

Do local shareholders increase corporate value --Based on the perspective of related-party transactions

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Abstract. This paper introduces the geographical location characteristics of shareholders to study the governance role of shareholders and explores the impact of local shareholders on corporate value from the perspective of related-party transactions (RPTs). We manually collect information on the geographical location of the top ten shareholders of A-share listed companies in China over the period 2010-2020 and screen the data on local RPTs of the companies to empirically test the question under study. The study finds that the higher proportion and controlling right of local shareholders in a listed firm, the more likely it is to have local RPTs. In addition, using the mediation effect test, this paper finds that there is a partial mediation effect between local shareholders and corporate value, the higher the proportion of local shareholders, the stronger the effect of using local RPTs to increase corporate value, which is manifested in the "propping" of RPTs. Further analysis finds that the degree of regional marketization, financing constraints, and the nature of property rights can have a heterogeneous impact on the local RPTs of local shareholders and companies.

Keywords: Local Shareholders; Related-party transactions; Corporate value.

1. Introduction

In recent years, with the rise of new geographical economics, the intersection of geographic location and corporate governance, geographic location and corporate finance has received more and more attention from scholars, and regional economic research on the economic impact of geographic location factors on micro-entities has emerged (Becker et al.,2011; Chhaochharia et al.,2012; Gaspar and Massa,2007; John et al.,2011; Kedia and Rajgopal,2009; Uysal et al.,2008).

It has been found in the literature that geographical proximity between economic agents can help institutional investors in companies establish information mining advantages and access corporate information to increase returns (Baik et al.,2010; Bodnaruk,2009; Bernile et al.,2015), It also reduces the agency problems between shareholders and management of the corporate through effective monitoring (Chhaochharia et al.,2012; Mazur et al.,2018); Improves the quality of auditors' audits (Choi et al.,2012; Liu,2014); enhances the supervisory role of independent directors to improve corporate governance and enhance corporate value (John et al.,2011; Sun and Liu,2014). Little attention has been paid to the impact of the geographical proximity between shareholders and listed firms.

As the external institutional environment and internal corporate governance mechanism of listed firms in China are not yet sound, there are obvious differences with developed capital market countries, which leads to widespread RPTs in listed firms in reality, and shareholders of corporates often use RPTs to achieve their purposes. Based on the different "intentions" of shareholders, there is usually a "Tunneling" viewpoint: major shareholders use RPTs to obtain personal benefits, encroach on the interests of other shareholders, and damage corporate value. (Cheung et al.,2009;Hwang et al.,2013;Tang et al.,2005); a "propping" viewpoint: shareholders use RPTs to help build internal capital markets, reduce transaction costs, and increase corporate value (Shao and Yu,2012; Rong Huang et al.,2013; Wong et al.,2015). So what role does geographic distance play in the relationship between shareholder behavior and corporate value? Do local shareholders take

advantage of their convenient location to seek personal gain by "Tunneling" the corporate through RPTs? Or to provide more "propping" to the corporate? These questions need to be explored in depth.

Based on that, this paper will investigate three aspects: (1) The geographical location information of the top ten shareholders of A-share listed firms during 2010-2020 is manually collected and matched with the information of the corporate's business location to classify them into two types: local shareholders and foreign shareholders. To empirically test the influence of local shareholders on firms' connected transaction behavior; (2) We use the test of the mediating effects to explore how local shareholders use the tool of RPTs for their purposes ultimately having an impact on corporate value; (3) We further analyze the heterogeneous role of external market environment on local shareholders' connected transaction behavior from the perspective of regional marketization process, and the heterogeneous role of internal firm characteristics from the perspective of financing constraints and nature of property rights.

2. Literature Review And Hypothesis Development

Shareholders, as the main body of a modern joint-stock corporate, play a pivotal role in the corporate's business development, and the behavior of the corporate's shareholders often affects changes in corporate value. Compared with the characteristics of shareholders' shareholding structure, shareholders' geographical location provides a new perspective for the study of corporate governance issues. The literature on geographic proximity has shown that geographic distance is an important cause of information asymmetry and that geographic proximity helps economic agents to obtain more effective information through informal channels and at a lower cost, with certain information advantages (Ragozzino, 2009). Gaspar and Massa (2007) firstly introduce the geographical location factor into the relationship between shareholders and corporate governance to alleviate the natural endogeneity of the shareholding structure, and ultimately found that geographical proximity gives shareholders greater effective control and thus improves corporate governance. Becker et al. (2011) use the distance of HNWI aggregation density from the firm as an instrumental variable to proxy for non-executive individual majority shareholders of the firm and ultimately find that non-executive individual local majority shareholders can reduce monitoring costs and promote positive firm growth. Chhaochharia et al. (2012), on the other hand, find that local institutional shareholders are better able to play a monitoring role and reduce corporate malpractices due to their information advantage.

