Does M&A Financing Affect Firm Performance under Different Ownership Types?

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Abstract: Mergers and acquisitions (M&A) are an essential way for enterprises to achieve sustainable development. As large sums of money are typically involved in M&A transactions, financing is a vital factor in outcomes. This study examines the relation between equity and debt financing of M&A on subsequent performance, and the effect of ownership (state-owned enterprises versus private-owned enterprises) on M&A performance in China. We are motivated to examine the relation between financing methods and M&A performance in China because the differences in ownership, resource availability and policy support by the government for many firms may affect subsequent performance. Using a large sample of Chinese A-share listed companies between 2009 and 2016, we find that equity-financed M&A transactions lead to significantly better performance than debt-financed transactions. Equity-financed M&A transactions of state-owned enterprises (SOEs) perform significantly better as compared to debt-financed M&A, whereas equity-financed M&A transactions of private-owned enterprises (POEs) have little effect on their performance. This study extends our insights into the relation between M&A financing types and firm performance under different ownership types in the context of emerging markets.

Keywords: M&A performance; financing method; ownership; sustainable development; emerging markets

1. Introduction

Mergers and acquisitions (M&A) are an important strategy for enterprises to ensure their sustainable competitive position [1]. Given the enormous sums of money involved in M&A transactions, it is difficult for acquirers to complete deals only by their internal accumulation of funds [2]. Accordingly, financing has become a crucial link. In fact, different M&A financing methods are related to different M&A capital costs, financial risks, and governance structures, each of which then provides signals to the market that can affect the success or failure of the M&A directly, as well as the subsequent performance of acquirers.

As González-Torres et al. (2020) [1] point out in their latest study, M&A financial performance is in the hotspot on sustainability in M&A [3–5], which is highly related to the economic pillar of sustainability. Most of the existing Western studies on M&A investment strategies [6,7] and M&A financing strategies [8,9] in relation to financial performance do not strictly distinguish between M&A payment methods and financing methods, or even mix the two [10,11]. There are few studies on M&A financing methods alone, and the conclusions of the research are inconsistent. Based on the debt monitoring hypothesis, debt financing may serve to reduce the extent of self-interested behavior, thereby reducing agency costs and improving financial performance [12]. Based on signaling theory

and the free cash flow hypothesis, Martynova and Renneboog (2009) [13] show that debt financing can enhance the market value of acquirers in Europe. Instead, Fischer (2017) [14] show that debt-financed M&A underperform relative to equity-financed M&A. However, these theories explain and support the findings only partially, owing to the unique institutional environment and regulatory requirements in China.

We are motivated to examine the M&A performance of Chinese firms for a number of reasons. As China's economy began to recover after the 2008 global financial crisis, M&A transactions of Chinese listed companies have become commonplace. In 2019, the total volume of global M&A transactions reached $4.09 trillion. Among them, the scale of M&A transactions of Chinese enterprises was $486 billion, accounting for 11.87% [15]. As a powerful means of adjusting industrial structure, resolving excess capacity, and achieving innovative development, M&A have proven effective in promoting China's supply-side structural reform [2]. Governmental influence in China is significant, so state-owned enterprises (SOEs) are provided with considerably more resources [16], policy support and financing choices than their private-owned enterprise (POE) counterparts [17]. Therefore, the impact of M&A financing methods on performance may vary depending on the ownership types. Previous studies based on China have shown that domestic and cross-border M&A performances are affected by ownership, and state ownership leads to value creation [18–21]. Boateng and Bi (2014) [22] find that state ownership has a significant impact on the method of payment, and clarify the implication of payment methods on acquirers' stock returns. Prior research has not fully addressed the effect of ownership types on the ensuing financial performance of acquirers after M&A under different financing methods in the China context.

Accordingly, the goal of this study is to examine the impacts of equity and debt financing on M&A performance and further analyze the relation under different types of ownership using transactions of Chinese A-share listed companies with cash as the payment method from 2009 to 2016 as a sample. We find that equity-financed M&A transactions lead to significantly better performance than debt-financed transactions. Compared to debt-financed M&A transactions, equity-financed M&A transactions of state-owned enterprises (SOEs) improve their performance significantly, while equity-financed M&A transactions of private-owned enterprises (POEs) have little effect on their performance.

This study contributes to the research and practice in M&A and the economic pillar of sustainability. First, in terms of research objects, it enriches the research results on M&A financing theory in emerging market countries. Unlike a majority of Western-based studies that highlight the positive effects of debt financing on ensuing firm performance, it provides new evidence that in a rapidly developing economy with unique legal requirements and institutional environments, China, equity-financed M&A transactions lead to significantly better performance than debt-financed transactions. Second, in terms of research perspectives, different from the recent studies on China that highlight the beneficial role the Chinese government has had in value creation through facilitating M&A deals [2,23,24], the impact of ownership on M&A payment methods, and the impact of payment methods on stock price returns [22], we examine the joint effects of both financing methods and ownership on M&A financial performance. This is important because both financing choices and ownership will affect the competitiveness, resourcing, costs and effective functioning of acquirers. Third, from a practical perspective, it offers a reference for national macro-policy formulation and guides M&A financing decisions of listed companies, resulting in improved performance and sustainable development.

