

# Institutional Investor and M&A Premium: The Moderating Effect of Internal Control

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## Abstract:

This study uses a total of 1895 M&A samples of Chinese listed companies during 2009-2019 to explore the effect of institutional investor's shareholding on the M&A premium and the influence of internal control. The results show that the increase in the shareholding ratio of institutional investors can reduce the M&A premium; among the M&A companies with low agency costs, institutional investors have more significant inhibitory effect on the M&A premium; if the M&A is a related transaction, the institutional investor can do well in restraining the M&A premium. Internal control has a positive moderating role in the inhibition effect of institutional investors on M&A premium. The institutional investors have more significant inhibitory effect in non-state-owned enterprises with good internal control, while in state-owned enterprises this effect is insignificant.

**Keywords:** *Institutional investor, Internal control, M&A premium, Agency cost, Related transaction.*

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## I. INTRODUCTION

Mergers and acquisitions (M&A) is an important way for enterprises to expand and restructure their businesses and it represents the efficiency and vitality of the capital market[1].However, some enterprises have to pay high premium for M&A to complete the transaction, while others don't, so the difference of M&A premium has been widely discussed in academic circles.One of the reasons for M&A premium is that executives are not absolutely rational when making M&A decisions, and their risk preference will affect M&A decisions.Risk-averse executives tend to overestimate the potential risks of M&A to make M&A decisions more carefully, so they may give up M&A projects with high risks that can increase the company's value in order to avoid losses, while risk-preferred executives may pay a high premium in M&A projects due to excessive anticipation of the company's M&A integration ability.

Investor supervision and perfect internal governance mechanism are important factors to help companies avoid risks and improve the quality of M&A decisions. On the one hand, as an important financing channel for listed companies, institutional investors' shareholding plays a role of supervision and intervention on corporate governance, which in turn affects corporate performance.As for M&A, institutional investors can gain a greater voice by increasing the shareholding ratio to restrain the self-interest behavior of management, and obtain information and make judgments by virtue of their own information access channels and professional ability, so as to ensure the rationality of the M&A

decisions. On the other hand, as the internal control mechanism is the key element of corporate internal governance, a scientific and effective internal control system can restrict or motivate the behavior of corporate executives, thus reducing the risk of M&A decision-making brought about by the irrational behavior of corporate executives. Therefore, a good internal control is helpful to reduce the M&A premium.

Analysis on the influence of institutional investors' supervision and internal control mechanism on M&A premium can help enterprises further clarify the influencing factors of M&A premium, and then reduce the unreasonable premium in M&A by adjusting related factors. Previous studies have explored the impact of institutional investors' shareholding on M&A performance [2-5], as well as the impact of factors such as M&A consultant [6], target company earnings quality [7] and CEO reputation of the acquirer [8] on M&A premium, but seldom studied the impact of institutional investors' shareholding on M&A premium from the perspective of internal control. In this paper, based on principal-agent theory and shareholder activism theory, the role of corporate institutional investors' shareholding on M&A premium and the moderating effect of internal control were explored. The contributions of this paper may lie in: Firstly, the moderating effect of corporate internal control and the effect of corporate property rights on the moderating effect were analyzed. The results further clarify the conclusion that good internal control is beneficial to institutional investors' governance. Secondly, considering the impact of related party transactions and agency costs in the research on the impact of institutional investors' shareholding on corporate M&A premium, it was made clear that reducing agency costs is more conducive to institutional investors' governance role. The research conclusion is of great significance for enterprises. They can adjust their own internal control to further promote the governance role of institutional investors and reduce unreasonable M&A premium.

## **II. HYPOTHESIS DEVELOPMENT**

Shareholder activism means that corporate shareholders actively participate in corporate governance, supervise the management, and improve the corporate governance mechanism to improve the level of corporate governance [9]. Institutional investors, as shareholders of the company, have the advantages of financial strength, large scale and professional personnel, and can participate in corporate governance through shareholder proposals and consultations.

M&A, an important way of company expansion, is the result of balancing the response of the target company after the price negotiation between the acquirer and the target party [10]. As M&A may bring benefits to shareholders of the company [11], may also have a high M&A premium, thus damaging shareholders' interests, it should be taken seriously by shareholders. M&A premium is not only the income of the target party, but also the cost that the acquirer needs to pay in M&A, which may be caused by a certain degree of information asymmetry between the acquirer and the purchaser [12]. The acquirer, due to external reasons such as geographical distance and cultural differences, does not know enough about the real situation of the target company, which leads to high valuation of the target company, or the target company may hide information and spread false information, so as to obtain more premium compensation by taking advantage of information. It is precisely because of the information asymmetry between the two sides of M&A that the premium rate of M&A often does not match the real value [13]. The acquirer needs to use comprehensive information access channels and professional analysis ability to accurately judge the

availability, completeness and accuracy of the underlying information in detail[14], or it may erroneously estimate the value generated by the M&A, resulting in the M&A premium[15].

As shareholders with both supervisory ability and active participation, institutional investors can alleviate agency conflicts between management and shareholders to a certain extent[16] and improve corporate performance by reducing agency costs[17]. In the meantime, the company will adjust its investment decisions to cater to institutional investors. The mechanism of institutional investors' participation in supervision and governance in M&A activities is as follows: First, by increasing the shareholding ratio and having more discourse power, the excessive monopoly power of major shareholders of listed companies will be curbed, and the decision-making behavior of management that harms the interests of the company will be restricted[18]. Secondly, by virtue of its own good information access channels and professional information analysis ability, it can provide information support efficiently and accurately to effectively guide the company's M&A behavior, and urge the company to adopt a more correct M&A strategy[19]. Therefore, in order to maximize their own investment return, the institutional investors will try their best to alleviate the degree of information asymmetry in M&A by using their professional capabilities and information channels, actively offer suggestions for M&A decisions[20], improve the quality of information disclosure[21], enhance the authenticity of earnings information, and thus inhibit the M&A premium. Thus, hypothesis H1 is made:

**H1: Shareholdings by institutional investors has a restraining effect on M&A premium.**

The principal-agent problem[18] arises from the game between the principal and the agent due to asymmetric information and inconsistent interests. Managers often have a better understanding of the inside information of the company, but the board of directors and shareholders, as principals, are at a disadvantage in the game because they cannot get the inside information in time[22]. In case of inconsistent interests pursued by managers with those of shareholders and the board of directors, managers may use a large amount of inside information to damage the interest of the board of directors and shareholders out of self-interest[23]. In terms of M&A, as management often value their position and power in the company, and the expansion of the size of the enterprise is closely related to their remuneration, they tend to use the cash flow reserves to initiate M&A and pay a high M&A premium to expand the company's operating scale, but this may harm the interests of the company and shareholders [24]. In addition, the poor earnings forecast ability of the management will also make the company pay a high M&A premium[25].

