Corporate External Guarantees and M&A Performance Commitments

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Abstract. This study analyzes the effect of corporate external guarantees on M&A performance commitments using a research sample of Chinese A-share listed companies from 2008 to 2022. The study finds that listed companies are more likely to sign performance commitments in M&As and sign higher performance commitments when the proportion of corporate external guarantees is higher. It has been found that corporate external guarantees have a hollowing-out effect compared to the governance effect of corporate guarantees. The higher the proportion of external guarantees, the more insider self-interest behavior exacerbates the financing constraint problem of the enterprise. To alleviate financing constraints, controlling shareholders have a stronger incentive for market value management by signing performance commitments. The analysis of heterogeneity reveals that when management shareholding is low and the two rights of the company are highly separated, the proportion of corporate external guarantees has a more significant effect on M&A performance commitments. This study's findings have reference value for financial institutions when making credit decisions and for regulators to improve the efficiency of M&A supervision.

Keywords: External guarantees; mergers and acquisitions; performance commitments; market value management.

1. Introduction

Mergers and acquisitions are an important means for enterprises to expand their scale and optimize the allocation of resources, but due to information asymmetry and adverse selection problems, the performance of some listed companies after the completion of the acquisition of the target company is significantly lower than the profitability forecasts at the time of evaluation, resulting in damage to the value of listed companies [1]. Therefore, in order to regulate the behavior of major asset reorganization of listed companies, China Securities Regulatory Commission (CSRC) has issued relevant regulations on performance commitment several times since 2008 to protect the interests of investors. However, it seems that performance commitment has not effectively played the role of protecting the interests of small and medium-sized shareholders [2], and the phenomenon that performance commitment is still prevalent in mergers and acquisitions of listed companies in China in the case of failing to play the expected role is a topic of concern. Based on this background, this study attempts to explore the reasons for the performance commitment oddity in Chinese M&A transactions.

External guarantee refers to the behavior of enterprises to provide repayment guarantee for third-party debts with their own property or credit [3]. In recent years, with the wide application of enterprises' external guarantees, theoretical studies on their motives and economic consequences have become richer. On the one hand, some scholars believe that external guarantees exert the governance effect of enterprise groups, with parent companies providing guarantees for subsidiaries out of group interest maximization considerations. On the other hand, some scholars believe that external guarantees of enterprises play the hollowing out effect of controlling shareholders, and the parent company provides external guarantees for the purpose of encroaching on the interests of small and medium-sized shareholders. When the enterprise's external guarantee plays the governance effect, the enterprise's external guarantee object tends to choose the enterprises with more investment opportunities and more serious financing constraints within the group [4]. In order to maximize the interests of the group and provide more resource support to this enterprise, the guaranteeing enterprise tends to have the share price elevated to meet the financing needs, thus generating market value

management motives; when the enterprise's external guarantee exerts the hollowing out effect, the self-interested behavior of the insiders brings about problems such as the decline in the performance of the enterprise [5], the reduction of available funds and the increase in the operational risk [6], and the increase in the risk of the share price collapsing [7]. In this situation the market's willingness to provide funds to guarantee enterprises is weakened and the required risk compensation increases [8], which leads to the aggravation of the financing constraint problem of guarantee enterprises. Therefore, in order to alleviate the financing constraints and maintain a stable stock price, the major shareholders have a strong incentive to manage the market value during the period of external guarantee. To summarize, regardless of whether the enterprise's external guarantee plays a governance effect or a hollowing out effect, the major shareholders have a market value management motive during the period of external guarantee. Performance commitment has a significant effect on stock price, and controlling shareholders during the period of external guarantee have the motive of utilizing performance commitment to raise the stock price.