The literature has found that local shareholders can reduce monitoring costs and thus improve corporate governance from the perspective of the information advantage of geographical proximity, but from another perspective, given the peculiarities of the Chinese capital market, where RPTs are often linked to corporate value (Shao and Yu, 2012), shareholders of a firm may also take advantage of its convenient geographical location to engage in more RPTs.

Due to convenient transportation, geographical proximity can reduce transaction costs in terms of logistics costs, storage costs, information costs, etc., and make it easy to do business, so the local advantage of shareholders will make them have lower transaction costs and facilitate connected transaction behavior with listed firms. In addition, the Chinese market also has a strong regional agglomeration, although the national unified and open market is developing, local protection and market segmentation still prevail (Song and Yao; 2019; Ma et al., 2021). Cross-regional transactions face certain obstacles due to regional cultural differences and regional institutional differences, so compared with foreign shareholders, local shareholders have a higher geographical affinity with listed firms, resulting in a greater likelihood of connected transaction behavior. Based on the above analysis, this paper proposes the research hypothesis.

H1: Local shareholders are positively associated with the corporate's local RPTs.

The relationship between RPTs and corporate value is currently a matter of academic debate. The role of RPTs in listed firms is complex - they can be used by major shareholders to channel shareholder resources and build internal capital markets to alleviate financing constraints, or they

may be used to hollow out the corporate and to the detriment of small and medium-sized shareholders for personal gain (Wei. et al., 2017).

The “Propping” hypothesis suggests that RPTs facilitate the creation of an internal capital market for the group and have an efficiency-enhancing effect of reducing costs. On the one hand, the missing external markets and mechanisms can be replaced through internal capital markets, which are typical of many developing countries' emerging market economies (Khanna and Palepu, 2000). On the other hand, internal capital markets have natural efficiency advantages. many internal market transactions can reduce information asymmetries in the trading process (e.g., finding optimal prices and traders) and overcome enforcing contract difficulties in the production process (e.g., default risk and opportunistic behavior) (Zheng and Wei, 2007). Friedman et al. (2003) find empirically that the shareholders of a corporation can increase corporate value by transferring benefits to the listed corporate through RPTs, and name this phenomenon as "Propping" effect.

The “Tunneling” hypothesis suggests that there is often a "dark side" behind RPTs that hide the ulterior motives of insiders, including shareholders and management. Once this drive is contrary to the interests of small and medium-sized investors, RPTs become a tool for large shareholders to usurp the interests of other shareholders for their benefit (Xiao, 2010). Moreover, the shareholding structure is also an important factor influencing the shareholders' motivation and behavior to hollow out, when the shareholding is concentrated in one major shareholder, there is an objective "majority shareholder cost" (Shleifer and Vishn, 1997). Liu et al. (2004) find that the larger shareholder ownership, the more shareholders tend to use RPTs to achieve benefit predation, and Johnson et al. (2000) defined this behavior as "Tunneling".

We Further consider combining the geographical location characteristics of shareholders with the two-sided nature of the impact of RPTs on corporate value. On the one hand, because local shareholders have more local resources and lower transaction costs, they are more likely to use RPTs to build an internal market and incline resources to listed firms to achieve the purpose of benefit transfer, thus increasing corporate value. However, on the other hand, local shareholders may also take advantage of the geographical proximity to the listed corporate to "hollow out" the interests of other shareholders through connected transactions, which ultimately reduces corporate value. Based on this, We present two competing views.

H2a: Local shareholders "prop" the corporate through RPTs, ultimately increasing corporate value.

H2b: Local shareholders "tunnel" the corporate through RPTs, ultimately reducing corporate value.

3. Research Design

3.1 Sample Selection

The initial research sample is selected from 2010 to 2020 for A-share listed firms in China. The data on financial data, corporate governance, and nature of property rights are obtained from the CSMAR database, the data on shareholders' geographical location is obtained by manual collation, and the data on local RPTs are calculated based on the matching of CSMAR database.

