M&As and Price Manipulations in China[1]

Chen CUIPING* – Jarko FIDRMUC** – Fabian RECK***

Abstract

In recent years, M&As have become popular among Chinese companies, with many of them receiving a high premium. This paper empirically analyzes the motivation of high-premium M&As from the perspective of price manipulations. The sample consists of 1,013 Chinese companies, listed on the Shanghai and Shenzhen stock exchange, and covers the period from 2013 to 2018. Our results indicate that benefit seeking of major shareholders on the costs of minor investors is a key determinant for the merger of companies. In comparison, economic synergy effects are not the predominant factor of M&As. Therefore, legal reforms by the Chinese Market Supervisory Department are necessary to protect smaller investors.

Introduction

In recent years, mergers and acquisitions (M&As) with high premiums have become increasingly relevant in the Shanghai and Shenzhen stock exchanges. The investors often evaluate the assets with much higher value than the booking

* Chen CUIPING, corresponding author, Shanghai University, School of Economics, No. 99, Shangda Road, China; Zeppelin University of Friedrichshafen, Department of Cooperate Management and Economics, Chair of International Economics, Am Seemooser Horn 20, 88045 Friedrichshafen, Germany; e-mail: dreamy520@outlook.com

** Jarko FIDRMUC, Zeppelin University of Friedrichshafen, Department of Cooperate Management and Economics, Chair of International Economics, Am Seemooser Horn 20, 88045 Friedrichshafen, Germany; Mendel University Brno, Faculty of Business and Economics, Chair of International Economics, Zemědělská 1, 613 00 Brno, Czech Republic; e-mail: jarko.fidrmuc@zu.de

*** Fabian RECK, Zeppelin University of Friedrichshafen, Department of Cooperate Management and Economics, Chair of International Economics, Am Seemooser Horn 20, 88045 Friedrichshafen, Germany; e-mail: fabian.reck@zu.de

price. This results in high (intangible) goodwill. Such intangible assets may create a significant source of financial vulnerability to Chinese companies in the medium run. Hence, this phenomenon has attracted the attention of regulatory authorities.

According to the Chinese M&As database "Choice", the total amount of goodwill of A-ranked listed companies was about RMB 1,450 billion (USD 203 billion) in the third quarter of 2018, rising by 15% year-on-year. The total goodwill of these companies corresponds to more than 60% of their profits.

Lebedev et al. (2014) show that the effects of M&As tend to be significantly different in developed and emerging markets. M&A-active companies from emerging economies search for more developed institutions and corporate governance practices in developed economies.

Therefore, the macroeconomic and business environment as well as industry profitability determines M&A-decisions. Furthermore, supervisory board characteristics play an important role in company performance in emerging markets (see Muravyev, 2017 – for evidence in Russia).

M&As in China are often viewed as a byproduct of the growth dynamics of the Chinese economy. M&As can integrate the resources of two (or more) companies which allows synergies to be exploited. Therefore, M&As can be associated with a premium.

This paper examines the impact of Chinese M&As on ownership structures. The sample consists of 1,013 Chinese A-rated companies traded in the Shanghai or Shenzhen stock exchange.

The data covers the period between 2014 and 2018. This period was characterized by recovery from the financial crisis (Fidrmuc and Korhonen, 2010) and a gradual liberalization of financial markets in China as a part of the policy labelled as the 'Chinese Dream' (Véron, 2016).

The value added by this paper to literature is three-fold. First, it empirically analyzes whether M&As change the ownership structure of the top ten shareholders, i.e., they increase they shares and thus negatively affect small shareholders. Second, it applies data which has not been used in the context of the motivation behind M&As. Third, our policy recommendations can support supervisory authorities with necessary legal M&A reforms.

The rest of the paper is structured as follows. Section 1 theoretically analyzes the relationship between high-premium M&As and economic synergy effects or price manipulations (excessive goodwill). Section 2 describes the data and our empirical strategy. Section 3 presents our panel regression results from the cross-sectional data analysis. Section 4 shows the robustness test. The last section concludes and gives relevant policy suggestions.

1. Literature Review

1.1. M&As and Economic Synergy Effects

In an analogy to creative destruction, the goodwill of M&As are current costs of future benefits (Cargill and Rausser, 1975). After M&As, business efficiency and financial processing, as well as strategic management amongst the participating units can be integrated and allocated optimally in the new enterprise, thus leading to synergy effects.

