain conditions, they need to undertake more policy tasks. In order to maintain the stable development of the society and the individual performance of government officials, state-owned enterprises will take relatively more social responsibility. The social responsibility of state-owned enterprises is more focused on the realization of non-economic goals^[24]. Therefore, different property rights may have different effects on corporate social responsibility fulfillment.

At present, China is implementing a mixed ownership reform of state-owned enterprises, and the government's streamline administration and institute decentralization is still in progress. The market mechanism centered on the "efficiency factor" is in the early stage of development. Facing a strong and concentrated customer base, non-state-owned companies have high conversion costs for changing customers. As a result, non-state-owned companies want to maintain long-term and stable cooperation with customers. For customer-related risks, non-state-owned enterprises can only resolve by themselves. According to the previous theoretical analysis, it could be concluded that the fulfillment and disclosure of corporate social responsibility will be a good way to deal with it. For state-owned enterprises, this will be less annoying. At present, considering credit policy or a preferential tax policy, state-owned enterprises have relatively more privilege. In a sense, state-owned enterprises are an extension of government organizations. The government relies on state-owned enterprises to play a

role in macro-control, making state-owned enterprises naturally "protected" by the government. When faced with various types of business risks, state-owned enterprises have the natural barrier of government to spread or avoid risks. Therefore, for enterprises with different property rights, their customer concentration has different effects on the fulfillment of corporate social responsibility. Based on the above analysis, this paper proposes hypotheses **H2a**: Compared with non-state-owned enterprises, the degree of fulfillment of social responsibility in state-owned enterprises is significantly higher; **H2b**: Under the same conditions, customer concentration has a greater impact on non-state corporate social responsibility.

China is vast in size. Enterprises in different regions are affected by factors such as local policies, regulations, competition, economic development and cultural and customer factors, and they face different living environments and development conditions. This will inevitably affect the extent to which companies in the eastern, central and western regions have fulfilled their social responsibilities. The eastern coastal areas have more favorable and open conditions, and entrepreneurs' ideals have been updated faster. Therefore, they will pay more attention to the fulfillment of corporate social responsibility. In the central and western areas where enforcement efforts are relatively weak, businesses are prone to luck and lack the necessary attention to corporate social responsibility. Therefore, in the relatively closed central and western areas, the signal transmission function of corporate social responsibility fulfillment is more obvious. In order to maintain and expand the customer base, the enterprises in the central and western regions will perform more social responsibilities. Based on the above analysis, this paper proposes hypothesis **H3**: Under the same conditions, customer concentration has a greater impact on corporate social responsibility in the central and western regions.

3 Research design

3.1 Sample selection All the companies listed in Shanghai and Shenzhen A-share markets from 2000 to 2015 were selected as initial research samples, which were processed as follows. First, the samples with incomplete data and the company samples of PT and ST were excluded. Second, in order to reduce the influence of outliers, Winsorize was used to shrink all continuous variables by 1% quantile. After the above screening, a total of 656 samples

were obtained. The data in this article were from the CSMAR database, and partial missing customer data was obtained by consulting the annual report manually. Data analysis was handled by Excel and Stata12.0.

3.2 Variable definitions

3.2.1 Customer concentration (CC). This article used the main customer Herfindahl index (*CHHI*) to measure customer concentration.

$$CHHI = \sum (x_i/X)^2.$$

where, x_i represents the revenue of customer i in the top five customers of the company; and X represents the company's annual operating income. The larger the value of this variable is, the higher the customer concentration is^[7].

3.2.2 Corporate social responsibility (CSR). The corporate social responsibility index (*CSRI*) reflects companies' participating in social responsibility activities, and it is used to measure the amount of corporate social responsibility activities. As China's indicator system for measuring corporate social responsibility performance is not yet complete, the social contribution rate (total social contributions/average total assets) was used to define the corporate social responsibility fulfillment index. Total social contributions include contributions to government, investors, employees and suppliers^[23].

$$CSRI = GR + IR + WR + SR \quad (1)$$

where, *GR*, *IR*, *WR*, and *SR* respectively represent the social responsibilities of enterprises to government, investors (including shareholders and creditors), employees and suppliers. They are specifically expressed by the following formulas (2), (3), (4) and (5).

$$GR = (\text{Taxes and fees paid} - \text{Tax refund}) / \text{Average total assets} \times 100\% \quad (2)$$

$$IR = (\text{Cash paid for debt repayment} + \text{Dividends, profits distributed or cash paid for interest repayment}) / \text{Average total assets} \times 100\% \quad (3)$$

$$WR = \text{Cash paid to employees and paid for employees} / \text{Average total assets} \times 100\% \quad (4)$$

$$SR = (\text{Bills payable} + \text{Accounts payable}) / \text{Average total assets} \times 100\% \quad (5)$$

The detailed description of other variables was shown in Table 1.