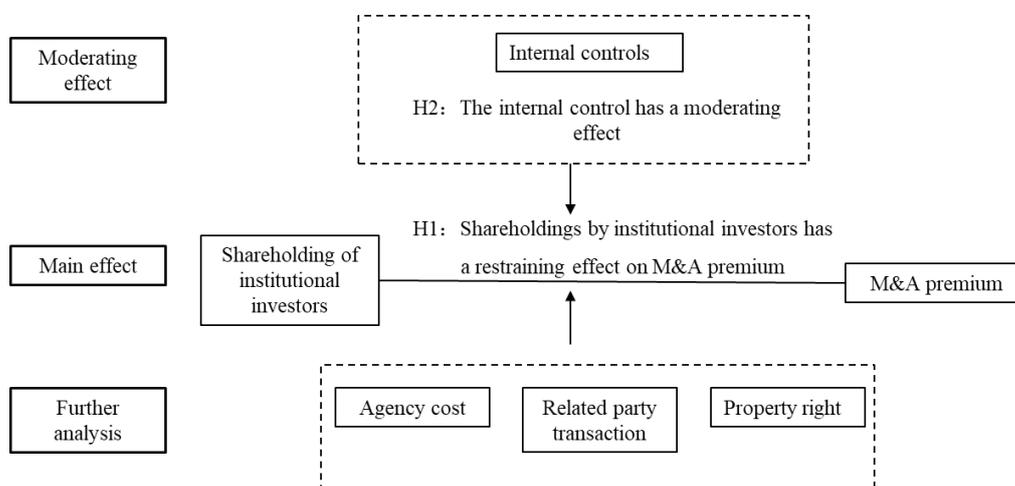
In order to alleviate the conflicts between shareholders and managers within the company, the company needs to establish an efficient internal governance mechanism to supervise and motivate the management[26], so the internal control system (including corporate governance structure, capital structure and internal audit, etc.) has been gradually developed as an internal governance mechanism.

The good internal control reduces agency costs and executive self-interest behavior[27], as it is often difficult for managers to make blindly operational decisions to satisfy their own interests within a company with good internal control. However, institutional investors often take an active part in corporate governance only when the revenue from participating in corporate governance is greater than the cost of

supervision and governance, and the high cost of governance may make them change from voting by hand to voting by foot in stock transactions. Previous studies have shown that the supervision cost of institutional investors-shareholders has a negative correlation with the perfection of the governance structure of the invested company [28], i.e., the reduction of supervision cost can effectively improve the governance efficiency of the invested company. A good internal control of listed companies is conducive to improving the quality of company information disclosure [29]. Specifically, the more information is disclosed, the lower the cost of supervision and restraint by shareholders, and the more favorable it is for institutional investors to identify outstanding listed companies, more actively participate in corporate governance and help optimize corporate decisions. Therefore, good internal control improves the internal governance mechanism of the enterprise, which is beneficial to reduce the supervision cost of institutional investors, increase their enthusiasm to participate in corporate governance, and affect the M&A decision-making, thus affecting the M&A premium. Thus, hypothesis H2 is made:

**H2: The internal control has a moderating effect on the relationship between institutional investors' shareholding and M&A premium.**

The research framework is shown in Fig. 1. This paper will test the impact of institutional investors' shareholding on M&A premium (H1), and analyze the impact of related party transactions and agency costs as well. We also examine the moderating effect of internal control (H2) and analyze the influence of different property rights of enterprises on moderating effect.



**Fig.1 Research framework**

### III. MATERIALS AND METHODS

#### 3.1 Data and sample

In this paper, the M&A events of A-share listed companies from 2009 to 2019 (first notice date) were selected as the research object. The data of M&A events mainly comes from the CSMAR database. With reference to the existing research[30-32], the principles of data screening are as follows:

First, eliminating the samples of the acquirer in the financial industry. Second, eliminating ST and \*ST companies. Third, retaining successful M&A samples. Fourth, eliminating the samples with incomplete or missing data. Fifth, eliminating the sample with net assets less than five million. Sixth, eliminating samples with payment value of less than five million. Seventh, merging samples of multiple M&As of the same enterprise in the same year. Finally, keeping the largest transaction event for multiple M&A events of the same acquirer in the same year according to the principle of importance.

The aggregate data of institutional investors' shareholding ratio were obtained from WIND database, internal control data were obtained from DIB database, and other data were obtained from CSMAR database. All continuous variables in the model were subject to winsorization at 1% and 99% percentiles to eliminate the effect of extremes.

### 3.2 Variable selection

#### 3.2.1 M&A premium

Due to the fact that the acquired enterprises of China in M&A transactions are usually not listed, it is impossible to get the price per stock market through the secondary stock exchange market and difficult to measure the *M&A premium* by the calculation method of (acquisition price per share - market value)/market value. Therefore, referring to the existing research [30, 33], the value of the net assets is adopted instead of the market value. The M&A premium can be calculated as follows:

M&A premium = the difference between the transaction price and the book value of net assets/the book value of the net assets

#### 3.2.2 Institutional investors' shareholding ratio

Institutional investors' shareholding ratio (*Insti*): Total number of institutional investors' shareholding in WIND database.