There are four types of M&A motivation. First, management synergy effects due to a more efficient use of management resources. Second, business synergy effects through economies of scale. If the acquiring and the target enterprise have a similar value chain in the same industry, they can use resources mutually, and thus improve the efficiency of assets and reduce production costs. Therefore, M&As in the same industry are more likely to achieve synergistic effects. Third, financial synergy effects through high liquidity of the acquiring company can provide free capital into the target company, thus enriching the channels of capital operation, investing in high-yield projects, and improving the efficiency and return on investment of unused funds. Fourth, tax reliefs due to an optimal financial structure. This is done through the consolidation of assets and liabilities of the target company.

However, the importance of the above synergy effects is often questioned. Slusky and Caves (1991) find that economic synergy effects are not significantly correlated with the M&A premium. Agency and managerial factors as well as price manipulation, play an underestimated role in regard corporate merger.

Moreover, M&As are often accompanied by undesirable phenomena such as an increased financial burden. In this regard, Harrison, Hart and Oler (2014) show that high leverage is significantly associated with poor post-acquisition stock performance. Feng and Wu (2015) conclude that the score of economic synergy shows a concave-shaped pattern: The synergy score increases slightly in the first year, increases significantly in the second year, but then drops sharply in the third or fourth year after the M&A. Moreover, the literature review presented by Amiram et al. (2018) shows that financial indicators do not improve significantly in the year of an M&A, and even often decline compared to the year before the M&A. Therefore, the overall relevance of synergy effects as a key determinant of M&As is questionable.

High-premium M&As can be measured by the increase of the company's goodwill according to published balance data of the enterprises. For China, Du, Du and Zhou (2011) show that goodwill is a reasonable but also an overestimated component. According to their results, over-optimistic and prestige M&As lead

to hugely overvalued goodwill. Overvalued goodwill cannot bring sustainable profits to enterprises and will therefore result in negative effects in the long-term performance of the enterprise. Tang, Li and Lu (2013) document that executive characteristics such as overconfidence are linked to high-premium M&As. Moreover, Arik and Kutan (2015) show that cash-paid M&As have a higher abnormal return than stock-paid M&As. These studies highlight that M&As do not necessarily lead to corresponding economic synergies. Given these disparate findings, we expect largely ambiguous synergy effects for Chinese M&As.

1.2. M&As and Small Shareholders

There are several channels by which M&As can affect small shareholders: First, tunneling (transfer assets and profits out of firms) can play an important role in countries with weak legal systems (Friedman, Johnson and Mitton, 2003). Bradley et al. (1988) discuss a game theoretical model of conflicting interests of investors during M&As. Second, top managers play an important role in the process of price manipulations. Ning and Zhang (2012) find that a close relationship between directors and major shareholders significantly reduces the independence of managers in their decision-making. Shleifer and Vishny (1997) describe the typical agency problem – if legal protection does not give enough control rights to small investors, then the top shareholder can easily and ruthless assert their own interest.

There can be two forms of price manipulations. On the one hand, if a company acquires another company with a high premium, it is a direct price manipulation in favor of the owners of the associated company. On the other hand, if the major shareholders use their insider information and increase their shares at a comparatively low price before M&As are announced, it is an indirect price manipulation in favor of the major shareholders. Concerning indirect price manipulation, M&As can be associated with a change in ownership structure. In this paper we focus on the second form of price manipulation via change of top ownership. We analyze whether the change of the top ten owners is correlated with the premium of M&As. We expect positive effects for Chinese M&As.

2. Data Description

2.1. Data Definition

This paper analyzes M&As between 2013 and 2018 in the Shanghai and Shenzhen stock exchanges. Financial data of listed Chinese companies and information of M&As are available on the "Choice" data platform.[2] The year 2014

was chosen as the starting point because at that time the Chinese financial market had largely recovered from the impact of the financial crisis of 2007 – 2008 (Fidrmuc and Korhonen, 2010). Moreover, in 2014 the Chinese government implemented a new policy, the so called "Chinese Dream" (in Chinese: zhongguo meng). As part of this new policy, Chinese authorities started a gradual liberalization policy with the opening of the domestic equity market to international investors (Véron, 2016). Figure 1 shows that the number of M&As increased over the years, suggesting a rising interest in the Chines market. We can also clearly see the positive effect of the "Chinese Dream" in 2014.