Table 1 Names and definitions of variables

Nature of variable	Variable abbreviation	Variable name	Variable definition
Explained variable	<i>CSR</i>	Corporate social responsibility	Based on corporate social responsibility index <i>CSRI</i> of formulas (1) – (5)
Explanatory variable	<i>CHHI</i>	Major customers Herfindahl index	Calculated by definition
	<i>Owner</i>	Nature of property right	1 for state-owned enterprises, and 0 for non-state-owned enterprises
	<i>Area</i>	Area	According to China Statistical Yearbook, it is divided into the eastern and mid-western regions
Control variable	<i>SIZE</i>	Company Size	Natural logarithm of total assets at the end of the period

(To be continued)

(Continued)

Nature of variable	Variable abbreviation	Variable name	Variable definition
	<i>ROE</i>	Rate of return on common stockholders' equity	Net profit / average net assets
	<i>SLACK</i>	Cash holding ratio	Cash and securities/Total assets
	<i>LEV</i>	Financial leverage	Total liabilities / total assets
	<i>CON</i>	Shareholding concentration	Shareholding ratio of the largest shareholder
	<i>TBINQ</i>	Stock market value	Market value / Total assets
	<i>AGE</i>	Age of company	Year of establishment
	<i>Year</i>	Year	If the business is in the year, the value is assigned as 1; otherwise, the value is assigned as 0
<i>Industry</i>	Industry		If the business is in the industry, the value is assigned as 1; otherwise, the value is assigned as 0

3.3 Model construction In order to test hypotheses **H1**, **H2a**, **H2b** and **H3**, based on comprehensive consideration of existing research results, according to the variables that had been set, the following models were established.

$$CSR_{i,t} = \beta_0 + \beta_1 CC_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 ROE_{i,t} + \beta_4 SLACK_{i,t} + \beta_5 LEV_{i,t} + \beta_6 CON_{i,t} + \beta_7 TBINQ_{i,t} + \beta_8 AGE_{i,t} + \sum \text{Year} + \sum \text{Industry} + \mu_{i,t} \quad (6)$$

$$CSR_{i,t} = \beta_0 + \beta_1 Owner_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 ROE_{i,t} + \beta_4 SLACK_{i,t} + \beta_5 LEV_{i,t} + \beta_6 CON_{i,t} + \beta_7 TBINQ_{i,t} + \beta_8 AGE_{i,t} + \sum \text{Year} + \sum \text{Industry} + \mu_{i,t} \quad (7)$$

$$CSR_{i,t} = \beta_0 + \beta_1 CC_{i,t} + \beta_2 Owner_{i,t} + \beta_3 CC \times Owner_{i,t} + \beta_4 SIZE_{i,t} + \beta_5 ROE_{i,t} + \beta_6 SLACK_{i,t} + \beta_7 LEV_{i,t} + \beta_8 CON_{i,t} + \beta_9 TBINQ_{i,t} + \beta_{10} AGE_{i,t} + \sum \text{Year} + \sum \text{Industry} + \mu_{i,t} \quad (8)$$

Models (6) and (7) were used to test hypotheses **H1** and **H2a**, respectively. Based on models (6) and (7), model (8) was established by taking *Owner* and *CC × Owner* into account to test whether the influence of customer concentration of enterprises of different property rights on the fulfillment of social responsibility was significant, *i. e.*, hypothesis **H2b**. In order to test hypothesis **H3**, this paper grouped all the samples by region, the eastern region and the mid-western region. Each group was subjected to regression analysis according to model (6) to compare the influence of customer concentration in different regions on corporate social responsibility.

