

# *Capital Mobility, Corporate Governance and M&A Performance*

—An Empirical Research Based on A-share Listed Companies in China

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**Abstract**—In order to study the impact of corporate governance on the M&A performance and to explore whether capital liquidity can be a mediating variable to affect their relationship, this paper takes a sample of major listed companies with equity M&A from 2011 to 2013. The paper firstly studies the short-term performance of the sample companies within one year after M&A and the long-term performance of two years after M&A. This paper finds that six aspects including the ratio of the largest shareholder shareholdings, the size of the board of directors, separation of the roles of the chairman and the general manager, management incentives (management compensation and shareholdings), the ratio of institutional shareholdings have positive correlation with M&A performance. Meanwhile, the paper finds that three segmentation variables including the size of the board of directors, management shareholdings, and the ratio of institutional shareholdings also influence corporate M&A performance through capital liquidity. These results imply that capital mobility does play a mediating role between corporate governance and M&A performance.

**Keyword**—Corporate governance; Capital mobility; M&A performance; Mediating effect

## I. INTRODUCTION

Mergers and acquisitions, as means of external expansion and growth of the company, are activities that many companies with a certain scale would carry out. M&A activities of the companies are mostly to obtain relevant resources, or to integrate upstream and downstream, or to diversify development. With the development of science and technology, the wave of mergers and acquisitions in the West emerged and numerous researches on mergers and acquisitions appeared. For instance, Yusheng Zhou and Guanghui Song (2015) respectively studied the influence mechanism of liquidity differences on M&A performance with equity acquisition as a sample and the relationship between corporate control rights & capital liquidity and M&A performance based on interaction perspectives<sup>[1] [2]</sup>. Junhong Yang et al. (2017) found that companies with abundant funds were more inclined to make M&A decisions and not reluctant to pay in cash when they are

in great growth after researching the influences of corporate liquidity on M&A decisions, payment methods choices and performance issues<sup>[3]</sup>. There are also some studies that regard capital mobility as result variables. For example, Chung K. H (2010) found that companies with good governance structure could promote improvement of information disclosure level, reduce information asymmetry, hence improving the liquidity of stocks<sup>[4]</sup>. And Minghai Wei and Qianhua Lei (2011) found different characteristics in the corporate governance could also significantly affect the stock liquidity of listed companies<sup>[6]</sup>. Hao Hu and Dan Liang (2015) thought shareholder heterogeneity had a negative effect on capital mobility<sup>[7]</sup>. But Xianglin Jiang (2015) found the ratio of the largest shareholder's shareholdings, the nature of the largest shareholder and the ratio of institutional shareholdings positively correlated with stock liquidity<sup>[8]</sup>. Yang Li and Guoliang Huang (2016) researched the liquidity of stocks and found that the greater the degree of control of major shareholders was, the weaker the liquidity of stocks<sup>[9]</sup>.

However, it is rare to study the influence of the mediating effect of capital liquidity on M&A performance. This paper attempts to use corporate governance as an independent variable, adding institutional investors on the basis of the original research on governance structure, to explore whether capital liquidity plays an intermediary role and how to play the role in the relationship between corporate governance and M&A performance.

## II. RESEARCH FRAMEWORK AND THEORETICAL ASSUMPTIONS

This article analyzes and puts forward research hypotheses of the impact path of equity structure, board of directors' mechanism, executive incentive mechanism and institutional investors (four dimensions) on M&A performance. After verifying that the specific variables have a significant impact on M&A performance, the paper adds capital mobility as an intermediary variable to explore whether the improvement of M&A performance owes to the intermediary role of corporate governance.

This article is a phased achievement of the Soft Science Project of Zhejiang Province (No. 2016C35041)