F i g u r e 1
Chinese M&A Market Development
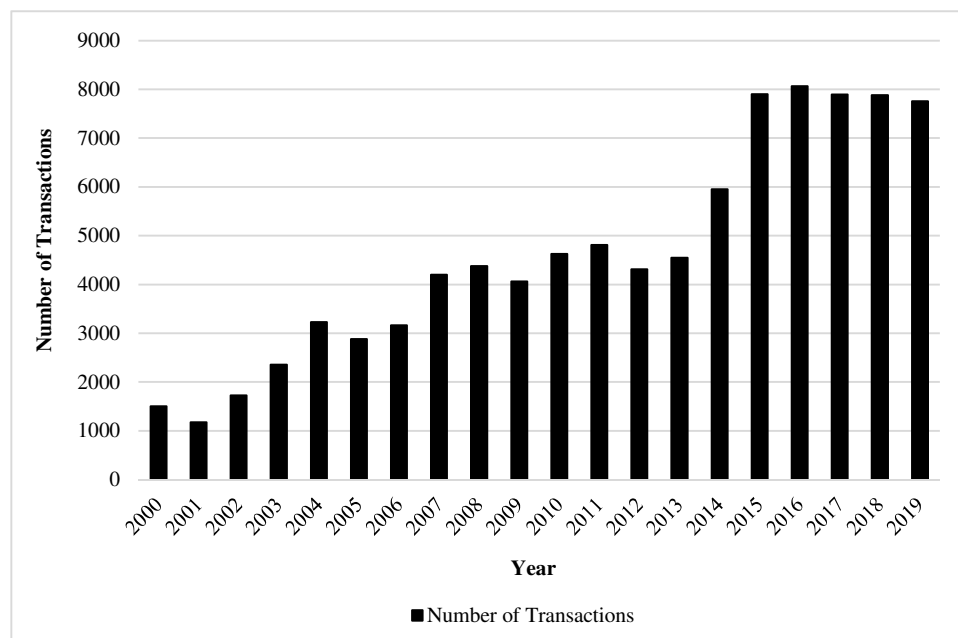
Source: <https://daxueconsulting.com/mergers-and-acquisitions/>.

The data set has been cleaned according to the following criteria: First, M&As are identified involving companies with zero goodwill before 2012, which then becomes positive in the analyzed year. Second, we exclude firms with incomplete financial data after the merger. Finally, we exclude companies that are under insolvency risk according to the "Exit Risk Warning System".

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[2] This platform <http://choice.eastmoney.com> provides financial data of listed companies on Shanghai, Shenzhen, Hong Kong and selected American stock exchanges. It covers bonds, futures, options, and other financial assets.

We use the following variables in our analysis:

Ownership change (ΔOWN) reflects that M&As may lead to a broader or more concentrated ownership structure of the resulting companies (Muravyev, 2017). The increase of ownership shares of the top ten owners[3] means that small shareholders are systematically crowded out from these companies. The ownership change, ΔOWN, is measured in percentage points.

Goodwill to total assets, the premium of M&As (*GW*) is defined as the difference between the acquirers' payment and the book value of the bought-out companies. This paper follows the existing literature and uses goodwill divided by total assets in the year of the merger as the proxy variable for the premium of the M&A. Moreover, M&As are defined as the logarithm of goodwill above the median value of goodwill in the analyzed years.

Economic value added per total assets (*EVA*) is a proxy for synergy effects of M&As. It is defined as the residual wealth calculated by deducting the cost of capital from its operating profit, adjusted for taxes on a cash basis divided by total assets. Moreover, the squared value of *EVA* (*SQEVA*) reflects possible nonlinearities (e.g., diminishing marginal effects) of *EVA*.

Control variables. The total logarithmic of assets (*SIZE*) at the end of the year controls for the size of the company. The leverage ratio (*LEV*) reflects the debt situation of the company. The systematic risk of a company is represented by (*BETA*), which compares the volatility of an individual stock to the volatility of the market. The total assets turnover ratio measures management ability (*MA*). For a more detailed description, the variables are described in Table A.1.