4 Empirical results

4.1 Descriptive statistics of all samples As shown in Table 2, the mean and standard deviation of the major customer Herfindahl index were 0.054 and 0.109 respectively, and the minimum and maximum values were 0.001 and 0.643 respectively, indicating that the customer concentration of the test companies was not high as a whole. However, there were large gaps between the samples. There were cases where they were overly dependent on large customers or had no major customers at all. The average corporate social responsibility was 42.771. This is in line with the reality that Chinese companies are paying more and more attention to the fulfillment of corporate social responsibility. However, the standard deviation was large, and there was a big difference between the minimum value and the maximum value. This provides a good premise for the study of the effect of customer concentration on corporate social responsibility fulfillment in China.

Table 2 Descriptive statistics of all samples

Variable	Sample size	Mean	Standard deviation	Minimum	Maximum
<i>CSR</i>	656	42.771	25.006	4.976	139.015
<i>CHHI</i>	656	0.054	0.109	0.001	0.643
<i>Owner</i>	656	0.365	0.482	0	1.000
<i>SIZE</i>	656	21.759	1.190	19.322	25.467
<i>ROE</i>	656	0.070	0.098	-0.411	0.355
<i>SLACK</i>	656	0.310	0.177	-0.125	0.798
<i>LEV</i>	656	0.394	0.221	0.016	0.908
<i>CON</i>	656	36.258	14.980	9.650	75.100
<i>TBINQ</i>	656	2.301	2.087	0.200	12.300
<i>AGE</i>	656	13.988	5.389	3.000	27.000

4.2 Results and analysis

4.2.1 Verification of hypothesis **H1**. Panel A in Table 3 shows the results of the regression test of customer concentration on corporate social responsibility. The regression coefficient between customer concentration TOP5 and corporate social responsibility *CSR* is -0.255, and it is significant at the 1% level, indicating that customer concentration significantly affects the fulfillment of corporate social responsibility, *i. e.*, the more dispersed the customers are, the more social responsibilities corporate will fulfill, which is consistent with the hypothesis **H1**.

4.2.2 Verification of hypothesis **H2a**. Panel B in Table 3 shows the regression results of property right on corporate social responsibility fulfillment. There is a significantly positive correlation between property ownership *Owner* and *CSR*, *i. e.*, the nature of property right significantly affects the fulfillment of corporate social responsibility. This is consistent with the hypothesis **H2a**, that is, compared with non-state-owned enterprises, state-owned enterprises pay more attention to the fulfillment of social responsibility, and their performance is significantly higher.

4.2.3 Verification of hypothesis **H2b**. Panel C in Table 3 takes the cross-item of property right and customer concentration (*CHHI × Owner*) into account. It can be seen that *CST* and *CHHI × Owner* show a significantly positive relationship, that is, for enterprises with different property rights, there are significant differences in the influence of customer concentration on corporate social responsibility fulfillment, which is consistent with the hypothesis **H2b**. According to the definition of property right, when

the *Owner* takes a value of 1, that is, when it comes to state-owned enterprises, the negative impact of customer concentration on corporate social responsibility will weaken; and when the *Owner* takes a value of 0, that is, when it comes to non-state-owned enterprises, the negative impact of customer concentration on corporate social responsibility will not change. It indicates that, customer concentration has a greater impact on the social responsibility of non-state-owned companies, compared to state-owned enterprises, which validates the hypothesis **H2b**.

In order to further verify the hypothesis **H2b** and examine the influence of the nature of property right on the relationship between customer concentration and corporate social responsibility, test was conducted for model (6) according to the nature of property right, and the regression results are shown in Panel D and Panel E in Table 3. As can be seen from Panel D in Table 3, in state-owned enterprises, customer concentration has no significant effect on the fulfillment of corporate social responsibility; and for non-

state-owned enterprises, customer concentration has a significantly negative effect on the fulfillment of corporate social responsibility, indicating that when the nature of property rights is different, there are significant differences in the influence of customer concentration on corporate social responsibility, which further validates the robustness of hypothesis **H2b**.

In addition, the regression results of the control variables in the model are basically consistent with the previous related research. *ROE* is positively correlated with *CSR*, in other words, companies will perform more social responsibilities when their profitability is better^[25]. There is also a significantly positive correlation between the shareholding concentration *CON* and *CSR*, in other words, companies with high shareholding concentration perform more social responsibilities than those with lower shareholding concentration^[23]. The specific regression results of other control variables are not described here.