This study finds that listed companies with higher ratios of corporate external guarantees have a greater likelihood of signing performance commitments in M&A and sign higher performance commitments. At the same time, in the case of low management shareholding and high separation of company's two rights, the impact of the ratio of corporate external guarantee on M&A performance commitment is more significant. Further research finds that the transmission and functioning mechanism of corporate external guarantee affecting performance commitment lies in the following: compared with the governance effect, corporate external guarantee plays more of a hollowing out effect, the higher the ratio of external guarantee, the higher the insiders' self-interested behavior exacerbates the problem of financing constraints of the enterprise, and in order to alleviate the financing constraints, the controlling shareholders have a stronger incentive for market value management to sign performance commitments.

The marginal contributions of this study are: ① Previous literature has mainly studied the economic effects of M&A performance commitments, mainly exploring the impact of performance commitments on debt financing costs, goodwill impairment, corporate innovation, M&A premium, surplus management, insider reduction, and the risk of stock price collapse, while the literature studying the motives of M&A performance commitments in the Chinese context is relatively rare. ② It enriches the theoretical system of foreign guarantee and supplements the research on the subsequent behavioral decisions of foreign guarantee. ③ The findings of this study have certain reference value for financial institutions to make credit decisions, listed companies to obtain financing support, and regulators to improve the efficiency of M&A regulation.

2. Research Hypothesis

In view of the performance commitment phenomenon in the Chinese capital market described above, this study argues that a higher proportion of firms' external guarantees will increase the likelihood of M&A performance commitments and the amount of M&A performance commitments, which will be specifically analyzed in the following from the perspective of both the governance effect and the hollowing out effect of external guarantees.

Firstly, when the enterprise within the group has more investment opportunities, the investment of more resources by the group can fully utilize the investment opportunities of the enterprise to create greater value for the group. Especially when the industry in which the enterprise is located is facing more serious external financing constraints, raising all kinds of resources to the enterprise to alleviate its financing constraints will increase the value of the listed company more quickly, thus increasing the value of the whole group, which is more in line with the interests of the group as a whole. As Almeida et al. [9] found that during the financial crisis, listed companies face severe financing constraints, and group parent companies will give more resources to subsidiaries. Therefore, when the corporate external guarantee behavior exerts governance effects, the target of corporate external guarantee will often choose the enterprises with more investment opportunities and more serious

financing constraints within the group [4]. Studies based on enterprise groups and corporate financing constraints show that the ways for enterprise groups to alleviate corporate financing constraints mainly include the following two. The first one is to deploy resources through an effective internal capital market, while external guarantees between affiliated enterprises is a typical way of internal capital market operation [10]; the second one is to utilize equity instruments for financing. This means that the group gives more resource support to the enterprise to maximize the interests of the group, and the guaranteed enterprise tends to have market value management motives when it prefers the share price to be raised to meet the financing needs.

Secondly, when external guarantees play a hollowing out effect. On the one hand, the guarantee of enterprises to related parties has become a hidden way of tunneling for large shareholders, who tend to utilize the control right to arbitrage the funds of enterprises in order to seize personal interests [4,11]. On the other hand, in order to obtain some hidden gains from the guaranteed party or to obtain the guarantee of the other party, the enterprise will also provide guarantees to the unaffiliated parties, which is also a manifestation of the agency problem of the majority shareholders. For example, Wan Liangyong and Wei Minghai [12] found through the case study of Hebei Guarantee Circle that enterprises' guarantees to non-affiliated parties are only in different forms, and the essence is still the transfer of interests from the majority shareholders; Cao Tingqiu and Liu Haiming [13] pointed out that enterprises' joining the guarantee network induces the opportunistic behavior of the majority shareholders; and Liu Haiming and Li Mingming [4] argued that the funds gained from the mutual guarantees between the enterprises and non-affiliated parties were not used for production and operation but more to satisfy the major shareholders' self-interest. In short, the external guarantee of enterprises under the hollowing out effect is an important way for insiders such as major shareholders to encroach on the resources of the enterprise, which will further reduce the available funds of the guaranteeing enterprise and increase its operational risk and the risk of stock price collapse, in which case the market's willingness to provide funds to the guaranteeing enterprise is weakened and the required risk compensation is increased, which leads to an aggravation of the problem of financing constraints of the guaranteeing enterprise. As a result, controlling shareholders during the period of external guarantees have strong market value management incentives to enhance their share prices in order to stabilize the capital market, alleviate financing constraints, and reduce operational risks and the risk of share price collapse. Existing studies have found that performance commitments have a signaling effect. Specifically, performance promises signal to the market that the company will have better operating results in the future and that the management of the target company will be positively incentivized to work hard for the M&A integration [14]. Therefore, as a "credit enhancement" behavior, performance promise sends a positive signal to the market, which brings positive market reaction [15]. This precisely meets the needs of controlling shareholders for upward market value management.