2.2. Descriptive Statistics

Table 1 presents descriptive statistics of all analyzed variables related to M&As between 2013 and 2018. The top ten owners hold, on average, about 62 percent of shares. During the mergers, ownership change is reduced only slightly, by –0.5 percentage points. However, there is a huge variation in the ownership change (between –36 and +56 percentage points), which indicates highly heterogeneous developments during the M&As. There is a similarly large difference in the goodwill to total assets, which is between zero and 66 percent of total assets. The average value of *economic value added* per total asset is –0.041, which reveals that the economic synergy effects after M&As are low. The average liability-assets ratio is moderate, at about 39 percent, but with a significant variance (ranging from 4 to 99 percent). The value of *system risk* and *management ability*

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[3] This number of ten major owners is high enough to ensure that the remaining ownership includes mainly small shareholders.

show large fluctuations, revealing large differences in risk and management abilities between the companies.

On the aggregate level, goodwill to total assets as well as share of the top ten owners increased during the analyzed period (see Figure 2). Despite of this, the correlation between goodwill and change of ownership remains low on the individual level (see Table A.2 in the Appendix for the correlation matrix). Similarly, correlations between the other variables are low as well.

T a b l e 1

Descriptive Statistical Results of Basic Regression Variables

Variable	Observations	Average	Std. Dev.	Min	Max
Ownership (top ten owners)	1,013	62.108	13.954	12.820	97.499
Ownership change	1,013	–0.546	10.377	–36.141	55.627
Goodwill to total assets	1,013	8.331	12.089	0.000	65.985
Economic value added per total assets	1,013	–0.041	0.087	–0.565	0.395
Squared value of *EVA* per total assets	1,013	0.009	0.026	0.000	0.319
Size	1,013	21.947	1.109	18.475	27.377
Leverage ratio	1,013	38.744	18.691	4.236	98.700
System risk	1,013	1.173	0.324	–0.123	3.259
Management ability	1,013	0.653	0.611	0.013	9.663

Source: Own calculations.

F i g u r e 2

Development of Share Top 10 Ownership and Goodwill to Total Assets
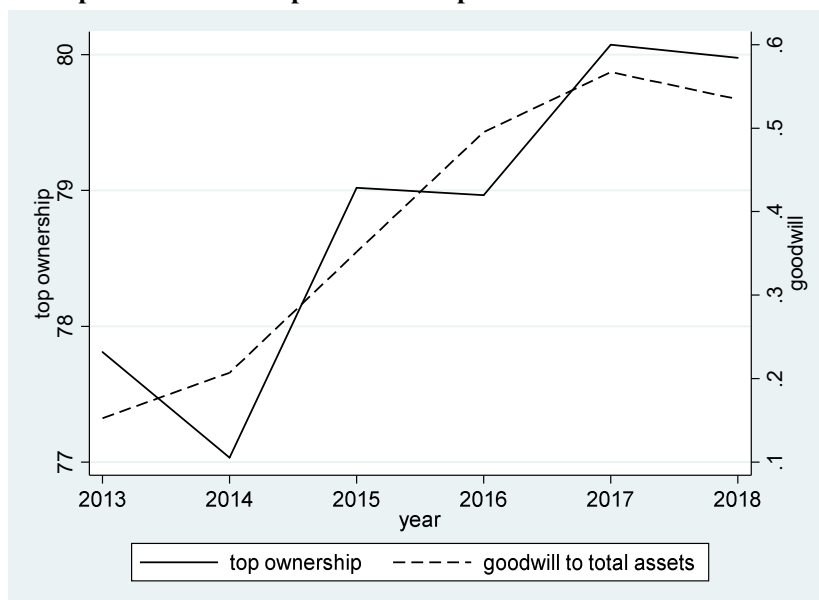
Note: Aggregate ownership of top ten owners is computed as a weighted average using total assets as weights.
Source: Own computation.

3. Empirical Results

Given the high dynamics of the Chinese economy in general, we focus only on the short-run effects of M&As. Thus, we estimate pooled OLS where each company is included only in the year of M&As,

$$\Delta OWN_i = \beta_0 + \beta_1 GW_i + \beta_2 EVA_i + \beta_3 SQEVA_i + \beta_4 SIZE_i + \beta_5 LEV_i +$$
$$+ \beta_6 BETA_i + \beta_7 MA_i + \sum_{s=1}^{S} \gamma_{si} + \sum_{t=2013}^{2018} \theta_{ti} + \varepsilon_i$$

The dependent variable is ΔOWN, the change of the ownership of top ten shareholders. The explanatory variables are goodwill to total assets, GW, and economic value added per total assets, EVA, while $SQEVA$ represents the squared value of EVA per total assets. Control variables are the company's size, $SIZE$, leverage ratio, LEV, systemic risk, $BETA$, as well as management ability, MA. The parameters γ and θ indicate the industry and time effects, respectively. The error term ε represents disturbances.