#### 3.2.3 Moderating variables

Internal control: In this paper, DIB Internal Control Index (*Ic*) and Internal Control Deficiency (*Icd*) were selected to measure the quality of internal control. If internal control deficiencies were disclosed in the internal control audit report, *Icd* = 1, otherwise, 0.

#### 3.2.4 Control variables

As the characteristics of M&A transactions and the characteristics of both parties are involved in M&A activities, the control variables in this paper were controlled from two aspects, year and industry are also controlled.

M&A transaction characteristics: M&A scale (*Expen*) is the natural logarithm of the payment by the merging parties. Whether the acquirer and acquired companies are in the same province or not (*Area*), if both parties are in the same province, the value of *Area* is 1; otherwise, it is 0.

Characteristics of the acquirer: The *Size* of the company, the larger the size of the acquirer, the higher the M&A premium may be. For the company's financial ability, the fixed asset ratio (*Fixed*), return on equity (*Roe*) and financial leverage (*leverage*) were used to control the impact of the company's own

financial indicators on the M&A premium, as well as the growth rate of operating income (*Growth*) and TobinQ value (*TobinQ*), which measure the growth. When the company is under growth pressure, it tends to pay a higher M&A premium;

Company executives: The higher the total executive pay (*Execupay*) of directors, the more likely they will be overconfident and thus pay a high M&A premium. The proportion of independent directors (*Indep*) significantly affects the M&A activities, and the influence is affected by the degree of independence. The share ratio of the largest shareholder (*Largest*), which measures the ownership concentration and executive power, and whether there is duality (*Dual*) in executives' position.

In addition, the institutions that supervise the M&A companies were controlled to test the supervisory and governance functions of institutional investors, including whether they have been audited by the *Big4* and the *Attention* of analysts.

Year variable: Tendummy variables for year were generated.

Industry variable: The *Guidelines for the Industry Classification of Listed Companies* (2012) was adopted as the industrial classification standard to put the manufacturing industry under two-level classification while other industries one-level classification based on the practices of existing studies[33].

The specific variable meanings and calculation methods are shown in Table 1.

**TABLE 1. Variable definitions**

VARIABLES	SYMBOLS	MEANING	DEFINITION
Explained variable	<i>Premium</i>	M&A premium	(Transaction price-Book value of the underlying net assets)/Book value of the underlying net assets
Explanatory variable	<i>Insti</i>	Shareholding ratio of institutional investors	The total shareholding ratio of institutional investors
Moderating variable	<i>Ic</i>	Internal control	DIB internal control index/100
	<i>Icd</i>	Internal control deficiency	It is 1 if internal control deficiencies are disclosed in the report, otherwise it is 0
Control variables	<i>Expen</i>	M&A scale	The natural logarithm of the payment by the main acquirer
	<i>Area</i>	M&A at the same place	It is 1 if both sides of M&A are in the same province, otherwise it is 0
	<i>Leverage</i>	Financial leverage	Total liabilities/total assets of acquirer at the end of last year
	<i>Roe</i>	Return on equity	After-tax profit/net assets of acquirer at the end of last year
	<i>Size</i>	Company size	Logarithm of total assets of the acquirer at the end of last year
	<i>Fixed</i>	Fixed assets ratio	Fixed assets/total assets of the acquirer at the end of last year
	<i>TobinQ</i>	TobinQ	Market value of acquirer/replacement cost of assets
	<i>Growth</i>	Growth	Business income growth rate of acquirer
	<i>Largest</i>	Share ratio of the largest shareholder	The shareholding ratio of the largest shareholder of the acquirer last year
<i>Indep</i>	The proportion of independent directors	Number of independent directors/board of directors of the acquirer last year	

	<i>Dual</i>	Duality	It is 1 if the chairman of the acquirer is concurrently the general manager, otherwise it is 0.
	<i>Execupay</i>	Total director payroll	Natural logarithm of total payroll of M&A directors
	<i>Big4</i>	the Big Four audit firms	It is 1 if the main acquirer has been audited by the big4, otherwise it is 0
	<i>Anattention</i>	Analyst attention	The natural logarithm of the main acquirer's attention by analysts
	<i>Year</i>	Year	Dummy variable of year
	<i>Ind</i>	Industry	Dummy variable of industry
Further analysis variables	<i>Rpt</i>	Related party identification	It is 1 when M&A belongs to related party transaction, otherwise it is 0.
	<i>Essence</i>	Nature of property right	It is 1 if the acquirer is a state-owned enterprise; otherwise, 0
	<i>Me</i>	Agency cost	Management expense rate of the acquirer

### 3.3 Model specification

The regression models (1), (2) and (3) were established. Model (1) was used to verify the relationship between institutional investors' shareholding and M&A premium, and on this basis, to verify the influence of agency costs and related party transactions on the relationship between institutional investors and M&A premium (further analyzed in 4.5 of this paper).

$$Premium = \alpha_0 + \alpha_1 Insti + \Sigma Controls + \Sigma Ind + \Sigma Year + \varepsilon \quad (1)$$

where, *Premium* is the variable of M&A premium, *Insti* stands for the variable of total shareholding ratio of institutional investors, *Controls* are the control variables of the model (see Table 1 for specific definitions). *Ind* and *Year* are the control variables of industry and time, respectively.

The moderating effect of internal control on the relationship between institutional investors and M&A premium was studied, and models (2) and (3) were established, in which *Ic* and *Icd* were internal control variables, and the specific meaning is shown in Table 1.

$$Premium = \beta_0 + \beta_1 Ic + \beta_2 Insti + \beta_3 Ic \times Insti + \Sigma Controls + \Sigma Ind + \Sigma Year + \varepsilon \quad (2)$$

$$Premium = \gamma_0 + \gamma_1 Icd + \gamma_2 Insti + \gamma_3 Icd \times Insti + \Sigma Controls + \Sigma Ind + \Sigma Year + \varepsilon \quad (3)$$

Models (2) and (3) were used to study the moderating effect of internal control quality on the inhibition of M&A premium by institutional investors. In models (2) and (3), internal control index (*Ic*) and internal control deficiency (*Icd*) were selected as the moderating variables, respectively. On this basis, they are grouped according to the nature of property rights, to explore the difference of the moderating effect when the property rights of acquirers were state-owned or non-state-owned companies.