Reasonable performance commitments should be formulated on the basis of the future profitability of the target party company and be closely related to the target party company's operating conditions. However, given the need for share price appreciation by controlling shareholders during the guarantee period and the positive market reaction that performance commitments can bring, performance commitments entered into during the guarantee period can be used as a tool for market value management by controlling shareholders, and may therefore deviate from the actual operating conditions of the target. In order to release the signal of "credit enhancement" to obtain a more positive market response, listed companies during the period of external guarantee are more likely to sign performance commitments in M&A transactions, and the amount of performance commitments signed is higher. In addition, a high performance commitment means a higher transaction consideration, and there is still a large amount of discretionary and discretionary space as to whether the commitment must be fulfilled and whether the compensation arrangement in case of breach of the commitment can be adequately put in place, and therefore the transferor is willing to commit to a high level of performance in order to meet the needs of the controlling shareholders. In summary, companies during the period of external guarantees have both the incentive and the ability to leverage

high performance commitments in mergers and acquisitions for market value management and share price enhancement.

Based on the above analysis, this study proposes the following research hypotheses:

H1: In mergers and acquisitions, the greater the possibility and the higher the amount of performance commitments signed by listed companies with external guarantees.

H2a: In mergers and acquisitions, corporate external guarantees play a governance effect, the greater the possibility and the higher the amount of performance commitments signed.

H2b: In mergers and acquisitions, the greater the likelihood and the higher the amount of performance commitments signed by firms with external guarantees that play a hollowing out effect.

3. Research Design

3.1 Study Sample and Data Sources

This study selects Chinese A-share listed companies in Shanghai and Shenzhen from 2008 to 2022 as the research sample, and handles them according to the following criteria: (1) excluding financial companies; (2) excluding ST and other companies that have been specially treated; (3) excluding samples with same-control business combinations; (4) excluding samples whose M&A progress is yet to be finalized; (5) excluding samples whose purpose of the transaction is to borrow shells; (6) excluding samples with missing variable values; (7) shrinking the upper and lower 1% of continuous variables. Finally, 1018 valid samples are obtained. The original data in this study are from CSMAR database.

3.2 Variable Definitions

(1) Explained variables: this study uses the dummy variable of whether or not a performance commitment is signed at the time of M&A (PC-dum) and two continuous variables of the ratio of the total performance commitment to the transaction amount corresponding to the acquired equity (PC-ratio) and the logarithm of the total performance commitment plus one (PC-ln), respectively.

(2) Explanatory variables: referring to the methodology of Yanchao Wang and Siqi Chen [16], this study measures total external guarantees as a proportion of the company's year-end net assets (Grt1).

(3) Control variables: Drawing on previous literature, this study adds a series of control variables to the regression model: firm size (Size), gearing ratio (Lev), return on assets (ROA), current ratio (LR), Tobin's Q (TobinQ), Duality, proportion of shares held by the first largest shareholder (Top1), and the nature of ownership (SOE), whether it is a related transaction (Related), and whether it is a major asset reorganization (Major). In addition, this study considers time fixed effects (Year) and industry fixed effects (Ind). The definitions of the main variables in the study are presented in Table 1.