The data on the degree of marketization of each region comes from Fan et al. (2021) "China Marketization Index Report by Province", which compiles the marketization index of each region in China (31 provinces, autonomous regions, and province-level municipalities, excluding Hong Kong, Macao, and Taiwan)

Table 1. Sample Screening Process

Screening Process	Remaining samples
CSMAR Database 2010-2020 Corporate Data	33346
Excluding observations of ST and financial corporates	30514
Excluding observations with missing variable data	29259
Excluding observations without disclosed RPTs	21836
Excluding observations that cannot distinguish local RPTs	11713

To ensure the validity of the study sample, the data are processed as follows:(1) Excluding the sample of financial corporates;(2) Excluding the sample of ST corporates;(3) Excluding the sample of corporates with missing or indistinguishable data;(4) The final sample was obtained by Minorizing at the 1% level for continuous data (Table1).

3.2 Variable Measures

3.2.1 Local Shareholders(*Loc*)

Based on the research objectives, we manually collated the geographical location information of the top ten shareholders of A-share listed firms in the sample period using corporate annual report data combined with search engines such as Baidu and Google to match the business location of listed firms, to determine the proportion of local shareholders of listed firms. It should be noted that due to the difficulty of obtaining all the public geographic location information of natural person shareholders, all natural person shareholders are excluded in this paper. Respectively, we use a binary dummy variable for the presence of local shareholders in listed firms(*Loc_dum*), Percentage of local shareholders(*Locpro*), and the Shareholding ratio of local shareholders(*Lochold*) as quantitative metrics of local shareholder variables.

3.2.2 Related-Party Transaction(*RPT*)

In the Chinese capital market, there are many types of RPTs for listed firms, among which, related-party purchases and sales are the most common. Therefore, we use the ratio of related-party purchases and sales to total assets at the end of the period to form a ratio indicator(*RPT_total*) to represent RPTs (Wei et al., 2017). And in the robustness test section, we refer to Liu et al. (2007) to measure RPTs using related-party purchases / total operating cost(*RPT_buy*) and related-party sales / Total operating revenue(*RPT_sell*).

In addition, considering that local shareholders are more likely to have RPTs with listed firms due to the geographical proximity which reduces transaction costs, the RPTs of local shareholders should be more reflected as local RPTs. Thus, this paper uses related party location information data from the CSMAR database to match with the corporate's RPTs, retaining only local samples of RPTs data.

3.2.3 Corporate Value(*Tobin's Q*)

Corporate value is measured using *Tobin's Q*, which is equal to the ratio of the market value of the company's assets to the replacement cost of the assets. With the continuous maturity of the development of the Chinese capital market in recent years, *Tobin's Q* has been able to better reflect the actual value of listed companies (Yang et al., 2016).

3.2.4 Control Variables(*Controls*)

We control for the financial characteristics and governance characteristics of the firms (Wei et al.,2017), including Corporate Size (*Size*,natural logarithm of total assets), Debt Level (*Lev*,total liabilities / total assets), Profitability (*Roa*,net profit / average total assets at the beginning and end of the year), Corporate Growth (*Growth*, (operating revenue for the year - last year's operating income) / last year's operating income), Asset Intensity (*Invint*, non-current assets / total assets), Asset turnover ratio (*Turnover* , operating revenue / total assets) ,Shareholding ratio of major shareholders (*First*,Number of shares held by the largest shareholder / Total Equity),Shareholding balances(*Secfive*, Sum of the total number of shares held by the second to fifth largest shareholders / Total Equity) , Board Size (*Dir_size*,Natural logarithm of the number of board members) , Percentage of independent directors(*Indep_rate*,Number of independent directors / Total number of board of directors) and Executive Compensation (*Comp* , Natural logarithm of executive compensation). Besides, The year(*Year*) and industry(*Industry*) dummy variables are also included in this paper.

3.3 Regression Models

To test hypothesis 1 and hypothesis 2, this paper adopts the mediator effect test, and the steps are designed as (1) Regression of firm value using local shareholder indicators, if a significant regression coefficient is obtained, it indicates that RPTs significantly affect corporate value;(2) Regression of the mediating variable of RPTs using the local shareholder indicators, if the regression coefficient is significant, it indicates that the local shareholder utilizes the RPTs instrument;(3) If the above results hold, then the local shareholder and RPTs indicators are put into the model at the same time to regress firm value. At this time, if the significance of the coefficient of the local shareholder indicators decreases (or becomes insignificant), it means that the local shareholders partially (completely) use RPTs to influence firm value. The following multiple regression model is thus constructed, and the control variables in the model are denoted by *Controls* to avoid redundancy.