## IV. RESULTS AND DISCUSSION

### 4.1 Descriptive statistics

Descriptive statistics of major variables are shown in Table 2. After excluding the unqualified samples, a total of 1,895 observed values were obtained from 2009 to 2019, of which the average M&A premium rate was 3.52, and the standard deviation was 6.97, indicating a big difference among companies. For the variable of total institutional investors' shareholdings, the proportion of total institutional investors' shareholdings in tradable shares according to the WIND database statistics in this paper was close to the results of the existing research[34]. The difference in total institutional investors' shareholding (*Insti*) of each company was significant, with the minimum value of 0.5% and the maximum value of 70.37%. The related party transactions (*Rpt*) sample accounted for 45%, proving that the related party transactions have been an important feature of M&A, which needs a further analysis. The agency cost (*Me*) had a minimum value of 0.88% and a maximum value of 39.72%, which was quite different. Therefore, it is meaningful to explore the specific performance of companies with different agency costs. State-owned enterprises accounted for 35% of the samples.

**TABLE 2.Descriptive statistics**

Variables	Sample size	Mean	Min.	Max.	SD
<i>Premium</i>	1895	3.5244	-0.6011	78.6212	6.9669
<i>Insti</i>	1895	0.3966	0.0050	0.7037	0.2143
<i>Ic</i>	1895	6.5212	0.0000	8.5960	1.2016
<i>Expen</i>	1895	19.4075	15.9378	23.2675	1.5568
<i>Leverage</i>	1895	0.4409	0.0535	0.8868	0.2021
<i>Size</i>	1895	22.2099	19.9717	25.9707	1.2463
<i>Growth</i>	1895	0.2259	-0.5135	3.0433	0.4750
<i>Roe</i>	1895	0.0794	-0.3914	0.3257	0.0962
<i>Area</i>	1895	0.4676	0.0000	1.0000	0.4990
<i>TobinQ</i>	1895	2.0741	0.1617	9.7608	1.8101
<i>Fixed</i>	1895	0.2227	0.0026	0.7029	0.1629
<i>Dual</i>	1895	0.2615	0.0000	1.0000	0.4395
<i>Indep</i>	1895	0.3726	0.3333	0.5714	0.0512
<i>Big4</i>	1895	0.0540	0.0000	1.0000	0.2260
<i>Execupay</i>	1895	15.2688	13.5466	17.1108	0.6871
<i>Attention</i>	1895	1.8877	0.0000	3.7136	1.0449
<i>Largest</i>	1895	0.3516	0.0898	0.7333	0.1483
<i>Me</i>	1895	0.0998	0.0088	0.3972	0.0721
<i>Rpt</i>	1895	0.4548	0.0000	1.0000	0.4981
<i>Essence</i>	1895	0.3500	0.0000	1.0000	0.4771

### 4.2 Correlation analysis

In this paper, all variables were tested for correlation. This section only shows part of the correlation analysis (see Table 3).As shown in Table 3, the institutional investor's shareholding had a negative correlation with the M&A premium, which preliminarily verifies the hypothesis H1. In addition, none of the VIF values were greater than five, indicating that the regression model was not significantly affected by multicollinearity.

**TABLE 3. Correlation coefficients of variables**

	<i>Premium</i>	<i>Insti</i>	<i>Ic</i>	<i>Expen</i>	<i>Leverage</i>	<i>Size</i>
<i>Premium</i>	1.000					
<i>Insti</i>	-0.095***	1.000				
<i>Ic</i>	-0.036*	0.095***	1.000			
<i>Expen</i>	0.200***	0.143***	-0.076***	1.000		
<i>Leverage</i>	-0.120***	0.217***	-0.046**	0.148***	1.000	
<i>Size</i>	-0.149***	0.386***	0.086***	0.259***	0.520***	1.000

Note: \*\*\*, \*\*, \* indicate significance at the levels of 1%, 5% and 10%, respectively.

### 4.3 Main results

#### 4.3.1 Institutional investors' shareholding and M&A premium

According to the results of Hausman test, panel random effect is more suitable. The regression results are shown in Table 4. The coefficient between institutional investors' shareholding and M&A premium was -1.759, which was significant at the level of 5%, indicating that the higher the shareholding ratio of institutional investors, the lower the M&A premium they pay, which verified hypothesis H1.

#### 4.3.2 Moderating effect of internal control

In this paper, two indicators were used to measure the quality of internal control: the result *Ic* of DIB internal control index divided by 100 and the internal control deficiency *Icd*.

According to Table 4, the coefficient of institutional investors' shareholding to the M&A premium was negative, and when internal control was measured by the DIB internal control index, the coefficient of institutional investors' interaction term with internal control (*Insti\*Ic*) was significantly negative at the level of 10% (column H2(1)), which means that good internal control enhances the inhibitory effect of institutional investors on the M&A premium. When the quality of internal control was measured by the presence or absence of internal control deficiency, the coefficient of institutional investors' shareholding on M&A premium was negative, and the coefficient of interaction term with internal control deficiency (*Insti\*Icd*) was significantly positive at the level of 10% (H2(2)), which means that the presence of internal control deficiency weakens the inhibition of institutional investors' shareholding on M&A premium. To sum up, the higher the quality of internal control, the stronger the inhibitory effect of institutional investors on M&A premium.