Table 1 Definition and calculation of variables

Variable Type	Variable Symbol	Variable Definition
Explained variables	PC_dum	If the performance commitment is signed at the time of merger and acquisition take the value of 1, otherwise 0.
	PC_ln	The logarithm of the total performance commitment corresponding to the acquired equity, or zero if there is no performance commitment.
	PC_ratio	The total amount of performance commitments corresponding to the acquired equity is divided by the transaction amount, or zero if there are no performance commitments.
Explanatory variables	Grt	Total external guarantees of the enterprise as a percentage of net assets
Control variables	Duality	The two positions of chairman and general manager together take the value of 1, otherwise 0.

LR	Current assets divided by current liabilities.
Lev	Total liabilities divided by total assets.
Size	The natural logarithm of the acquirer's total assets.
Top1	The number of shares held by the largest shareholder divided by the total number of shares of the company.
SOE	The actual controller is a state-owned enterprise, which takes the value of 1, and 0 for others.
ROA	Acquirer's net profit divided by the average balance of total assets.
TobinQ	Acquirer share price divided by replacement cost.
Related	Associated mergers and acquisitions take the value of 1, otherwise 0.
Major	Significant asset reorganization takes the value of 1, otherwise 0.
ind	The acquirer's industry.
Year	Year the merger proposal was announced.

3.3 Model Setup

This study constructs the following model to test the impact of corporate external guarantees on the performance commitment of corporate M&A reorganization:

In model (1), PC denotes performance commitment, including the dummy variable of whether to sign a performance commitment (PC_dum) and two continuous variables measured by the ratio of the total performance commitment corresponding to the acquired equity to the transaction amount (PC_ratio) and the logarithm of the total performance commitment plus one (PC_ln); Grt denotes corporate external guarantee; and Controls denotes control variables; Year and Ind denote year and industry fixed effects, respectively.

$$PC_{i,t} = \alpha_0 + \alpha_1 Grt_{i,t} + \alpha_2 Controls_{i,t} + \sum Year + \sum Ind + \varepsilon_{i,t} \quad (1)$$

4. Empirical Results

4.1 Descriptive statistics

The descriptive statistics of the main variables are shown in Table 2. In terms of the explanatory variables, the mean value of PC_dum is 0.932, indicating that 93.2% of the M&A deals in the sample have signed performance commitments; the mean value of PC_ln is 17.97, and on average, the M&A performance commitment is $637,194,423, and the median is 19.13, indicating that more than half of the enterprises have M&A performance commitments that are larger than the average of the industry. The minimum value is 0, the maximum value is 22.36, and the standard deviation is 5.008, indicating that there is a large difference in M&A performance commitment among different enterprises, and the highest performance commitment reaches about 200 million yuan; the mean value of PC_ratio is 0.752, which means that the sample average is 75.2% of the performance commitment amount of the M&A transaction amount. It can be seen that the signing of performance commitments and high performance commitments in M&A transactions has become a common phenomenon in the industry. Analyzing the explanatory variables, the mean value of Grt is 23.38, which indicates that at the average level the total amount of firms' external guarantees as a percentage of net assets is 23.38%. The median is 9.785, indicating that the phenomenon of external guarantee is more common among Chinese listed companies: the maximum, minimum and standard deviation are 247.2, 0.11 and 37.86 respectively, indicating that the external guarantee of some enterprises is excessive and the situation varies significantly among enterprises. 48.4% of the M&As in the sample are connected M&As, and 36.6% of the M&As are major asset reorganizations.

Table 2 Descriptive statistics of the main variables

Variable	N	Mean	Median	Standard deviation	Minimum	Maximum
PC_dum	1018	0.930	1.000	0.250	0.000	1.000
PC_ln	1018	17.970	19.130	5.010	0.000	22.360
PC_ratio	1018	0.750	0.384	1.643	0.000	14.000
Grt	1018	23.380	9.785	37.860	0.110	247.200
Duality	1018	0.316	0.000	0.465	0.000	1.000
LR	1018	1.700	1.431	1.004	0.439	6.123
Lev	1018	0.469	0.464	0.176	0.119	0.886
Size	1018	22.320	22.210	1.065	20.290	25.570
Top1	1018	31.570	29.200	14.020	9.130	71.540
SOE	1018	0.270	0.000	0.444	0.000	1.000
ROA	1018	0.037	0.037	0.058	-0.232	0.184
TobinQ	1018	2.041	1.692	1.110	0.883	6.577
Related	1018	0.484	0.000	0.500	0.000	1.000
Major	1018	0.366	0.000	0.482	0.000	1.000