#### A. *Analysis of corporate governance impact on M&A performance and research hypotheses*

##### 1) *Equity structure*

This article analyzes equity structure impact on M&A performance from the perspectives of the ratio of the largest shareholder shareholdings, the degree of shareholding balance, and nature of the controlling shareholders. About the ratio of the largest shareholder shareholdings, the minority shareholders' equity is often emptied by the major shareholders in China's listed companies in recent years, which leads to the second type of agency problems. Bhaumik & Selarka (2012) found that the higher the concentration of ownership, the worse the M&A performance<sup>[10]</sup>. About the degree of shareholding balance, the degree of shareholding balance is largely due to the decrease of negative impact of the largest shareholder. Domestic scholars Hong Jiang and Xing Liu (2012) found that equity balance has positive correlation with M&A performance<sup>[11]</sup>. About the nature of the controlling shareholder, domestic enterprises are mainly divided into state-owned and non-state-owned enterprises because of our economic system. Yinxuan He and Jiangshi Wang (2014) found that the M&A performance of non-state-owned companies outperform that of state-owned<sup>[12]</sup>. We also believe that state-owned controlling shareholders will have a significant negative impact on M&A performance. Therefore, we hypothesize the following points:

H1a: The higher the ratio of the largest shareholder shareholdings, the worse the M&A performance; H1b: The higher the degree of shareholding balance, the higher the M&A performance; H1c: State-owned shareholdings negatively correlated with M&A performance.

##### 2) *Board of directors mechanism*

We take the three major aspects of board of directors' mechanism: board size, whether the chairman and the general manager are combined together, and the proportion of independent directors. Ying Pan and Kai Wang (2014) found board size and the proportion of independent directors are positively correlated with M&A performance<sup>[13]</sup>. On whether the chairman and the general manager are combined, Xinghua Wu (2010) took private enterprises as examples and concluded that the combination of the two positions was not conducive to the M&A performance<sup>[14]</sup>. The original intention of the independent director system design is to supervise the management team, reducing losses of shareholders and improving the quality of decision-making. Therefore, we believe that it is positively related to the M&A performance. Therefore, we hypothesize the following points:

H2a: The larger the board size, the better the M&A performance; H2b: Compared with the separation of the two positions, the impact of combined two positions on M&A performance is negative; H2c: The higher the proportion of independent directors, the better the M&A performance.

##### 3) *Executive incentives*

Under the modern enterprise system, the problems of "ethical risk" and "adverse selection" of the entrusted agency and incentive mechanism are always difficult, which is also reflected in the company's M&A activity. For example, in order to enhance their own remuneration or reputation, the management expands the size of the company through M&A

without careful consideration. This kind of decision-making is detrimental to the company's long-term development. Scholar Wei Yang (2014) found that management shareholdings and performance-oriented compensation mechanisms can reduce costs of the agency, and then improve M&A performance<sup>[15]</sup>. Therefore, we hypothesize the following points:

H3a: The higher the proportion of management holdings, the better the M&A performance; H3b: The higher the management salary, the better the M&A performance.

##### 4) *Institutional investor*

As the structure of China's securities market changes, institutional investors are also becoming an important force to affect corporate governance. Because of the large volume of investment, institutional investors, will actively monitor the status of their investment companies and participate in corporate governance. Xiaoren Zhang et al. (2010) researched that institutional shareholdings improve company's operating performance and M&A performance<sup>[16]</sup>. Therefore, we hypothesize the following points:

H4a: The higher the institutional shareholdings, the better the M&A performance.

#### B. *The mediating effect of capital mobility analysis and research hypothesis*

Capital liquidity is an important feature of the capital market. Chen et al. (2007) pointed that corporate governance arrangements such as equity structure, board of directors, and executive incentives could have a significant impact on the quality of information disclosure, hence affecting stock liquidity<sup>[17]</sup>. Based on the valuation theory and timing theory of the stock market, Jiakai Xiong and Dongwei Su (2014) pointed that the liquidity of stocks helps to reduce the company's non-efficiency investment, thereby significantly improving the efficiency of capital allocation<sup>[18]</sup>. Generally speaking, high stock liquidity leads to premium and companies with low liquidity are more likely to be merged. Therefore, stock liquidity has an impact on M&A performance.

Based on the above analysis, put forward the following assumptions

H5a: Corporate governance will act on the M&A performance through the intermediary role of capital mobility.