**TABLE 4. Regression results**

	H1 <i>Premium</i>	H2(1) <i>Premium</i>	H2(2) <i>Premium</i>
<i>Insti</i>	-1.759** (-2.06)	-1.511* (-1.75)	-2.045** (-2.14)
<i>Insti*Ic</i>		-1.298* (-1.84)	
<i>Ic</i>		0.216 (1.29)	
<i>Insti*Icd</i>			0.027* (1.65)

<i>Icd</i>			-0.497 (-1.27)
<i>Expen</i>	0.889 <sup>***</sup> (8.18)	0.892 <sup>***</sup> (8.22)	0.876 <sup>***</sup> (7.78)
<i>Leverage</i>	-0.727 (-0.66)	-0.622 (-0.57)	-1.059 (-0.95)
<i>Size</i>	-0.504 <sup>**</sup> (-2.21)	-0.498 <sup>**</sup> (-2.18)	-0.597 <sup>**</sup> (-2.53)
<i>Growth</i>	0.038 (0.61)	0.040 (0.65)	0.045 (0.72)
<i>Roe</i>	-1.073 (-0.65)	-1.756 (-1.04)	-1.640 (-0.95)
<i>Area</i>	-1.011 <sup>***</sup> (-3.14)	-1.026 <sup>***</sup> (-3.19)	-1.187 <sup>***</sup> (-3.61)
<i>TobinQ</i>	0.406 <sup>***</sup> (3.70)	0.431 <sup>***</sup> (3.91)	0.301 <sup>***</sup> (2.71)
<i>Fixed</i>	-0.965 (-0.80)	-0.915 (-0.76)	-0.952 (-0.77)
<i>Dual</i>	0.791 <sup>*</sup> (2.08)	0.824 <sup>**</sup> (2.16)	0.733 <sup>*</sup> (1.89)
<i>Indep</i>	-1.185 (-0.38)	-1.147 (-0.37)	-0.671 (-0.21)
<i>Big4</i>	-0.794 (-1.07)	-0.703 (-0.94)	-0.696 (-0.92)
<i>Execupay</i>	0.200 (0.73)	0.167 (0.61)	0.213 (0.76)
<i>Attention</i>	-0.066 (-0.36)	-0.069 (-0.38)	-0.071 (-0.39)
<i>Largest</i>	0.007 (0.59)	0.601 (0.49)	0.556 (0.44)
<i>_cons</i>	-5.615 (-1.01)	-6.990 (-1.25)	-3.120 (-0.54)
<i>Year</i>	Controlled	Controlled	Controlled
<i>Industry</i>	Controlled	Controlled	Controlled
<i>R<sup>2</sup></i>	0.160	0.160	0.167
<i>N</i>	1895	1895	1782

Note: <sup>\*\*\*</sup>, <sup>\*\*</sup>, <sup>\*</sup> indicate significance at the levels of 1%, 5% and 10%, respectively, with t value in brackets.

#### 4.4 Robustness tests

##### 4.4.1 Alternative research samples

Refereeing to existing research[22], in order to eliminate the influence of M&A history on M&A premium, for companies that have M&A transactions for many years, only the data samples of the first year of M&A were kept and the samples of the following years were deleted for robust test, and the results had not changed much, as shown in Table 5.

**TABLE 5** Results of alternative research samples

	Premium Main effect	Premium Moderating effect	Premium Moderating effect
<i>Insti</i>	-3.576* (-1.72)	-2.927 (-1.43)	-5.838** (-2.40)
<i>Insti*Ic</i>		-5.025*** (-3.14)	
<i>Ic</i>		0.468 (1.14)	
<i>Insti*Icd</i>			0.090** (2.09)
<i>Icd</i>			-0.594 (-0.59)
<i>Expen</i>	0.638** (2.35)	0.604** (2.26)	0.737** (2.57)
<i>Leverage</i>	3.100 (1.15)	2.936 (1.10)	3.928 (1.39)
<i>Size</i>	-0.817 (-1.62)	-0.702 (-1.40)	-0.970* (-1.81)
<i>Growth</i>	-0.247 (-0.18)	0.128 (0.10)	0.181 (0.13)
<i>Roe</i>	-5.202* (-1.75)	-8.971*** (-2.82)	-5.489* (-1.75)
<i>Area</i>	-0.682 (-0.86)	-0.641 (-0.82)	-0.562 (-0.67)
<i>TobinQ</i>	0.376 (1.48)	0.392 (1.57)	0.393 (1.50)
<i>Fixed</i>	2.939 (1.06)	3.124 (1.13)	3.032 (1.04)
<i>Dual</i>	0.915 (1.04)	1.059 (1.22)	0.884 (0.97)
<i>Indep</i>	10.207 (1.28)	10.563 (1.35)	10.212 (1.21)
<i>Big4</i>	0.341 (0.19)	1.352 (0.74)	0.950 (0.47)
<i>Execupay</i>	0.233 (0.35)	-0.045 (-0.07)	0.215 (0.30)
<i>Attention</i>	0.006 (0.01)	0.083 (0.19)	-0.025 (-0.05)
<i>Largest</i>	1.274 (0.44)	1.627 (0.58)	1.838 (0.60)
<i>_cons</i>	-2.095 (-0.16)	-2.276 (-0.17)	1.836 (0.13)
<i>Industry</i>	Controlled	Controlled	Controlled
<i>Year</i>	Controlled	Controlled	Controlled
<i>R<sup>2</sup></i>	0.183	0.209	0.183
<i>N</i>	278	278	265

Note: \*\*\*, \*\*, \* indicate significance at the levels of 1%, 5% and 10%, respectively, with t value in brackets.

#### 4.4.2 Robustness test of moderating effect

The internal control index and internal control deficiency were respectively set as grouping variables to test the robustness of the moderating effect. The internal control indexes were respectively grouped

according to the median and quartile, and the internal control deficiencies were grouped according to 0 and 1, as shown in Tables 6 and 7, with no substantial change and reliable results.