Despite explanatory variables do not show high multicollinearity (see Table A.2 in the appendix), we include the right-hand-side variables one by one in Table 2. In this way we can see the effect of each variable independently. Goodwill to total assets, GW, has a significant positive impact on the change of ownership of the top ten shareholders, ΔOWN.

This provides evidence that small shareholders tend to sell their shares if they face news on M&As related to their investments. This coefficient is not very large, but it is also important from an economic perspective. The increase of goodwill to total assets by one standard deviation will increase the share of the top ten owners (thus lower the share of small shareholders) by 1.4 to 1.7 percentage points.

The coefficients of Economic Value Added per total assets, EVA, and the squared value of EVA per total assets, $SQEVA$, are negative, but only the nonlinear coefficients are robustly significant at the 1 percent level. This shows that small shareholders increase their stocks at a diminishing marginal rate if synergy effects of M&As dominate. The company size, $SIZE$, is positively associated with the change of ownership of the top ten shareholders, ΔOWN. This suggests that price manipulations are greater for large companies. The liability-assets ratio, LEV, as well as the systemic risk, $BETA$, and management ability, MA, is not robustly associated with ΔOWN (see Table 3 and Table 4 for comparison). To sum up, the results indicate that the top shareholders can use M&As for price manipulations, which is crowding out small investors.

T a b l e 2

Change of Ownership and M&As

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Goodwill to total assets	0.125***	0.114***	0.137***	0.127***	0.112***	0.124***	0.143***
	(0.029)	(0.025)	(0.030)	(0.022)	(0.026)	(0.024)	(0.028)
Economic value added per total assets		−0.889	−3.366	−0.732	−1.553	−2.932	−5.434*
		(3.332)	(2.862)	(3.047)	(3.122)	(3.234)	(2.650)
Squared value of *EVA* per total assets		−74.624***	−56.536***	−68.741***	−75.284***	−76.813***	−58.973***
		(14.697)	(14.989)	(14.856)	(14.413)	(14.439)	(14.965)
Size			2.761***				2.664***
			(0.190)				(0.274)
Leverage ratio				0.072***			0.006
				(0.017)			(0.023)
System risk					−1.384*		−1.317*
					(0.683)		(0.684)
Management ability						1.519***	1.142**
						(0.424)	(0.401)
Intercept	4.989***	4.270***	−54.553***	1.751**	6.136***	2.061**	−52.569***
	(0.476)	(0.389)	(4.137)	(0.822)	(1.126)	(0.928)	(5.518)
Observations	1,013	1,013	1,013	1,013	1,013	1,013	1,013
Adjusted R^2	0.062	0.090	0.156	0.103	0.091	0.095	0.159

Note: Standard error clustered by sectors in parentheses. All regressions include sectoral and time effects, which are not reported. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Source: Own estimation.

4. Robustness Tests

Robustness checks with subsamples confirm the basic results presented in Table 2.[4] The coefficient of goodwill to total assets, *GW*, remains very similar in different robustness tests, while the control variables are less robust.

Firstly, we split the total sample by the value of premium and *EVA* per total assets (see Table 3), respectively. For the low premium (*GW* < median value) the coefficient of goodwill to total assets is positive but not significant, while for the high premium M&As (*GW* > median value), the coefficient of goodwill to total assets is positive and highly significant. This is consistent with price manipulations only for high-premium M&As. For the M&As with negative *EVA* per total assets (*EVA* < 0), the coefficient of goodwill to total assets, *GW*, is positive and highly significant, while the coefficient is only significant at the 10% level for the M&As with positive *EVA* per total asset (*EVA* > 0). This confirms that small shareholders are likely to consider a M&A characterized by a negative *EVA* per total asset as unattractive.

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[4] In this section, we present only the final specifications with all control variables for selected subsamples. More results are available upon request from the authors.