### III. RESEARCH DESIGN

#### A. *Sample selection and data sources*

We take a sample of the main A-share listed companies that completed M&A through equity acquisitions during 2011-2013. The relevant sample data mainly derived from the CSMAR database, and the rest derived from listed company announcements published by CNINFO, as well as choice Financial Terminals and I find Financial Terminals. Filter conditions: 1. The type of M&A was equity acquisition, and the M&A would be completed in 2011-2013 (on the date of initial announcement and final announcement date); 2. Taking the main party as the research object, we should remove all the companies of the seller or the target party, and the amount was more than 50 million RMB; 3. The main companies had not yet withdrawn from the market; 4. Excluding M&A with

acquisition of land use rights, such as bidding; 5. Excluding unsuccessful M&A; 6. Excluding B-shares, ST-type sample companies and which for the purpose of selling shell resources; 7. Excluding companies with abnormal or volatile financial indicators during 2011-2013; 8. In order to exclude other acquisition events from interfering with the M&A performance, a sample of companies with significant M&A events within the [T, T+2] year range were excluded. Finally, according to the above conditions, 265 eligible M&A were screened and the total number of samples was 265.

B. M&A performance measurement method

We use the accounting index method to measure the M&A performance, and build an index measurement system before measuring. Under normal circumstances, a single or a few accounting indicators are often difficult to reflect the performance of a company. Therefore, in order to fully examine the M&A performance of the sample companies, we establish a performance measurement system based on a total of nine accounting indicators in terms of profitability, growth ability, operational ability, and solvency. The specific selected indicators and calculation formulas are shown in the table below.

TABLE I. ACCOUNTING INDICATOR DESCRIPTION

Variable	Index name	Evaluation angle	Index calculation formula
X1	Return on total assets	Profitability	EBIT/Average total assets
X2	ROE		Net profit/Average owner's equity
X3	Operating profit margin		operating profit/Operating income
X4	Revenue growth rate	Growth ability	Business growth/Total revenue of the previous period
X5	Net profit growth rate		Net profit growth/Net profit of the previous period
X6	Quick ratio	Solvency	Quick assets/Current liabilities
X7	Current ratio		Liquid assets/Current liabilities
X8	Total asset turnover	Operating capacity	Operating income/Average total assets
X9	Account receivable turnover rate		Net operating income/Average receivables balance

Taking into account the existence of a certain amount of information overlap between the above 9 index factors, that is, statistical multicollinearity. Therefore, factor analysis method should be used to reduce dimension. Finally, we get its model as follows:

$$F_i = \alpha_{i1}f_{i1} + \alpha_{i2}f_{i2} + \dots + \alpha_{in}f_{in}$$

$F_i$  is the composite score of the performance of the  $i$ -th company,  $\alpha_{in}$  is the variance contribution rate of the  $n$ -th factor of the  $i$ -th company, and  $f_{in}$  is the score of the  $n$ -th factor of the  $i$ -th company.

C. Research on the Relationship between Corporate Governance and M&A Performance

1) Equity structure

This paper takes the three variables to measure the equity structure--the ratio of the largest shareholder shareholdings, the degree of equity balance, and nature of the controlling shareholders. At the same time, in order to control the M&A model, we introduce two variables--capital structure and the size of the M&A transaction as the control variables in the model. And we establish the following research model:

$$\text{Long\_P} = \beta_0 + \beta_1 \text{Lev} + \beta_2 \text{Scale} + \epsilon \quad \text{Model 1}$$

$$\text{Long\_P} = \beta_0 + \beta_1 \text{F\_Hold} + \beta_2 \text{Bal} + \beta_3 \text{Nature} + \beta_4 \text{Lev} + \beta_5 \text{Scale} + \epsilon \quad \text{Model 2}$$

Model 1 is to test whether the selected control variable is valid in the model, and Model 2 is a regression model that joins the three independent variables of the equity structure, of which  $\epsilon$  is the random error term of the model.

2) Board of directors

This paper selects three variables as indicators--the board's size, whether the chairman and the general manager are combined, and the proportion of independent directors. Based

on the model 2, the relevant variables of the board of directors are added to build model 3.

$$\text{Long\_P} = \beta_0 + \beta_1 \text{F\_Hold} + \beta_2 \text{Bal} + \beta_3 \text{Nature} + \beta_4 \text{BD} + \beta_5 \text{Dual} + \beta_6 \text{P\_In} + \beta_7 \text{Lev} + \beta_8 \text{Scale} + \epsilon \quad \text{Model 3}$$

$\epsilon$  is the random error term of the model.