4.2 The impact of external guarantees on corporate M&A performance commitments

Table 3 reports the regression results of firms' external guarantees and M&A performance commitments. Column (1) of Table 3 tests the effect of the proportion of controlling shareholders' external guarantees on whether to sign performance commitments, and the regression coefficient of $Grt_{i,t}$ shown in the results is 0.001, which is significant at the 1% statistical level, and the results indicate that firms are more likely to sign performance commitments during the M&A process when the proportion of their external guarantees is higher; Column (2) of Table 3 tests the effect of the proportion of firms' external guarantees on the amount of performance commitments, and the regression coefficient of $Grt_{i,t}$ shown in the results is 0.012, which is significant at the 1% statistical level. The regression coefficient is 0.012, which is significant at 1% statistical level, and the result indicates that enterprises are more likely to sign performance commitments in the M&A process when they have a higher proportion of external guarantees; Column (3) of Table 3 tests the effect of the proportion of enterprises' external guarantees on the proportion of performance commitments to the transaction amount, and the result shows that the proportion of external guarantees does not have a significant effect on the proportion of performance commitments to the transaction amount.

Overall, the regression results in Table 3 support the hypothesis. The external guarantee of enterprises is an important reason for the generation of performance commitments and the emergence of high performance commitments, and enterprises will sign high performance commitments during the period of external guarantee to release positive signals to enhance the stock price.

Table 3 Corporate external guarantees and M&A performance commitments

	(1)	(2)	(3)
	PC_dum	PC_ln	PC_ratio
Grt	0.001***	0.012***	-0.001
	(3.08)	(2.71)	(-1.01)
Duality	0.008	0.090	-0.224**
	(0.47)	(0.27)	(-1.97)
LR	-0.015*	-0.322*	-0.026
	(-1.17)	(-1.30)	(-0.36)
Lev	-0.055	-1.179	0.074
	(-0.65)	(-0.70)	(0.13)
Size	-0.023***	0.049	-0.122*

	(-2.02)	(0.21)	(-1.69)
Top1	-0.001***	-0.032***	0.003
	(-2.03)	(-2.48)	(0.66)
SOE	-0.052***	-1.092***	0.047
	(-2.12)	(-2.24)	(0.32)
ROA	0.353***	6.731*	1.456
	(1.99)	(1.93)	(1.10)
TobinQ	-0.017	-0.269	0.035
	(-1.60)	(-1.29)	(0.48)
Related	-0.006	0.229	-0.231***
	(-0.31)	(0.65)	(-1.90)
Major	-0.023	0.524	-0.425***
	(-1.17)	(1.31)	(-3.64)
Constant	1.573***	19.027***	3.621**
	(5.79)	(3.50)	(2.26)
Year	Yes	Yes	Yes
Ind	Yes	Yes	Yes
N	1,003	1,003	1,003
R2	0.135	0.130	0.086

Note: ***, ** , and * indicate significant at the 1%, 5%, and 10% levels, respectively; standard errors in parentheses under the regression coefficients are standard errors, which are adjusted for firm-level clustering. The following table is the same.

5. Analysis of impact mechanisms

According to the theoretical analysis section, external guarantees may have both positive effects, affecting the M&A performance commitments of enterprises through the way of exerting governance effects, and negative effects, affecting the M&A performance commitments of enterprises through the way of exerting hollowing out effects. In this part, we will empirically test the main effects of the external guarantee behavior of the sample enterprises.