**TABLE 6. Results of internal control grouped by median and quartile**

	Premium Higher than median	Premium Lower than median	Premium Higher than 75%	Premium Lower than 25%
<i>Insti</i>	-2.610** (-2.34)	-1.753 (-1.30)	-3.157** (-2.33)	-0.703 (-0.36)
<i>Expen</i>	0.814*** (5.86)	0.944*** (5.48)	0.586*** (3.62)	0.894*** (3.75)
<i>Leverage</i>	0.706 (0.46)	-2.195 (-1.35)	0.708 (0.38)	-4.366** (-2.05)
<i>Size</i>	-0.194 (-0.63)	-0.730** (-2.04)	-0.197 (-0.56)	-0.905* (-1.85)
<i>Growth</i>	0.200 (0.91)	0.029 (0.42)	0.018 (0.09)	0.010 (0.14)
<i>Roe</i>	-0.304 (-0.11)	-1.657 (-0.76)	-0.479 (-0.15)	1.987 (0.80)
<i>Area</i>	-0.228 (-0.54)	-1.912*** (-3.78)	0.116 (0.23)	-2.027*** (-2.79)
<i>TobinQ</i>	0.838*** (4.73)	0.167 (1.11)	1.119*** (4.22)	0.224 (1.23)
<i>Fixed</i>	-2.572 (-1.54)	0.741 (0.41)	0.422 (0.22)	3.921 (1.60)
<i>Dual</i>	0.390 (0.74)	1.296** (2.29)	-0.067 (-0.10)	1.118 (1.36)
<i>Indep</i>	-6.281 (-1.42)	2.359 (0.52)	2.911 (0.56)	6.275 (1.03)
<i>Big4</i>	-0.583 (-0.64)	-0.825 (-0.58)	0.172 (0.19)	-0.752 (-0.30)
<i>Execupay</i>	0.061 (0.17)	0.322 (0.74)	0.112 (0.28)	0.446 (0.75)
<i>Attention</i>	-0.186 (-0.74)	-0.151 (-0.57)	-0.284 (-0.90)	-0.299 (-0.83)
<i>Largest</i>	0.007 (0.45)	0.016 (0.80)	0.008 (0.40)	0.008 (0.28)
<i>_cons</i>	-7.132 (-0.93)	-6.285 (-0.75)	-7.516 (-0.83)	-4.009 (-0.36)
<i>Industry</i>	Controlled	Controlled	Controlled	Controlled
<i>Year</i>	Controlled	Controlled	Controlled	Controlled
<i>R<sup>2</sup></i>	0.168	0.196	0.187	0.221
<i>N</i>	947	948	474	474

Note: \*\*\*, \*\*, \* indicate significance at the levels of 1%, 5% and 10%, respectively, with t value in brackets.

**TABLE 7. Results of internal control deficiencies**

	Premium With internal control deficiencies	Premium Without internal control deficiencies
<i>Insti</i>	0.836 (0.42)	-2.047** (-2.04)
<i>Expen</i>	0.599*** (3.04)	0.866*** (6.43)

<i>Leverage</i>	-4.805** (-2.01)	-0.425 (-0.33)
<i>Size</i>	-0.880* (-1.71)	-0.524* (-1.89)
<i>Growth</i>	0.033 (0.60)	0.203 (1.34)
<i>Roe</i>	-8.300** (-2.24)	-1.104 (-0.57)
<i>Area</i>	0.147 (0.24)	-1.761*** (-4.52)
<i>TobinQ</i>	-0.038 (-0.11)	0.325*** (2.73)
<i>Fixed</i>	-3.488 (-1.39)	0.066 (0.04)
<i>Dual</i>	0.438 (0.53)	0.539 (1.21)
<i>Indep</i>	-6.028 (-1.00)	1.702 (0.44)
<i>Big4</i>	0.101 (0.08)	-0.932 (-0.95)
<i>Execupay</i>	0.646 (1.07)	0.159 (0.49)
<i>Attention</i>	0.056 (0.15)	-0.125 (-0.57)
<i>Largest</i>	-0.003 (-0.13)	0.010 (0.68)
<i>_cons</i>	5.234 (0.40)	-4.552 (-0.68)
<i>Industry</i>	Controlled	Controlled
<i>Year</i>	Controlled	Controlled
<i>R<sup>2</sup></i>	0.120	0.203
<i>N</i>	496	1286

Note: \*\*\*, \*\*, \* indicate significance at the levels of 1%, 5% and 10%, respectively, with t value in brackets.

#### 4.5 Further analysis

After getting the inhibition effect of institutional investors' shareholding on M&A premium in the previous section, the agency cost and related party transaction behavior were further analyzed in order to obtain the inhibition effect of institutional investors' shareholding on M&A premium in different situations.

##### 4.5.1 Influence of agency cost

**TABLE 8. Results of agency cost**

	<i>Premium</i> All samples	<i>Premium</i> High agency cost group	<i>Premium</i> Low agency cost group
<i>Insti</i>	-1.759** (-2.06)	-1.233 (-0.90)	-2.092** (-1.98)
<i>Expen</i>	0.889*** (8.18)	1.130*** (6.02)	0.686*** (5.48)
<i>Leverage</i>	-0.727	-3.717**	2.612*

	(-0.66)	(-2.00)	(1.96)
<i>Size</i>	-0.504**	-0.290	-0.647**
	(-2.21)	(-0.70)	(-2.45)
<i>Growth</i>	0.038	0.423	0.015
	(0.61)	(1.39)	(0.28)
<i>Roe</i>	-1.073	-7.188**	2.853
	(-0.65)	(-2.34)	(1.58)
<i>Area</i>	-1.011***	-0.977*	-1.166***
	(-3.14)	(-1.81)	(-3.09)
<i>TobinQ</i>	0.406***	0.395**	0.453***
	(3.70)	(2.48)	(2.65)
<i>Fixed</i>	-0.965	-0.706	-0.700
	(-0.80)	(-0.32)	(-0.51)
<i>Dual</i>	0.791**	1.349**	-0.076
	(2.08)	(2.26)	(-0.16)
<i>Indep</i>	-1.185	0.407	-3.369
	(-0.38)	(0.08)	(-0.94)
<i>Big4</i>	-0.794	-1.052	-0.366
	(-1.07)	(-0.68)	(-0.48)
<i>Execupay</i>	0.200	0.186	0.054
	(0.73)	(0.40)	(0.17)
<i>Attention</i>	-0.066	-0.174	0.124
	(-0.36)	(-0.58)	(0.58)
<i>Largest</i>	0.007	0.007	0.008
	(0.59)	(0.35)	(0.54)
<i>_cons</i>	-5.615	-12.996	1.941
	(-1.01)	(-1.34)	(0.30)
<i>Industry</i>	Controlled	Controlled	Controlled
<i>Year</i>	Controlled	Controlled	Controlled
<i>R<sup>2</sup></i>	0.160	0.168	0.196
<i>N</i>	1895	948	947

Note: \*\*\*, \*\*, \* indicate significance at the levels of 1%, 5% and 10%, respectively, with t value in brackets.