3) Executive incentives

This paper selects two indicators--management compensation and management shareholdings. Combining the above six independent variables with two control variables, model 4 is constructed. The specific expression is as follows:

$$\text{Long\_P} = \beta_0 + \beta_1 \text{F\_Hold} + \beta_2 \text{Bal} + \beta_3 \text{Nature} + \beta_4 \text{BD} + \beta_5 \text{Dual} + \beta_6 \text{P\_In} + \beta_7 \text{M\_Sal} + \beta_8 \text{M\_Share} + \beta_9 \text{Lev} + \beta_{10} \text{Scale} + \epsilon \quad \text{Model 4}$$

$\epsilon$  is the random error term of the model.

4) Institutional investor

Institutional investors that the paper defines include various types of social security funds, insurance institutions, trust companies, asset management of securities firms, corporate annuities, pension funds, private equity institutions, and QFIIs. As a measure of the institutional investor's shareholdings ratio, the variable is the ratio sum of the shareholdings of various institutional investors, referring to as I\_Share. On the basis of model 4, institutional investors I\_Share are added to build model 5 and the model is as follows:

$$\text{Long\_P} = \beta_0 + \beta_1 \text{F\_Hold} + \beta_2 \text{Bal} + \beta_3 \text{Nature} + \beta_4 \text{BD} + \beta_5 \text{Dual} + \beta_6 \text{P\_In} + \beta_7 \text{M\_Sal} + \beta_8 \text{M\_Share} + \beta_9 \text{I\_Share} + \beta_{10} \text{Lev} + \beta_{11} \text{Scale} + \epsilon \quad \text{Model 5}$$

$\epsilon$  is the random error term of the model.

D. Research on the Mediating Effect of Capital Mobility

1) Measurement of capital mobility

The capital liquidity examined in the paper mainly refers to the stock liquidity of listed companies under a microscopic perspective. Therefore, the measurement of capital liquidity is actually a measurement of stock liquidity. This paper selects ILLIQ indicators of weak liquidity to measure stock liquidity. The ILLIQ weak liquidity index is proposed by Amihud (2002)<sup>[20]</sup>. This method can effectively overcome the shortcomings of the price method and the transaction volume method in measuring liquidity simply by price difference and trading volume. It reflects the sensitivity of the stock price fluctuation to the transaction amount. The specific formula is:

$$ILLIQ = \frac{1}{N_{i,n}} \sum_{t=1}^{N_{i,n}} \frac{|R_{it}|}{Vol_{it}}$$

Among them,  $N_{i,n}$  represents non-zero trading days of stock  $i$  in  $n$  years;  $R_{it}$  represents return rate of stock  $i$  on  $t$  days;  $Vol_{it}$  represents the trading volume of stock  $i$  on  $t$  days.

2) Mediation test model

Combining the steps of the mediating effect test, this paper establishes the following three models in order to explore whether the variable of liquidity plays an intermediary role in the path from corporate governance to M&A performance.

$$Long\_P = \beta_0 + \beta_1 F\_Hold + \beta_2 BD + \beta_3 Dual + \beta_4 M\_Sal + \beta_5 M\_Share + \beta_6 I\_Share + \beta_7 Lev + \beta_8 Scale + \varepsilon_1$$

Model 6

$$Liq = \beta_0 + \beta_1 F\_Hold + \beta_2 BD + \beta_3 Dual + \beta_4 M\_Sal + \beta_5 M\_Share + \beta_6 I\_Share + \beta_7 Lev + \beta_8 Scale + \varepsilon_2$$

Model 7

$$Long\_P = \beta_0 + \beta_1 F\_Hold + \beta_2 BD + \beta_3 Dual + \beta_4 M\_Sal + \beta_5 M\_Share + \beta_6 I\_Share + \beta_7 Liq + \beta_8 Lev + \beta_9 Scale + \varepsilon_3$$

Model 8

$\varepsilon_1, \varepsilon_2$  and  $\varepsilon_3$  is the random error term of the model.

Model 6 is used to test the total effect of corporate governance on M&A performance. Model 7 is used to test the effect of corporate governance on the liquidity, while Model 8 adds stock mobility on the basis of Model 6 to verify the direct effect of corporate governance on M&A performance. The relationship between the degree of equity balance (Bal), nature of the controlling shareholders (Nature), the ratio of independent directors (P\_In) and the M&A performance is not significant. Therefore, the variables with insignificant regression coefficients in the above models have been removed.