$$RPT_{i,t+1} = \alpha_0 + \alpha_1 Loc_{i,t} + \alpha_2 Controls + \alpha_3 Industry + \alpha_4 Year + \varepsilon_{i,t} \quad (1)$$

$$Tobin's Q_{i,t+1} = \alpha_0 + \alpha_1 Loc_{i,t} + \alpha_2 Controls + \alpha_3 Industry + \alpha_4 Year + \varepsilon_{i,t} \quad (2)$$

$$Tobin's Q_{i,t+1} = \alpha_0 + \alpha_1 Loc_{i,t} + \alpha_2 RPT_{i,t} + \alpha_3 Controls + \alpha_4 Industry + \alpha_5 Year + \varepsilon_{i,t} \quad (3)$$

Model (1) is used to test hypothesis 1, which is to test whether the presence of local shareholders, the percentage of local shareholders, and the percentage of local shareholders' shareholding increase RPTs. The combination of model (1) ~ model (3) is then used to test hypothesis 2, which is to test what impact the use of RPTs by local shareholders has on corporate value. To eliminate the effect of heteroskedasticity, the empirical analyses are all adjusted using *robust*. Moreover, to mitigate the effect of endogeneity, all explanatory variables are advanced for one period in this paper.

4. Empirical Results

4.1 Descriptive Statistics

According to the results of descriptive statistics, local shareholders were present in 7430 of the 11713 companies in the sample, accounting for 63.39% of the total sample. In terms of regions, this paper finds that Chinese A-share listed companies show different geographical location preferences in shareholder localization: in the eastern regions such as Beijing and Shanghai, local shareholders account for a higher proportion, able to reach 12.9%, showing stronger local shareholder concentration characteristics; while in the central and western regions such as Ningxia, Sichuan, and Henan, local shareholders account for a smaller proportion, with the lowest proportion being only 5.2% in Ningxia province.

4.2 Multiple Regression Results And Analysis

4.2.1 Local Shareholders And RPTs

Table 2. Local Shareholders and RPTs

VARIABLES	(1) <i>Rpt_total</i>	(2) <i>Rpt_total</i>	(3) <i>Rpt_total</i>
<i>Loc_dum</i>	0.025*** (8.99)		
<i>Locpro</i>		0.089*** (6.30)	
<i>Lochold</i>			0.069*** (8.77)
<i>Controls</i>	YES	YES	YES
<i>Constant</i>	0.039 (1.00)	0.039 (1.00)	0.065* (1.68)
<i>Industry & Year</i>	YES	YES	YES
<i>Observations</i>	8,805	8,805	8,805
<i>Adj. R²</i>	0.101	0.099	0.104
<i>F</i>	23.57***	21.28***	22.57***

Note; ***, ** and * indicate significant at the 1%, 5%, and 10% levels, respectively. The brackets indicate the t-values obtained from the robust standard error calculations, and the decrease in a sample size of 2908 (11713-8805) in the table is due to the advancement of the dependent variable by one period.

Columns (1) ~ (3) of Table 2 report the results of multiple regressions of local shareholder presence (*Loc_dum*), local shareholder share (*Locpro*), and local shareholder ownership (*Lochold*) with local RPTs (*Rpt_total*). The coefficients are 0.025, 0.089, and 0.069, respectively, all significant at the 1% level. The results indicate that local shareholders can significantly increase the level of RPTs of the company regardless of the measurement, and hypothesis 1 of this paper is strongly supported.

4.2.2 Local Shareholders, RPTs, And Corporate Value

Table 3 reports the multiple regression results for models (2) to (3). From columns (1) to (3), the coefficients of the presence of local shareholders (*Loc*), the percentage of local shareholders (*Locpro*), and the percentage of local shareholders' shareholding (*Lochold*) on corporate value (*Tobin's Q*) are 0.170, 0.668 and 0.466, respectively, all significant at the 1% level, reflecting local shareholders can significantly increase corporate value and play a positive role in the company's operations. Columns (4) to (6) further test the mediating effect of RPTs between local shareholders and firm value by including both RPTs (*RPT_total*) and local shareholder indicators (*Loc*, *Locpro*, *Lochold*) in the regression of corporate value.