5.1 Governance effects of corporate external guarantees

When the enterprise's external guarantee behavior exerts governance effects, the enterprise's external guarantee object tends to choose the enterprise with more investment opportunities and more serious financing constraints within the group. In order to maximize the interests of the group and provide more resource support to that enterprise, the guaranteeing enterprise tends to have an elevated share price to meet its financing needs, and thus the external guaranteeing enterprise has a greater possibility of signing a performance commitment at the time of an M&A transaction and signing a higher amount. For this reason, this study refers to the studies of Kaplan and Zingales [16], Whited and Wu [17], and Hadlock and Pierce [18], and measures the economic consequences of guaranteeing firms with the internal control index (ICI), the WW index, and the KZ index, respectively, in order to verify whether the firms' external guarantees exert governance effects. The regression results are shown in Table 4, the coefficient of Grt in column (1) is significantly negative at 5% level, and the coefficients of Grt in columns (2) and (3) are significantly positive at 1% level, which indicates that the internal control index decreases instead after the behavior of enterprises' external guarantees, the internal control deteriorates, and the financing constraints of guaranteeing enterprises increase. This is contradictory to the theoretical part of the analysis, so the external guarantee behavior of enterprises in the sample does not exert governance effects.

Table 4 Impact mechanism test based on the governance effect of corporate external guarantees

	(1)	(2)	(3)
	ICI	WW	KZ
Grt	-0.491**	0.0053***	0.018***

	(-1.98)	(1.53)	(0.57)
Controls	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
N	991	911	1,036
R2	0.199	0.348	0.293

5.2 The hollowing-out effect of corporate guarantees

Self-interested insider behavior creates problems for the enterprise in terms of declining performance, decreasing available funds and increasing operational risk, and increasing risk of stock price collapse when the enterprise's external guarantees exert a hollowing out effect. The market's willingness to provide funds to the guaranteeing enterprise in such circumstances is weakened and the required risk compensation increases. As a result, controlling shareholders during the period of external guarantees have a strong incentive to sign high performance promises to enhance share price at the time of M&A transactions in order to stabilize the capital market, alleviate financing constraints, and reduce the risk of operational risk and share price collapse. DMS (short-term borrowing divided by the sum of short-term borrowing and long-term borrowing), DC (financial cost divided by the sum of firms' short-term borrowing and long-term borrowing), and Loan_ratio (new loan divided by the sum of last year's short-term borrowing and long-term borrowing) are selected to measure the banks' willingness to provide funds to secured firms. The regression results are shown in Table 5. The Grt coefficients in columns (1) and (3) are significantly negative at the 1% level, and the Grt coefficient in column (2) is significantly positive at the 10% level, which indicates that the behavior of enterprises' external guarantees increases the cost of debt capital of the guaranteeing enterprises, decreases the ratio of new loans and the debt maturity structure of the guaranteeing enterprises, reflecting that the bank's willingness to provide funds to the guaranteeing enterprises decreases and the required compensation risk increases, and the enterprise external guarantee behavior plays the hollowing out effect. In conclusion, the above two tests prove that compared with the governance effect of external guarantees, corporate external guarantees mainly play the hollowing out effect, and the possibility of signing performance commitments in M&A transactions is higher and the amount of signing is larger.

Table 5 Impact mechanism test based on the hollowing out effect of corporate external guarantees

	(1) DMS	(2) DC	(3) Loan_ratio
Grt	-0.001***	0.000*	-0.008***
	(-3.21)	(1.93)	(-2.62)
Controls	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
N	788	688	690
R2	0.375	0.151	0.131

6. Further Analysis

The impact mechanism test above shows that compared to the governance effect of external guarantees, corporate external guarantees mainly play a hollowing out effect, which increases the market value management incentives of firms by strengthening the financing constraints, reducing the available capital of the firms, and increasing the business risks and stock price crash risks of the firms, and thus tends to enter into performance commitments and higher performance commitments at the time of M&A. However, different characteristics of enterprises in various aspects of the existence of large differences, which will make the enterprise external guarantee on M&A

performance commitment of the extent of the impact of the enterprise varies greatly among different enterprises. For this reason, this study selects management shareholding and controlling shareholders' separation of powers as variables to analyze heterogeneity.