IV. EMPIRICAL TEST RESULTS AND ANALYSIS

A. M&A Performance Factor Analysis

$F_{-1}$  represents the performance scores of the year before M&A;  $F_0$  represents the year of M&A;  $F_1$  represents the year after M&A and  $F_2$  represents the two years after M&A. The comprehensive performance score models form after the sub-analysis:

$$F_{-1} = (25.719f_1 + 22.285f_2 + 13.470f_3 + 11.181f_4) / 72.655$$

$$F_0 = (29.274f_1 + 21.596f_2 + 14.152f_3) / 65.022$$

$$F_1 = (28.618f_1 + 22.013f_2 + 12.512f_3 + 11.384f_4) / 74.527$$

$$F_2 = (24.014f_1 + 21.497f_2 + 14.594f_3 + 13.593f_4) / 73.698$$

According to the comprehensive performance score model from one year before M&A to two years after M&A (four years in total), the M&A performance of sample companies' scores are shown in the following chart:

TABLE II. M&A PERFORMANCE SCORE

Year of merger	One year before M&A ( $F_{-1}$ )	M&A year ( $F_0$ )	One year after M&A ( $F_1$ )	Two years after M&A ( $F_2$ )
Comprehensive score average	-0.22536	-0.05488	-0.09716	0.121308

From the above results, we can see that the M&A performance of the sample companies has experienced a process of first rising, falling, and then rising. In order to study the effect of corporate governance on M&A performance, we need to select the M&A performance with significant difference as the dependent variable. Therefore, we test the

significance of the difference in each year before and after M&A, and compare the performance in the year of M&A, one year after M&A, and two years after M&A with the year prior to M&A. We take Wilcoxon rank sum test to  $F_0 - F_{-1}$ ,  $F_1 - F_{-1}$  and  $F_2 - F_{-1}$ . The test results are shown in the following table.

TABLE III. WILCOXON RANK SUM TEST OF M&A PERFORMANCE DIFFERENCE

Performance Difference	$F_0 - F_{-1}$	$F_1 - F_{-1}$	$F_2 - F_{-1}$
Average	0.17048	0.12820	0.34667
Positive ratio	49.43%	54.72%	52.83%
Z statistics	-1.592	-1.481	-1.992
Sig. (2-tailed)	0.111	0.139	0.046**

Notes: \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$ , same as below

The Wilcoxon rank sum test results in TABLE III show that among the performance gap of  $F_0 - F_{-1}$ ,  $F_1 - F_{-1}$  and  $F_2 - F_{-1}$ , only the  $F_2 - F_{-1}$  passes the 5% level statistical test, and the remaining two performance gaps are not significant. Therefore,

after the empirical model analysis, the performance difference between the two years after M&A and the year prior to M&A will be used as a proxy variable for M&A performance. That is,

the value  $F_2-F_1$  is the dependent variable and it is recorded as Long\_P.

**B. The Effect of Corporate Governance on M&A Performance**

TABLE IV. REGRESSION MODEL TEST RESULTS

Model		Model 1	Model 2	Model 3	Model 4	Model 5
Constant	Constant	-1.375** (-2.047)	-1.231* (-1.781)	-1.442* (-1.880)	-4.190*** (-3.963)	-3.889*** (-3.731)
Ratio of the largest shareholder shareholdings	F_Hold		-0.006** (-2.022)	-0.006** (-2.014)	-0.007** (-2.221)	-0.009*** (-2.948)
Equity balance	Bal		0.000 (0.320)	0.000 (-0.101)	-0.001 (-0.878)	-0.001 (-1.249)
The nature of controlling shareholders	Nature		0.014 (0.165)	-0.040 (-0.484)	-0.018 (-0.215)	-0.049 (-0.590)
Board size	BD			0.062*** (3.110)	0.068*** (3.444)	0.068*** (3.510)
Two positions in one	Dual			-0.183** (-1.973)	-0.172* (-1.910)	-0.156* (-1.760)
Independent director ratio	P_In			0.003 (0.362)	0.003 (0.394)	0.000 (-0.013)
Management compensation	M_Sal				0.173*** (3.513)	0.166*** (3.424)
Management holdings	M_Share				0.004* (1.686)	0.006** (2.441)
Institutional shareholdings	I_Share					0.005*** (3.231)
Asset-liability ratio	Lev	-0.004** (-2.236)	-0.004* (-1.912)	-0.005** (-2.484)	-0.004** (-2.381)	-0.005*** (-2.715)
Scale of M&A	Scale	0.081** (2.288)	0.084** (2.367)	0.068* (1.918)	0.080** (2.318)	0.071** (2.088)
Sample size	N	265	265	265	265	265
F value		4.548**	3.526***	3.868***	4.782***	5.458***
Adj-R <sup>2</sup>		0.026	0.046	0.080	0.125	0.157