Table 3. Local Shareholders, RPTs, And Corporate Value

VARIABLES	(1) <i>Tobin's Q</i>	(2) <i>Tobin's Q</i>	(3) <i>Tobin's Q</i>	(4) <i>Tobin's Q</i>	(5) <i>Tobin's Q</i>	(6) <i>Tobin's Q</i>
<i>Loc_dum</i>	0.170*** (5.24)			0.166*** (5.21)		
<i>Locpro</i>		0.668*** (4.24)			0.651*** (4.19)	
<i>Lochold</i>			0.466*** (6.52)			0.455*** (6.52)
<i>Rpt_total</i>				0.175** (2.02)	0.190** (2.17)	0.158* (1.83)
<i>Controls</i>	YES	YES	YES	YES	YES	YES
<i>Constant</i>	9.904*** (14.29)	9.912*** (14.23)	10.082*** (14.20)	9.893*** (14.32)	9.900*** (14.26)	10.068*** (14.24)
<i>Industry & Year</i>	YES	YES	YES	YES	YES	YES
<i>Observations</i>	8,805	8,805	8,805	8,805	8,805	8,805
<i>Adj. R²</i>	0.268	0.267	0.269	0.268	0.267	0.269
<i>F</i>	104.6***	104.5***	105.2***	99.06***	98.84***	99.30***
<i>Sobel Z</i>				3.097***	2.815***	3.027***

Note; ***, ** and * indicate significant at the 1%, 5%, and 10% levels, respectively. The brackets indicate the t-values obtained from the robust standard error calculations.

From the test steps of the mediating effect: Table 2 first finds that local shareholders can significantly and positively affect the mediating variable of RPTs; Then columns (1) to (3) of Table3 finds a significant positive effect of local shareholder on corporate value; Columns (4) to (6) of Table3 the significant effect of local shareholders on firm value is found to remain after the inclusion of the mediating variable of RPTs, and the effect of RPTs on firm value is equally significant. Comparing before and after the inclusion of RPTs variables, all the coefficients of local shareholders (*Loc*, *Locpro*, *Lochold*) decreases significantly. The results indicate that the effect of local shareholders on corporate value is partially explained by RPTs, which play a partial mediation effect between local shareholders and corporate value. The percentage of mediation effect of local RPTs under the three indicators is 6.75%, 8.84%, and 5.93%, respectively. For robustness, the Sobel test is also performed in this paper, and the z-statistics all pass the statistical test at the 1% level. Moreover, since the regression coefficients of local shareholders' indicators (*Loc*, *Locpro*,

Lochold) and RPTs (*RPT_total*) are positive and all of them are significant at least at the 10% level, it fully illustrates that RPTs are used to help increase the value of listed companies and confirms the view that local shareholders will use RPTs to "prop" listed companies. The result of hypothesis 2 is verified by accepting H2a and rejecting H2b.

5. Further Analysis

The results in Table 3 already show that local shareholders increase the level of RPTs and play a positive effect on the development of the company. However, in reality, firms' connected transaction behavior is affected by many factors such as the external market environment (e.g., the degree of regional marketization) and internal firm characteristics (e.g., the nature of property rights and financing constraints), which may make cross-sectional differences in the influence of local shareholders and firms' connected transaction behavior. Therefore, we will further explore the above questions next.

5.1 External Market Environment

5.1.1 The Degree Of Regional Marketization

Since the reform and opening up, marketization has been greatly developed in all regions of China, but it is also characterized by imbalances. In the eastern regions, for example, marketization has been decisively developed and the development model of market economy has been widely accepted, while in the central and western regions, non-market factors in the economy still occupy an important place. Different degrees of marketization imply inconsistent costs for firms to acquire economic factors, which affects their trading patterns, investment and financing behavior in many ways. To investigate the effect of marketization in different regions on the behavior of local shareholders' "prop" to the company through RPTs, we use the marketization index of regions in China compiled by Fan et al. (2021) to conduct an empirical test, where a larger index represents a higher degree of marketization.

The original data are divided into group regressions for 2010-2016 and 2016-2020, the regional marketability index (*Mart*) and the cross product term ($Mart \times Locpro$) are added into the model (1). Regression results for the two sets of data are shown in columns (1) to (2) of Table 4, respectively. From the results, it can be found that the cross term between the marketability index and the percentage of local shareholders is significantly negative at least at the 10% level, regardless of the sample period. This indicates that in regions with a higher degree of regional marketization, where product markets are more developed, companies can obtain operating elements at a lower cost in a fair market, thus reducing RPTs supported by local shareholders within listed companies, and also fully demonstrates that the construction of the external market environment can have a positive effect on the company's operating efficiency.