The agency cost of the acquirer is an important feature of the enterprise itself. According to the descriptive statistics mentioned above, the agency cost of different enterprises is quite different, and the agency cost reflects the supervision cost of institutional investors to a certain extent, so it is of some significance to study in different groups according to the agency cost. Based on the existing research[35], management fee rate was taken as a proxy variable of agency cost and divided according to the median. Those above the median were classified as high agency cost group, otherwise low agency cost group.

According to Table 8, the estimation coefficient of institutional investors' shareholding in the sample with low management fee rate was significantly negative at the level of 5%, indicating that the inhibition of institutional investors on M&A premium was more obvious in companies with low agency costs. Low

agency cost means that the supervision cost of institutional investors is reduced, which proves to a certain extent that institutional investors are more motivated to participate in corporate governance when facing companies with low agency cost, thus inhibiting the M&A premium more obviously.

#### 4.5.2 The influence of related party transactions

As the related party transaction is a common transaction feature in M&A, the value transfer and redistribution embodied by M&A related party transaction[36] under the institutional factors are often at a high premium, so it is of great significance to further analyze the related party transaction behavior and consider the factors influencing M&A premium from multiple angles.

Previous studies have shown that the M&A results of related party transactions are not caused by the efficiency of the company's operation and management but by the specific actions of shareholders with a specific purpose, and are not sustainable. It is common to see the "tunneling" behavior that transfers benefits to related parties and infringes the rights and interests of small and medium shareholders in related party transactions[37], among which there is a higher M&A premium to be paid due to the implementation of benefit transfer[38]. Therefore, whether the governance effects of institutional investors are different in the related M&A and non-related party M&A was studied by grouping according to whether the M&A is a related party transaction. The results are shown in Table 9.

As shown in Table 9, the coefficient of institutional investors was significantly negative at the level of 10% in related party M&A, but insignificant in non-related transactions, indicating that institutional investors had a more obvious inhibitory effect on the M&A premium in related transactions. The introduction of institutional investors can enable the management of the company to adjust the strategy in a timely manner and restrain in the related party transactions which are prone to generate the M&A premium, and take more account of the interests of institutional investors and other shareholders, thus inhibiting the M&A premium of the related party transactions. In the non-related party M&A transactions, the institutional investors' shareholding also has a certain inhibition effect on the M&A premium, but it is not significant enough.

**TABLE 9. Results of related party transactions**

	<i>Premium</i> Related party transactions	<i>Premium</i> Non-related party transactions
<i>Insti</i>	-2.023* (-1.80)	-0.425 (-0.36)
<i>Expen</i>	0.506*** (4.16)	1.703*** (8.94)
<i>Leverage</i>	1.308 (0.99)	-3.534** (-2.16)
<i>Size</i>	-0.585** (-2.25)	-0.409 (-1.09)
<i>Growth</i>	0.058 (1.04)	0.171 (0.90)
<i>Roe</i>	-3.986** (-2.26)	4.273 (1.44)

<i>Area</i>	-0.991** (-2.50)	-0.397 (-0.81)
<i>TobinQ</i>	0.218 (1.32)	0.355** (2.43)
<i>Fixed</i>	-0.040 (-0.03)	-1.366 (-0.72)
<i>Dual</i>	0.585 (1.14)	0.192 (0.37)
<i>Indep</i>	0.521 (0.13)	-2.491 (-0.55)
<i>Big4</i>	-0.234 (-0.28)	-1.466 (-1.24)
<i>Execupay</i>	-0.048 (-0.15)	0.028 (0.07)
<i>Attention</i>	0.184 (0.83)	-0.490* (-1.81)
<i>Largest</i>	0.014 (0.89)	-0.001 (-0.03)
<i>_cons</i>	5.141 (0.78)	-16.993* (-1.95)
<i>Industry</i>	Controlled	Controlled
<i>Year</i>	Controlled	Controlled
<i>R<sup>2</sup></i>	0.173	0.207
<i>N</i>	862	1033

Note: \*\*\*, \*\*, \* indicate significance at the levels of 1%, 5% and 10%, respectively, with t value in brackets.

#### 4.5.3 The influence of property right

State-owned and non-state-owned enterprises vary greatly in the ownership structure, internal supervision and governance, etc. Specifically, there are the following two differences at the M&A level: First, the agency problem. Compared with non-state-owned enterprises, state-owned enterprises are often "owner-absent", which leads to the weakening of the board of directors and the board of supervisors in assuming the supervisory function and the lack of good restriction on the executive power to a certain extent. Because the agency problem is more serious, the management of state-owned enterprises is more likely to override the internal control, which leads to the fact that the internal control can't play a very good regulatory role, and the M&A behavior of enterprises is mainly influenced by executives' own decisions. Second, the promotion factor. Compared with private enterprises, the management of state-owned enterprises will be affected by factors such as political career and political pressure when making decisions[39]. The premium paid for M&A is relatively high when executives of state-owned enterprises face clearer promotion opportunities[40]. The agency conflict in state-owned enterprises is more complicated. Specifically, under strict salary restrictions, state-owned enterprise executives often find it difficult to seek personal gain through salary, so they pay more attention to the growth of official career, and thus tend to expand the scale of enterprises in M&A, with strong motivation to expand the scope of power through M&A expansion. Therefore, well-funded state-owned enterprises are more inclined to pay a high M&A premium.

According to further analysis in this paper, when classified according to the nature of enterprise property rights, the internal control deficiency was the moderating variable, and the interaction term of institutional investors' shareholding and internal control defect (*Insti\*Icd*) in non-state-owned enterprise

groups was significantly positive at 10% level (as shown in Table 10). Specifically, when there were deficiencies in internal control in non-state-owned enterprise groups, the effect of institutional investors' shareholding on M&A premium was worse. In non-state-owned enterprises, internal control had a more obvious moderating effect on institutional investors' shareholding on M&A premium, but it was not significant in state-owned enterprises.