6.1 Impact of management shareholding

Compared with enterprises with high management shareholding, the impact of the hollowing out effect of corporate guarantees on M&A performance commitments is more obvious in enterprises with lower management shareholding. First, from the point of view of agency costs, the higher the proportion of management shares, the more losses suffered by the management in the major shareholders "hollowing out" [19]. Therefore, it has more incentives to inhibit the enterprise's external guarantee behavior and the major shareholders after the guarantee encroachment of funds, to alleviate the hollowing out effect of the enterprise. Secondly, from the viewpoint of financing constraints, higher management shareholding can link the interests of management and the interests of the company, resulting in synergistic effects of interests, thus alleviating the first type of agency costs and improving the governance level of the company, in which case the market's willingness to provide funds to the guaranteed enterprise increases, alleviating the financing constraints, and weakening the hollowing out effect of the external guarantee. In summary, compared with higher management shareholding, the positive effect of corporate external guarantees on performance commitments is more significant when the proportion of management shareholding is lower.

This study divides the sample into two groups of high and low shareholding according to the industry median of management shareholding, and the regression results are shown in Table 6. The results show that the coefficients of Grt in columns (4) and (5) are significantly positive at the 1% level, and the coefficients of Grt in columns (1) and (2) corresponding to this are not significant, indicating that the impact of corporate external guarantees exerting a hollowing out effect on M&A performance commitments will be more pronounced in firms with lower management shareholding ratios, compared to firms with lower management shareholding ratios, and firms with a high percentage of management shareholding.

Table 6 Impact of management shareholding

	High management shareholding			Low management shareholding		
	(1) PCdum	(2) PCln	(3) PCratio	(4) PCdum	(5) PCln	(6) PCratio
Grt	0.000	0.003	-0.003	0.001***	0.016***	-0.001
	(0.95)	(0.63)	(-1.09)	(2.94)	(2.69)	(-0.40)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
N	485	485	485	473	473	473
R2	0.141	0.157	0.098	0.215	0.210	0.171

6.2 Impact of the separation of powers of controlling shareholders

Compared with enterprises with a lower degree of separation of powers, in enterprises with a higher degree of separation of powers of controlling shareholders, the impact of the hollowing out effect of external guarantees on the M&A performance commitments of enterprises may be more obvious. On the one hand, in the case of a higher degree of separation of powers, the possibility of enterprises to carry out external guarantees will rise, and will exacerbate the controlling shareholders and management of the internal hollowing out behavior, increase the enterprise's business risk to strengthen the hollowing out effect of the external guarantees; on the other hand, in the case of a higher degree of separation of powers, the controlling shareholders and small and medium-sized shareholders of the second category of the agency problem between the more serious [20], the higher the cost of enterprise financing, the market for guaranteed enterprises under such circumstances may be more pronounced. In this case the market's willingness to provide funds to the guarantee enterprise

is reduced, increasing the financing constraints and strengthening the hollowing out effect of external guarantees. In summary, compared with the enterprises with lower degree of separation of powers, the external guarantee has a greater impact on the M&A performance commitment of enterprises with higher degree of separation of powers of controlling shareholders.

In this study, the sample is divided into two groups with high and low degree of separation according to the industry median of the degree of separation of two rights, and the regression results are shown in Table 7. The results show that the coefficients of Grt in columns (1) and (2) are significantly positive at the 1% level, and the corresponding coefficients of Grt in columns (4) and (5) are not significant. Therefore, compared with the enterprises with lower degree of separation of controlling shareholders, the impact of external guarantees exerting the hollowing out effect on the performance commitment of M&A will be more obvious in enterprises with high degree of separation.