5.2 Internal Firm Characteristics

5.2.1 Financing Constraints

The financing constraint indicators are specific to the micro-financial level of the company, and the different operating conditions of different companies lead to heterogeneous differences in financing costs. When a company faces tight financing constraints, it costs more information to search for external low-cost capital, so companies often use RPTs to take advantage of the cost of internal capital markets to obtain low-cost financing and improve capital allocation efficiency. In order to consider the impact of financing constraints on local shareholders' behavior in using RPTs to "prop" the company, this paper uses the financing constraints indicator (*FC*) to measure by referring to Chen and Zheng (2020) and Gu et al. (2020), and finally establishes a model to measure the degree of corporate financing constraints, which is calculated as follows.

In the first step, the three variables of firm size, firm age, and cash payout ratio are standardized by year. Then the listed companies are sorted in ascending order according to the mean values of the standardized variables, and the upper and lower third quartiles are taken as the cut-off points of

financing constraints respectively to determine the financing constraints dummy variable $QUFC$, with listed companies greater than 66% quartiles defined as the low financing constraints group with $QUFC = 0$ and those less than 33% quartiles defined as the high financing constraints group with $QUFC = 1$.

In the second step, a logit regression is performed on the model (4) to fit the probability of occurrence of the firm's financing constraint in each year $P(QUFC_{i,t} = 1) = \frac{e^{QUFC_{i,t}}}{1+e^{QUFC_{i,t}}}$. Then the fitted value is defined as the financing constraint indicator FC (taking a value between 0 and 1), the larger the FC , the more serious the financing constraint problem of the company.

$$QUFC_{i,t} = \alpha_0 + \alpha_1 Size_{i,t} + \alpha_2 Lev_{i,t} + \alpha_3 \left(\frac{CashDiv}{ta} \right)_{i,t} + \alpha_4 MB_{i,t} + \left(\frac{NWC}{ta} \right)_{i,t} + \alpha_6 \left(\frac{EBIT}{ta} \right)_{i,t} \quad (4)$$

In the above equation, $Size$ represents the size of corporate assets, the natural logarithm of total assets; Lev represents the asset-liability ratio; $CashDiv$ represents cash dividends paid by the company during the year; MB represents corporate market-to-book ratio = market value/book value; NWC represents net working capital = working capital - money capital - short-term investments; $EBIT$ represents EBITDA; ta represents a total asset.

The calculated financing constraints (FC), and cross-product terms ($FC \times Locpro$) are added to the model (1) and the data regression results are shown in column (3) of Table 4. From the results, it can be found that the cross product term is significantly positive with a coefficient of 0.156, which is significant at the 5% level, indicating that the higher the financing constraint a company faces, the more convenient local shareholders can use RPTs to reduce the company's financing cost due to the benefits brought by geographical proximity to "prop" the listed company.

5.2.2 Nature Of Property Rights

Table 4. Local Shareholders And RPTs: Heterogeneity Analysis

<i>VARIABLES</i>	(1) <i>Rpt_total</i>	(2) <i>Rpt_total</i>	(3) <i>Rpt_total</i>	(4) <i>Rpt_total</i>
<i>Locpro</i>	0.115*** (5.59)	0.080*** (4.32)	0.017 (0.61)	0.090*** (3.71)
<i>Mart</i>	-0.015*** (-7.02)	-0.011*** (-4.99)		
<i>Mart × Locpro</i>	-0.050*** (-3.53)	-0.035* (-1.81)		
<i>Fc</i>			0.005 (0.26)	
<i>Fc × Locpro</i>			0.201*** (2.99)	
<i>State</i>				0.036*** (9.76)
<i>State × Locpro</i>				-0.066** (-2.16)
<i>Controls</i>	YES	YES	YES	YES
<i>Constant</i>	-0.005 (-0.08)	0.043 (0.93)	-0.056 (-0.66)	0.069* (1.76)
<i>Industry & Year</i>	YES	YES	YES	YES
<i>Observations</i>	5,042	3,629	8,805	8,805
<i>Adj. R²</i>	0.113	0.091	0.100	0.108
<i>F</i>	12.98***	8.557***	18.52***	25.08***

Note: ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively, and t-values obtained from robust standard error calculations are indicated in parentheses. The decrease in the sample size of columns (1) and (2) is because the marketability indicator was recalculated in 2016, so both are subsamples of the original sample in different periods, and the reason why the sum of the two (5042+3629) is not consistent with the original sample size (8805) is that the 2016 sample was reused.