Table 3 Empirical results of the nature of property right, customer concentration and corporate social responsibility

Variable	Model (6)/Panel A	Model (7)/Panel B	Model (8)/Panel C	State-owned enterprise/Panel D	Non-state-owned enterprise/Panel E
<i>CHHI</i>	-0.255 *** (-4.43)	-	-0.401 *** (-5.15)	-0.089 (-1.04)	-0.368 *** (-4.64)
<i>Owner</i>	-	0.042 *** -3.01	0.026 * -1.77	-	-
<i>CHHI</i> × <i>Owner</i>	-	-	0.317 *** -2.85	-	-
<i>SIZE</i>	-0.032 *** (-4.84)	-0.034 *** (-5.03)	-0.036 *** (-5.38)	-0.053 *** (-5.37)	-0.020 ** (-2.09)
<i>ROE</i>	0.677 *** -11.44	0.684 *** -11.54	0.675 *** -11.4	0.590 *** -6.67	0.762 *** -9.51
<i>SLACK</i>	-0.351 *** (-10.39)	-0.344 *** (-10.15)	-0.343 *** (-10.13)	-0.409 *** (-6.69)	-0.276 *** (-6.63)
<i>LEV</i>	1.513 *** -48.24	1.504 *** -47.74	1.505 *** -47.84	1.339 *** -26.35	1.565 *** -38.11
<i>CON</i>	0.003 *** -6.6	0.002 *** -6.11	0.002 *** -6.04	0.002 ** -2.34	0.002 *** -4.32
<i>TBINQ</i>	-0.033 *** (-8.93)	-0.033 *** (-9.12)	-0.032 *** (-8.59)	-0.051 *** (-6.38)	-0.028 *** (-6.43)
<i>AGE</i>	-0.003 *** (-2.33)	-0.004 *** (-3.10)	-0.003 *** (-2.79)	-0.003 *** (-2.56)	-0.002 *** (-3.31)
<i>Industry</i>	Control	Control	Control	Control	Control
<i>Year</i>	Control	Control	Control	Control	Control
<i>Adj R</i> ²	0.382	0.381	0.383	0.372	0.408
<i>N</i>	656	656	656	125	531

Note: * , ** and *** represent significance at the 10%, 5% and 1% levels, respectively (The same below).

4.2.4 Verification of hypothesis H3. In accordance with the division method in the Chinese Statistical Yearbook, this paper classified all the samples into eastern and mid-western regions. Regression was performed on the model (6) by grouping. The results of the regression are shown in Table 4. As can be seen from Panel F in Table 4, in the eastern region, the coefficient of influence of customer concentration on corporate social responsibility is -0.218, which is significant at the 1% level; and in the samples from mid-western region, the coefficient of influence of customer

concentration on corporate social responsibility is -0.352, which is higher than the regression result of the eastern region, indicating that compared to the eastern region, customer concentration has a greater impact on the social responsibility of enterprises in the mid-western region, verifying the hypothesis **H3**.

4.3 Robustness test

4.3.1 Robustness test of indexes changing customer concentration. In this section, the previous major customer Herfindahl index (*CHHI*) was replaced by major customer operating income propor-

tion (TOP5) as a measure of customer concentration, and regression analysis was conducted on models (6) – (8). As shown in Table 5, after replacing the previous major customer Herfindahl index with the proportion of major customer operating income, after the tests of models (6) – (8), the hypotheses **H1**, **H2a** and **H2b** are still significantly true. Customer concentration has a significantly negative impact on the fulfillment of corporate social responsibility, and there are significant differences in the influence of customer concentration on corporate social responsibility among enterprises of different property rights. In addition, for companies in different regions, the regression results still support the hypothesis **H3** after replacing the customer concentration index, and the specific regression results will not be repeated here.