Secondly, we split the total sample according to regions as defined either by stock exchanges or provinces (see Table 4), respectively. We can see that the coefficient of goodwill to total assets, *GW*, is positive and significant in both stock exchanges, but it is slightly higher in Shanghai. This implies that the price manipulations of high-premium M&As of listed companies in the Shanghai stock exchange is more common than in Shenzhen. Since Shanghai is the traditional financial center in China, the listed companies include many state-owned enterprises. Tunneling in state own companies may be more common. In recent years, tunneling in state-owned enterprises has been regularly reported (Hu and Sun, 2019). Major shareholders can force their personal interests through corruption. Similarly, the goodwill to total assets coefficients are positive and significant in both regions, but it is higher for the M&As registered in Central and West China. Economic development differs substantially between East China and the remaining provinces. The capital market in East China is more dynamic than in other Chinese regions. Correspondingly, trading is more common.

Moreover, economic institutions in East China are more mature, which is important for financial developments in general (Kapounek, 2017; Kapounek, Kučerová and Fidrmuc, 2017). Additionally, from the perspective of the centralization of public administrations, price manipulation is easier in peripheral regions.

T a b l e 3

Change of Ownership and M&As by Price Premium and *EVA* Distribution

	Low premium	High premium	Negative *EVA*	Positive *EVA*
Goodwill to total assets	0.294	0.127***	0.169***	0.100*
	(0.487)	(0.021)	(0.035)	(0.055)
Economic value added per total assets	−2.197	−6.650*	−9.460	8.324
	(6.173)	(3.725)	(11.352)	(23.389)
Squared value of *EVA* per total asset	−55.020**	−55.254***	−60.407**	−105.848
	(25.598)	(15.153)	(27.731)	(78.058)
Size	1.956***	4.289***	3.275***	2.292***
	(0.295)	(0.689)	(0.528)	(0.561)
Leverage ratio	0.015	0.000	0.015	−0.005
	(0.027)	(0.028)	(0.023)	(0.035)
System risk	−0.737	−2.218**	−1.805*	−0.946
	(0.930)	(0.912)	(1.007)	(1.504)
Management ability	0.407	2.246***	2.312**	−0.330
	(0.649)	(0.675)	(0.936)	(0.786)
Intercept	−37.866***	−93.646***	−73.514***	−50.730***
	(5.826)	(13.325)	(11.267)	(11.830)
Observations	507	506	724	289
Adjusted R^2	0.177	0.154	0.179	0.0885

Note: Standard error clustered by sectors in parentheses. All regressions include sectoral and time effects, which are not reported. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Source: Own estimation.

The coefficient of *EVA* per total assets, *EVA*, is mainly statistically insignificant – this is in line with the baseline model. The squared value of *EVA* per total assets, *SQEVA*, is negative and statistically significant for low and high premium M&As, but only for M&As with a negative *EVA* per total assets. It is also negative and statistically significant for the Shenzhen and Shanghai stock exchange, which are in East China. It is negative and statistically insignificant for Central and West China.

The control variable company size, *SIZE*, is positive and statistically significant for all specifications of the robustness analysis. In contrast, the liability-assets, *LEV*, ratio is statistically insignificant in all specifications of the robustness check. Systematic risk, *BETA*, and management ability, *MA*, have expected signs, but are not robust.

Summing up the robustness analysis results, the motivation for price manipulations is stronger in financially less developed regions. Synergy effects have a diminishing negative effect on the change of ownership of the top ten shareholders. The control variables are less robust. Finally, from the perspective of the centralization of public administrations, price manipulations are easier and more common in peripheral regions.

T a b l e 4

Change of Ownership and M&As by Region

	Stock exchanges		Economic regions	
	Shenzhen	*Shanghai*	*East*	*Central & West*
Goodwill to total assets	0.135*** (0.033)	0.253*** (0.050)	0.114*** (0.035)	0.249*** (0.037)
Economic value added per total assets	−1.460 (4.586)	−13.983** (5.765)	−9.005** (3.427)	18.147* (9.351)
Squared value of *EVA* per total assets	−39.373*** (11.835)	−97.362*** (21.740)	−65.264*** (13.957)	26.403 (47.779)
Size	2.726*** (0.521)	2.612*** (0.430)	2.440*** (0.287)	2.999*** (0.840)
Leverage ratio	−0.001 (0.021)	0.001 (0.030)	0.018 (0.033)	0.007 (0.032)
System risk	−1.733** (0.708)	−0.945 (1.294)	−0.333 (0.703)	−3.571** (1.396)
Management ability	1.282*** (0.377)	0.620 (1.873)	0.747 (0.531)	2.399** (0.992)
Intercept	−53.266*** (11.223)	−58.092*** (10.533)	−33.701*** (6.389)	−70.845*** (17.434)
Observations	688	325	747	266
Adjusted R^2	0.127	0.227	0.186	0.158