Since SOEs can enjoy the benefits of government credit to some extent and are generally perceived to have a lower risk of default. Major state-owned banks and regional commercial banks are also controlled by the government, and state-owned enterprises have more favorable loan limits, interest rates, and constraints, and have lower financing costs (Zuo and Gong, 2011). In contrast, private companies do not have this financing advantage from non-market factors and have a stronger incentive to use RPTs to obtain lower financing costs. Meanwhile, Zuo and Gong (2011) argue that the family business characteristics exhibited by private firms in China can play an active role in enabling cooperation and transactions and reducing transaction costs. All these reasons may lead to heterogeneous effects of local shareholders' connected transaction behavior in the case of companies with different ownership natures.

In order to consider the influence of the nature of property rights on the behavior of local shareholders "prop" the company by using RPTs, we add the nature of property rights (*State*) and the cross term ($State \times Locpro$) to model (1). The results in column (4) of Table 4 show that the cross product of the nature of the ownership and the share of local shareholders are significantly negative with a coefficient of -0.066, which is significant at the 5% level, indicating that the local shareholders of private firms use RPTs to "prop" the firm more significantly than those of SOEs.

6. Robustness Test

6.1 Add Key Variables That May Have Been Missed

Since the original shareholders of a company are often located in the same city as the listed company and are likely to be local shareholders. The original shareholders have a strong desire to make the company bigger and stronger, and they usually have a high level of control within the company, so it is likely to use their resources to "prop" the development of the company through RPTs. To exclude the interference of this factor, we obtain the list of original shareholders of companies at the time of IPO based on CSMAR database and match it with the local shareholders of the company for each year to determine whether the company contains local original shareholders.

In addition, due to differences in systems cultures, etc., between regions, different levels of RPTs may develop. Some companies are located in areas where there is a lack of regulation and a high degree of industrial concentration and carry out related transactions more frequently. To exclude the interference of differences in the level of RPTs between different regions, we use the average value of local RPTs in the company's region for control.

Table 5: Add Key Variables That May Have Been Missed: Robustness Test

<i>VARIABLES</i>	(1) <i>Rpt_total</i>	(2) <i>Tobin's Q</i>	(3) <i>Tobin's Q</i>
<i>Locpro</i>	0.037*** (5.75)	0.620*** (4.17)	0.589*** (4.12)
<i>Rpt_total</i>			0.827** (2.45)
<i>Orghold</i>	-0.007*** (-4.72)	0.064* (1.81)	0.069* (1.90)
<i>Mrpt_total</i>	0.537*** (9.86)	-0.617 (-1.32)	-1.116** (-2.09)
<i>Controls</i>	YES	YES	YES
<i>Constant</i>	-0.018 (-1.10)	10.008*** (13.61)	10.013*** (13.60)
<i>Industry & Year</i>	YES	YES	YES
<i>Observations</i>	8,805	8,805	8,805
<i>Adj. R²</i>	0.152	0.262	0.263
<i>F</i>	29.77***	83.79***	79.76***

Note: ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively, and t-values obtained from robust standard error calculations are indicated in parentheses.

Finally, considering the effect of possible omission of key variables, we add the indicator of whether the company contains local original shareholders (*Orghold*) and the average level of RPTs in the region where the company is located (*Mrpt_total*) into model (1) ~ model (3), then re-run the multiple regressions to obtain the results shown in Table 5, which are basically consistent with the results in Table 2 and Table 3, further verifying hypothesis 1 and hypothesis 2 of this paper.

6.2 RPTs Variable Substitution

Referring to the index construction method of Liu et al.(2007), we use related sales / Total operating revenue and related purchases / Total operating cost to replace original related purchases and sales / total assets. Then re-estimating model (1) ~model (3), the results are shown in Table 6, except for the insignificant mediation effect of related purchase, all the results still support hypotheses 1 and 2, which can be considered as having good robustness.