From the regression results of the model, it can be seen that Model 1 to Model 5 are all significant at the level of 10%, indicating that the built model is valid and can be analyzed accordingly. The asset-liability ratio in Model 1 is negatively correlated with M&A performance, while M&A scale is positively correlated with M&A performance, indicating that the two selected control variables are effective. From Model 2, we can see that only the ratio of the largest shareholder shareholdings (F\_Hold) is significantly correlated with the M&A performance, and the other two variables are not significant. From model 3, we can see that the relationship between board sizes, the two positions in one with M&A performance is significantly related, but the independent directors ratio is not significant. In Model 4, management

compensation and management shareholdings are significant. Although management's shareholding is only significant at the level of 10%, but from the results, it supports the previous assumptions. The regression equation of Model 5 is strongly significant at the level of 1%, indicating that institutional investors can have a significant impact on the M&A performance. And relevant assumptions are verified.

**C. Test of the Mediating Effect of Capital Liquidity**

Adding the variables of the stock liquidity from the independent variable and the dependent variable verification model, we conduct mediate effect regression test. The results are shown in TABLE V.

TABLE V. MEDIATION REGRESSION TEST RESULTS

Model		Model 6	Model 7	Model 8
Constant	Constant	-3.900*** (-3.981)	13.458 (1.259)	-4.081*** (-1.880)
ratio of the largest shareholder shareholdings	F_Hold	-0.007*** (-2.821)	-0.003 (-0.108)	-0.007*** (-2.831)
Board size	BD	0.063*** (3.412)	-0.333* (-1.665)	0.067*** (3.670)
Two positions in one	Dual	-0.155* (-1.761)	-0.127 (-0.132)	-0.154* (-1.757)
Management compensation	M_Sal	0.160*** (3.321)	0.693 (1.318)	0.151*** (3.145)
Management holdings	M_Share	0.006** (2.441)	0.050** (2.044)	0.005** (2.142)

**Cont. to TABLE V**

Institutional shareholdings	I_Share	0.005*** (3.101)	0.005 (0.259)	0.005*** (3.091)
Capacity mobility	Liq			0.013** (2.371)
Asset-liability ratio	Lev	-0.005*** (-2.650)	-0.077*** (-3.928)	-0.004** (-2.032)
Scale of M&A	Scale	0.069** (2.049)	-0.536 (-1.453)	0.076** (2.274)
Sample size	N	265	265	265
F value		7.309***	5.615***	7.239***
Adj-R <sup>2</sup>		0.160	0.123	0.175

Model 6 verifies that the selected corporate governance variables are significantly correlated with the M&A performance. The premise of the mediating effect test is that the independent variables are significantly related to the dependent variables. This premise is satisfied. The model 7 is further analyzed. The model tests the correlation between stock liquidity and governance variables. According to the results, only the board size (BD) and the management shareholdings (M\_Share) are significantly related to capital liquidity. Only the asset-liability ratio (Lev) and the capital liquidity are significantly related, and the remaining control variables fail the significance test.

Then we observe model 8, which adds intermediary variable to model 6 and it is a key step in testing whether capital mobility plays a significant mediating role. From the

regression results, we can see that all previous variables (F\_Hold, BD, Dual, M\_Sal, M\_Share, I\_Share, Lev, and Scale) are still significantly correlated with M&A performance at different levels, and capital liquidity is also significantly related to M&A performance.

According to the test principle of the mediating effect, the effectiveness of the mediating effect must be judged by combining the standardized coefficients and the respective standard deviations after the regression equation is obtained. Therefore, in order to explore where capital mobility plays an intermediary role, we list the standardized coefficients and the standard deviations in Model 6, Model 7 and Model 8 to calculate Sobel values and mediations effect. The specific results are shown in the table below.