Note: Standard error clustered by sectors in parentheses. All regressions include sectoral and time effects, which are not reported. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Source: Own estimation.

Conclusions

Reflecting the increasing importance of M&As in China, this paper analyzes the motivation of high-premium M&As from the perspective of synergy effects and price manipulations. Our results show that economic synergy effects are less important for high-premium M&As. The high price premium often does not correspond to expected integration effects. Moreover, we document that small shareholders significantly reduce their stocks in companies with poor prospects. This "voting with their feet" effect of small investors is stronger for high premium M&As, as well as for M&As registered in Shanghai and for peripheral companies in Central and West China. The result that synergy effects are less important for high premium M&As is in line with Slusky and Caves (1991). Our results highlight that price manipulations and rent-seeking of managers and main owners are a key determinants for M&As in China. Thus, more research on M&As in China and its relation to the so called 'guanxi' system of doing business is necessary.

The Chinese stock market was founded only about 30 years ago (Véron, 2016). Hence some properties are not perfect, which leads to insufficient protection of small and medium-sized investors. The protection of minority shareholders is a half-hearted issue in corporate governance (Tomasic and Andrews, 2007). Annual meetings are often controlled by large state shareholders. Consequently, the interests of small, and medium-sized investors can be ignored in relevant decisions as boards of directors lack independence. Moreover, small and medium-sized shareholders face issues of asymmetric information.

To prevent major shareholders from performing price manipulations and effectively protecting minor shareholders, this paper gives suggestions for dealing with internal governance supervision. First, supervisory authorities should improve the internal management mechanisms of companies, establish stable ownership structures, and improve the supervision of professional managers. Second, Chinese authorities should improve the system of external market supervision and mechanism of information disclosure. Hence, when the Market Supervisory Department focuses on the supervision function of the entire M&A process, cases of price manipulations by major shareholder will be reduced.

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A p p e n d i x

T a b l e A.1

Definition and Description of Variables

Name	Label	Variable description
A. Dependent Variable		
Ownership change	ΔOWN	Change of ownership of top ten owners.
B. Explanatory Variables		
Goodwill	GW	Goodwill to total asset at the end of the year of merger and acquisition.
Ratio of economic value added per total assets	EVA	Economic value added is the residual wealth calculated by deducting the cost of capital from its operating profit, adjusted for taxes on a cash basis. It is computed as (NOPAT–IC) ×WACC, where NOPAT is net Operating Profit After Taxes, IC is the Invested Capital, and WACC is Weighted Average Cost of Capital. This indicator is divided by total assets.
The squared value of EVA per total assets	SQEVA	The squared value of EVA is a proxy for diminishing marginal effect of EVA.
C. Control Variables		
Size	SIZE	Logarithm of total assets at the end of the year of merger and acquisition.
Leverage ratio	LEV	Liabilities to assets ratio at the end of the year of merger and acquisition.
System risk	BETA	Mean value of systemic risk at the end of the year of merger and acquisition.
Management ability	MA	Total turnover to assets ratio at the end of the year of merger and acquisition.

Source: Own compilation.

T a b l e A.2

Correlation Matrix

	ΔOWN	GW	EVA	SQEVA	SIZE	LEV	BETA	MA
ΔOWN	1							
GW	0.0179	1						
EVA	0.0521	–0.0395	1					
SQEVA	–0.1156	–0.0147	–0.0529	1				
SIZE	0.1882	–0.1677	0.0991	–0.0594	1			
LEV	0.1128	–0.2456	0.0243	–0.0415	0.5585	1		
BETA	–0.0460	0.0325	–0.0609	–0.0055	–0.0804	0.0127	1	
MA	0.0129	–0.1282	0.0921	0.0007	0.0641	0.1222	–0.0836	1

Source: Own computation.