Table 6. RPTs Variable Substitution: Robustness Test

<i>VARIABLES</i>	(1) <i>Rpt_total</i>	(2) <i>Tobin's Q</i>	(3) <i>Tobin's Q</i>	(4) <i>Rpt_total</i>	(5) <i>Tobin's Q</i>	(6) <i>Tobin's Q</i>
<i>Locpro</i>	0.050*** (3.57)	0.555*** (4.96)	0.543*** (4.85)	0.080*** (4.91)	0.500*** (5.05)	0.501*** (5.05)
<i>Rpt_sell</i>			0.206** (2.18)			
<i>Rpt_buy</i>						-0.012 (-0.17)
<i>Controls</i>	YES	YES	YES	YES	YES	YES
<i>Constant</i>	0.205*** (5.29)	9.342*** (30.03)	9.299*** (30.05)	0.144*** (3.42)	8.070*** (30.42)	8.072*** (30.45)
<i>Industry & Year</i>	YES	YES	YES	YES	YES	YES
<i>Observations</i>	6,739	6,739	6,739	7,066	7,066	7,066
<i>Adj.R²</i>	0.037	0.403	0.404	0.060	0.386	0.386
<i>F</i>	14.21***	146.9***	137.3***	15.39***	155.3***	145.3***

Note: ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively, and t-values obtained from robust standard error calculations are indicated in parentheses. The change in sample size is due to the re-measurement of the original level of RPTs.

6.3 Propensity Score Match

There may be other factors affecting firm value in this research that result in firm value not actually or significantly affected by local shareholders, and the mediating effect may not be significantly present.

Table 7. PSM-Adjusted Regression: Robustness Test

<i>VARIABLES</i>	(1) <i>Rpt_total</i>	(2) <i>Tobin's Q</i>	(3) <i>Tobin's Q</i>
<i>Locpro</i>	0.095*** (6.46)	0.744*** (3.41)	0.675*** (3.17)
<i>Rpt_total</i>			0.718*** (3.47)
<i>Controls</i>	YES	YES	YES
<i>Constant</i>	0.104*** (3.18)	12.491*** (13.09)	12.416*** (13.13)
<i>Industry & Year</i>	YES	YES	YES
<i>Observations</i>	7411	7411	7411
<i>Adj.R²</i>	0.0699	0.223	0.225
<i>F</i>	13.16***	62.97***	58.36***

Note: ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively, and t-values obtained from robust standard error calculations are indicated in parentheses. The sample size reduction of 859 (8805-7946) is due to the re-regression of the identified matched samples.

Therefore, we divide the sample into a treatment group (presence of local shareholders) and a control group (absence of local shareholders), calculate propensity scores using *Logit* regression, and conduct propensity score matching (*PSM*) analysis based on the company's current year data in a 1-matching nearest neighbor matching approach using the control variables used in the previous regression analysis as matching criteria.

Table 7 indicates the results of re-estimating model (1) to model (3) after matching by the *PSM* method. From column (1) to column (3), it can be found that both the percentage of local shareholders significantly and positively affects RPTs and firm value, which are significant at the 1% level. The coefficients are also significant at the 1% level after adding the mediation variable, which obtains the same conclusion as the previous section and still supports hypotheses 1 and 2.

7. Summary And Conclusions

Unlike the previous literature on RPTs, this study explores the impact of connected transaction behavior of local shareholders on listed companies' value. Using a sample of A-share listed companies in China from 2010 to 2020, we identify local shareholders and local RPTs of companies and then explore the influence mechanism using the mediation effect test. In further analysis, the different roles of the degree of regional marketization, financing constraint indicators, and the nature of property rights on the connected transaction behavior of local shareholders are explored.

The main studies obtained in this paper are as follows. (1) companies with the presence of local shareholders, a higher percentage of local shareholders, and a higher percentage of local shareholders' shareholdings will have more local RPTs. (2) Local shareholders have a positive "propping" effect on the value of the company by using local RPTs as a mediating variable. (3) For companies in less market-oriented regions, where external financing channels are scarce, internal financing channels constructed by local shareholders through RPTs play a substitute role and help companies obtain low-cost financing. (4) For companies with a tight financing constraints, local shareholders provide internal financial support through local RPTs, which helps improve the company's financing difficulties. (5) Compared to SOEs, which can obtain lower financing costs under their political conditions, private companies are more motivated to support the company with internal funding through local shareholders using local RPTs to reduce transaction costs for the company's growth.

The results of this paper indicate that the introduction of local shareholders, where appropriate, is necessary for the growth of the company. Local RPTs conducted by local shareholders due to their geographical proximity generally play a positive role for companies, reducing their transaction costs by building an internal financing market. This provides a lesson for companies facing financing difficulties and limited access to financing: if there is no suitable method to obtain low-cost financing, it is worth considering bringing in active local shareholders to promote the long-term development of the company through the quality local resources they pour into the company.

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