Table 7 Impact of the degree of separation of powers

	High degree of separation of powers			Low degree of separation of powers		
	(1)	(2)	(3)	(4)	(5)	(6)
	PCdum	PCln	PCratio	PCdum	PCln	PCratio
Grt	0.001***	0.022***	-0.004*	0.000	0.005	0.002
	(3.35)	(3.11)	(-1.91)	(0.61)	(0.71)	(1.41)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
N	469	469	469	470	470	470
R2	0.205	0.209	0.154	0.200	0.183	0.112

7. Conclusions

The construction of China's capital market is still imperfect, and the phenomenon of signing performance commitments during corporate mergers and acquisitions (M&A) as well as the phenomenon of high performance commitments has become a common phenomenon in China's M&A market. For this reason, this study empirically investigates the impact of corporate external guarantee behavior on the signing of M&A performance commitments and its mechanism of action by using the events of M&A and restructuring of China's A-share listed companies from 2008-2022 as a research sample. The results of the study find that, first, listed companies with a higher proportion of corporate external guarantees will realize market value management by signing performance commitments and signing higher performance commitments in the M&A process. Second, compared with the governance effect exerted by external guarantees, corporate external guarantees mainly exert a hollowing out effect in the sample of this study. It reduces the performance of the enterprise, decreases the available capital of the enterprise, and increases the enterprise's operational risk and the risk of stock price collapse. In this case the market's willingness to provide funds to guaranteed firms is weakened, and the required risk compensation increases, reinforcing corporate financing constraints. In order to alleviate financing constraints and maintain a stable stock price, enterprises tend to sign performance commitments and higher performance commitments for market value management. Third, management shareholding and controlling shareholders have a heterogeneous impact on the relationship between corporate external guarantees and M&A performance commitments. The positive relationship between external guarantees and M&A performance commitments is more pronounced in firms with lower management shareholding and higher controlling shareholders' separation of powers.

This study not only enriches the theoretical research in the field of corporate M&A performance commitment and external guarantee, but also provides some practical insights into regulating the market's M&A performance commitment behavior as well as external guarantee behavior:

First, as early as 2008, the Securities and Futures Commission issued the "Administrative Measures for Major Asset Reorganization of Listed Companies", which stipulates the relevant

behavior of performance commitment in mergers and acquisitions, and the performance commitment is initially intended to protect the interests of investors and alleviate the problem of information asymmetry and adverse selection. However, in the specific implementation process many enterprises will performance commitment as a stock price management tool, resulting in inflated stock prices and valuation of the subject, but affect the long-term development of listed companies. Based on this, this study suggests that in the context of the current registration system reform, the regulatory authorities should improve the information disclosure-centered regulatory system for merger and acquisition transactions, and at the same time, should strengthen the implementation of measures and penalties for performance commitment defaults, especially those "high performance commitment" "high valuation premium" merger and acquisition behavior is more important. In particular, those "high performance commitment" and "high valuation premium" mergers and acquisitions should be focused on, to prevent the emergence of the listed company's major shareholders and the seller of the malice of the commitment to collusion. In addition, after the completion of the M&A transaction, the relevant departments should continue to pay attention to the performance of the merged party's performance commitment performance, especially those who "accurately meet the standard" behavior should be more concerned about, to improve the cost of default by all parties.

Secondly, compared with the governance effect of external guarantee, the external guarantee of enterprises mainly plays the hollowing out effect during the period of guarantee, increasing the fund appropriation of the major shareholders of the guaranteeing party, and the effect of external guarantee on the performance commitment of M&A is more significant in enterprises with lower management shareholding ratio and high separation of controlling shareholders' two rights, reflecting that the external guarantee of enterprises has become an important way for insiders to seize private interests. Therefore, it is recommended that listed companies should improve their internal governance structure and give full play to the role of independent directors and other corporate governance mechanisms. In the process of enterprises' external guarantees, independent directors of listed companies should play a supervisory and advisory role to minimize excessive guarantees and irregular guarantees. At the same time, the management, as the main executor of the enterprise's business decisions, should bear some responsibility for the excessive guarantee and irregular guarantee behaviors that occurred during its term of office. In addition, the relevant departments should encourage the management of enterprises to increase the proportion of shares held by the management, and restrict the decision-making power of the controlling shareholders of enterprises with a high degree of separation of powers in respect of external guarantees, so as to inhibit the consequences of the risks brought about by external guarantees.

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