Table 4 Empirical results of regional factors, customer concentration and corporate social responsibility

Variable	Eastern region/Panel F	Mid-western region/Panel G
<i>CHHI</i>	–0.218 *** (–2.99)	–0.352 *** (–3.69)
<i>SIZE</i>	–0.046 *** (–5.79)	–0.026 ** (–2.19)
<i>ROE</i>	0.900 *** –11.98	0.435 *** –4.47
<i>SLACK</i>	–0.358 *** (–8.96)	–0.240 *** (–3.66)
<i>LEV</i>	1.678 *** –42.91	1.200 *** –22.02
<i>CON</i>	0.002 *** –3.98	0.005 *** –6.7
<i>TBINQ</i>	–0.033 *** (–7.55)	–0.044 *** (–6.45)
<i>AGE</i>	–0.004 *** (–3.33)	–0.001 –0.903
<i>Industry</i>	Control	Control
<i>Year</i>	Control	Control
<i>Adj R</i> ²	0.395	0.334
<i>N</i>	455	201

Table 5 Robustness test of replacing the customer concentration index

Variable	Model (6)	Model (7)	Model (8)
<i>TOP5</i>	–0.001 *** (–2.82)	–	–0.001 *** (–3.44)
<i>Owner</i>	–	0.042 *** –3.01	0.011 –0.53
<i>TOP5 × Owner</i>	–	–	0.001 ** –2.02
Control variable	Control	Control	Control
<i>Adj R</i> ²	0.381	0.381	0.382
<i>N</i>	656	656	656

4.3.2 Robustness test of indexes corporate social responsibility. The rating results of Rankins *CSR* Ratings (*RKS*) on social responsibility fulfillment of listed companies were used to replace the corporate social responsibility index (*CSRI*) to measure corporate social responsibility performance. Rankins *CSR* Ratings is an authoritative third-party rating agency for corporate social responsibil-

ity in China, and is committed to providing objective scientific corporate responsibility rating information for social responsibility investors (*SRI*), social responsibility consumers and the public. The rating of Rankins *CSR* Ratings can better measure the performance and disclosure of corporate social responsibility reflected in the corporate social responsibility report. However, the rating of Rankins *CSR* Ratings is mainly based on the evaluation of the corporate social responsibility report. At this stage, not all companies have issued social responsibility reports, and the sample size will be limited. Therefore, in this paper, only robustness test was conducted. After the empirical regression, the results obtained are consistent with the previous conclusions, further validating the hypotheses in this paper.

5 Conclusions and inspiration

This paper empirically tests the relationship between customer concentration and social responsibility of agricultural listed companies, and also considers the regulatory role of property right and regional factors. The results show that the degree of customer concentration is significantly negatively related to corporate social responsibility, and in non-state-owned enterprises and the mid-western region, customer concentration has a greater impact on corporate social responsibility. The above empirical findings suggest that customers, as major stakeholders, can have a significant impact on corporate social responsibility. However, at present, agricultural enterprises are lacking in initiative to fulfill their social responsibilities, which are more of an operational countermeasure. When the customers are more dispersed, the problem of information asymmetry between the companies and their customers becomes more prominent. Enterprises will choose to fulfill their responsibilities more to deliver positive signals to many customers. However, when the company relies on large customers, the company will conduct more investment in relational specificity and more private information exchanges with large customers. The fulfillment of corporate social responsibility cannot address the problem of information asymmetry between companies and large customers. Therefore, when the degree of customer concentration is higher, the degree of fulfillment of corporate social responsibility is lower. This phenomenon is particularly noticeable in non-state-owned agricultural enterprises and enterprises in the central and western regions.

According to the results of this study, it can be seen that the importance attached to fulfilling social responsibilities in agricultural enterprises in China is not enough. With the increasing attention to corporate social responsibility, the fulfillment of social responsibility has more strategic significance. Enterprises should actively fulfill their social responsibilities. Under the opportunity of the mixed ownership reform of state-owned enterprises, the government gradually returns its power to the market. The SASAC has shifted from managing corporate policy to managing corporate capital and let the market play a leading role, making state-owned enterprises more autonomous in their management activities. As the defender of the market order, the government should create a faire and just market environment, and provide non-state-owned enterprises with fair policy benefits, letting the fulfillment of corporate

social responsibility play its biggest role. Finally, the central and western regions have a natural geographical disadvantage compared with the eastern region. Only relying on policy support can this gap be narrowed. National government and agricultural enterprises in more developed regions should correctly guide the development of agricultural enterprises in the central and western regions.

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