Previous studies have shown that the positive governance effect of institutional investors is limited in state-owned enterprises due to their distinct administrative intervention characteristics[41], which was verified from the perspective of internal control regulation in this paper, and to some extent shows that the high quality of internal control may not necessarily protect the inhibitory effect of institutional investors on M&A premium due to the complex agency problems of state-owned enterprises.

**TABLE 10. Results of property rights**

	Premium State-owned enterprises	Premium Non-state-owned enterprises
<i>Insti</i>	-1.224 (-0.80)	-1.139 (-0.88)
<i>Insti*Icd</i>	1.821 (0.78)	3.995* (1.65)
<i>Icd</i>	-0.239 (-0.42)	-0.315 (-0.55)
<i>Expen</i>	0.479*** (3.61)	1.207*** (7.04)
<i>Leverage</i>	3.472** (2.42)	-3.998** (-2.46)
<i>Size</i>	-0.681** (-2.52)	-0.347 (-0.91)
<i>Growth</i>	-0.009 (-0.03)	0.061 (0.89)
<i>Roe</i>	1.502 (0.78)	-6.425** (-2.38)
<i>Area</i>	-0.794* (-1.84)	-1.207*** (-2.61)
<i>TobinQ</i>	0.293 (1.24)	0.228* (1.65)
<i>Fixed</i>	-2.166 (-1.53)	-0.586 (-0.30)
<i>Dual</i>	-0.604 (-0.87)	0.662 (1.34)
<i>Indep</i>	0.305 (0.08)	0.187 (0.04)
<i>Execupay</i>	0.361 (1.08)	0.179 (0.42)
<i>Attention</i>	-0.027 (-0.11)	-0.114 (-0.43)
<i>Largest</i>	0.429 (0.26)	0.994 (0.55)
<i>_cons</i>	-0.838 (-0.13)	-11.594 (-1.31)
<i>Industry</i>	Controlled	Controlled
<i>Year</i>	Controlled	Controlled

$R^2$	0.117	0.185
N	671	1111

Note: \*\*\*, \*\*, \* indicate significance at the levels of 1%, 5% and 10%, respectively, with t value in brackets.

## V. CONCLUSION

Based on principal-agent theory and shareholder activism theory, a total of 1,895 M&A samples of China's A-share listed companies from 2009 to 2019 were used to explore the effect of institutional investors' shareholding on M&A premium. The results show that the increase of institutional investors' shareholding ratio can reduce the M&A premium. The quality of internal control plays a moderating role in institutional investors' inhibition of M&A premium, and institutional investors with a good internal control have a more obvious inhibition effect on M&A premium. Further analysis reveals that among the M&A companies with low agency costs, institutional investors have more significant inhibitory effect on the M&A premium. If the M&A is a related transaction, the institutional investor can do well in restraining the M&A premium. Internal control has a positive moderating role in the inhibition effect of institutional investors on M&A premium. Thus, with the development of institutional investors in capital market, their influence as supervisors and participants of corporate governance is increasing day by day. Therefore, they increase their discourse power through the increase of shareholding ratio, strengthen corporate governance by using their professional ability, and have an impact on capital market.

Enterprises can improve the quality of M&A decisions to avoid paying unreasonable premium by adjusting the following aspects. First, institutional investors should be actively introduced to participate in governance, especially in M&A decision-making, and their supervisory functions and unique information and capital advantages should be brought into play, so as to reduce the M&A premium and reduce the damage to the interests of shareholders of the company. Second, the shareholding ratio of institutional investors should be increased. At present, as the shareholding ratio of institutional investors is still relatively low among the shareholders of the company, the company should improve its own ownership structure, increase the shareholding ratio of small and medium shareholders such as institutional investors, reduce agency conflicts through equity checks and balances, and then optimize M&A decisions and other investment decisions. Thirdly, the independence of institutional investors should be maintained. Although institutional investors play an obvious role in inhibiting the M&A premium, attention should be paid to the independence of institutional investors' shareholders. Because related party M&A is often accompanied by a certain degree of interest transfer, which often harms the interests of minority shareholders, institutional investors, as rational investors, should make use of their own advantages to ensure the fairness of M&A transactions and safeguard their own rights and interests and those of minority shareholders, instead of linking interests with related party shareholders and losing their independence. Fourthly, the quality of the company's internal control should be improved. Companies should use the restraining effect of internal control on agency costs, and reduce the supervision cost of institutional investors by establishing a sound internal control system, so as to mobilize their enthusiasm for participating in corporate governance, and then improve the company's performance. Finally, state-owned enterprises can appropriately introduce institutional investors' shareholders. The introduction of non-state-owned capital by state-owned enterprises through the reform of mixed ownership is beneficial to the improvement of governance structure and the further enhancement of competitiveness. With the positive influence of market-oriented institutional

investors on corporate governance being continuously verified, state-owned enterprises should ease the complexity of internal agency problems from their own perspective, so as to improve the enthusiasm and positive effect of institutional investors in corporate governance.

M&A, as one of the means of corporate development and expansion, may be affected by institutional investors in more aspects and the mechanism may be more complex, so this study can be further expanded in the future. Institutions can be classified into securities investment funds, insurance funds, QFII, etc. Considering the heterogeneity of institutional investors, or trading investors and stable investors from the perspective of turnover rate, or long-term investors or short-term investors based on the length of holding period, etc. In addition, in this paper, DIB comprehensive index of internal control was used as a moderating variable to investigate the effect of the overall internal control quality of enterprises, but its moderating effect was not explored from the five elements of internal control, namely, internal environment, risk assessment, control activities, information and communication, and internal supervision. Bringing it into the subdivision elements of internal control will have a more comprehensive understanding of internal control and can provide reference for enterprises to find the weak points of internal control and improve the direction, which can be deepened in the future research.

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