TABLE VI. VARIABLES NORMALIZATION COEFFICIENT AND STANDARD DEVIATION

Model Variable	Model 6		Model 7		Model 8	
	Normalization coefficient	Standard deviation	Normalization coefficient	Standard deviation	Normalization coefficient	Standard deviation
Ratio of the largest shareholder shareholdings	-0.167***	0.002	-0.007	0.026	-0.166***	0.002
Board size	0.199***	0.018	-0.099*	0.200	0.214***	0.018
Two positions in one Management compensation	-0.104*	0.088	-0.008	0.963	-0.102*	0.087
Management holdings	0.189***	0.048	0.077	0.526	0.178***	0.048
Institutional shareholdings	0.161**	0.002	0.138**	0.025	0.141**	0.002
Capacity mobility	0.195***	0.002	0.017	0.017	0.192***	0.002
					0.144**	0.006

From the data in TABLE VI, the variables in Model 6 and Model 8 are significantly related to the dependent variable at the 10% level, while the regression normalization coefficients of only the Board Size (BD) and Management Shareholdings (M\_Share) are significant in Model 7. Therefore, we can draw the following conclusion: capital liquidity plays a significant mediating role in the paths of Board Size to M&A performance and Management Shareholding to M&A

performance, but it is not a complete mediation effect because the coefficients of the model 6 are all significant. However, it requires a further Sobel test of whether capital mobility also mediates the remaining subdivision paths (F\_Hold, Dual, M\_Sal, and I\_Share). The statistical results are as follows.

TABLE VII. SOBEL TEST OF RELEVANT VARIABLES

	Ratio of the largest shareholder shareholdings	Two positions in one	Management compensation	Institutional shareholdings
Sobel test Z value	-0.269	0.008	0.146	0.999**

From Sobel's test results, only the Z statistic of I\_Share variable is significant at the 5% level, while the ratio of largest shareholder shareholdings (F\_Hold) and the two positions in one (Dual) and management compensation (M\_Sal) failed the significance test. Therefore, capital liquidity plays a significant intermediary role in the path of institutional shareholdings to

M&A performance, but it is also not a complete mediating effect.

In summary, we can conclude that capital liquidity does play a role of a mediator between corporate governance and M&A performance, which also validates the research

hypothesis of capital mobility. Specifically, capital liquidity plays an intermediary role in the three subdivisions of Board Size to M&A performance, Management Shareholdings to M&A performance and Institutional Shareholdings to M&A performance.

## V. CONCLUSIONS

### A. Research conclusions on the relationship between corporate governance and M&A performance

#### 1) Equity structure and M&A performance

In the equity structure, only the ratio of the largest shareholder shareholdings is significantly verified, and the other two dimensions are not significantly verified. That is, hypothesis H1a is verified, and however hypotheses H1b and H1c are not verified. It shows that neither the degree of shareholdings balance nor the nature of controlling shareholders has any effect on M&A performance.

#### 2) Board mechanism and M&A performance

In the relationship between the board mechanism and the M&A performance, the board size and two positions in one are significantly validated. The two positions in one is a negatively-influenced relationship. The proportion of independent directors does not pass significant test, i.e., supposing H2a and H2b obtain verification, but H2c is not verified. From this result, the independent director system does not work out in the M&A performance, which echoes the so-called "flower vase director" in the current stock market.

#### 3) Executive incentives and M&A performance

Different from the equity structure and the board mechanism, management compensation and management shareholdings are significantly positive correlated with M&A performance, which verifies the hypotheses H3a and H3b.

#### 4) Institutional investors and M&A performance

In the newly introduced corporate governance index—institutional investors, the empirical results of the model support the hypothesis H4a, that is, the institutional investors' shareholding ratio is positively correlated with the M&A performance in a significant way. The increase of the proportion of institutional investors' shareholdings is beneficial to the improvement of M&A performance.

### B. The mediating effect of capital mobility

In the empirical results, although capital mobility only plays a mediating role in some subdivided variables, it does play a mediator role, which also validate the hypothesis H5a. The result shows that capital mobility has a significant mediating effect but not a complete mediating effect.

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