The remainder of this paper proceeds as follows. Section 2 outlines the institutional aspects of the Chinese M&A market and develops our hypotheses. Section 3 describes the data and methodology. Section 4 presents our empirical results. Finally, Section 5 concludes the paper.

2. Theory and Hypothesis Development

2.1. Equity-financed and Debt-financed M&A Deals in Western Countries

Prior Western research tends to explain the impact of M&A financing methods on M&A performance based on the debt governance hypothesis and on signaling theory. Firm management that acts in their own self-interest can reduce cash flows, liquidity, and firm value, and may act incompetently, for example, by making unprofitable M&A decisions [12]. Debt financing has the potential to improve M&A performance [8,25]. Based on the debt governance hypothesis, debt financing may serve to reduce the extent of self-interested behavior, thereby reducing agency costs and increasing firm value [12]. However, Hackbarth and Mauer (2012) [26] argue that debt financing restricts managements' control of free cash flows, thereby restricting the control of shareholders' private benefit, and can assist in improving the investment efficiency of firms.

According to signaling theory, shareholders and executives influence the investment decisions of external investors by transmitting internal information to them. Based on the disclosure of financing methods, external investors can judge the value and future growth of the company. Through debt financing, acquirers send a signal to the market that shareholders and executives have higher expectations of future earnings. As a result, it is easier for the company to obtain the required debt funds from the market, the cost of capital is reduced, and the performance of the company is improved. However, equity financing conveys a negative signal to the market that the stock price of the company is overvalued. Investors believe that the overvalued stock price is not conducive to the long-term operational efficiency of the company, and they are unwilling to buy stock, thereby increasing financing costs and reducing firm performance. Martynova and Renneboog (2009) [13] show that debt financing can enhance the market value of M&A firms in Europe. They purport that debt financing can signal to investors that managers believe that the current stock price is fair. Equity financing, in contrast, can convey information that the stock price of a firm is overvalued to the market, resulting in weaker market performance following M&A [8,25], or create value for long-term shareholders [27]. Fischer (2017) [14] shows that debt-financed M&A underperform relative to equity-financed M&A. Based on signaling theory and the free cash flow hypothesis, Barron et al. (2008) [28] assert that equity-financed M&A signal to the market that the cumulative net present value of investment projects exceeds zero, thus improving performance, while debt financing has no significant impact on M&A performance.

In summary, a majority of Western-based studies highlight the positive effects of debt financing. These studies conjecture that debt financing facilitates monitoring and sends a signal to the market that the stock price is undervalued, which can improve corporate performance.

2.2. Equity-financed and Debt-financed M&A Deals in the Chinese Context

Prior research in the Chinese context questions the monitoring effect of debt covenants on listed companies. This may lead to lowering M&A performance for debt-financed M&A deals. For instance, inefficient M&A may make it difficult for investors to analyze the intrinsic value of the listed companies. Therefore, investors can consider only the impact of major decisions on the company's accounting income when making investment decisions. Prior M&A research in the Chinese context is based mainly on the function fixation hypothesis, whereby different M&A financing methods have different financing costs that will affect profitability directly. Liu et al. (2004) [29] find that although the initial issuance cost of equity financing is high, Chinese listed companies can usually obtain a high issuance premium and rarely pay cash dividends. Compared with debt financing that requires the repayment of principal and interest, equity financing has lower capital costs and higher accounting profits. Zhai et al. (2011) [30] analyze large-scale M&A transactions of Chinese listed companies from 2002 to 2006. They find that equity financing improves the financial performance of acquirers and eventually increases shareholder value, in agreement with the findings reported in Dutta et al. (2013) [11], while the financial performance of debt financing will decline because the principal and interest must be repaid. Li (2018) [31] calculates the capital cost of different financing methods and concludes that the capital

cost of equity financing is the lowest. Through equity financing, acquirers can obtain sufficient funds to complete M&A deals, resulting in enhanced M&A performance.

In equity-financed M&A, Chinese listed companies need to pay only the handling fees related to the issuance of shares, without using significant internal funds. This arrangement can reduce the pressure on acquirers, help to sustain operations, and assist acquirers to complete M&A integration successfully and to better obtain future investment opportunities. However, debt financing can lead to reduced turnover, which may affect the operations of acquirers. In terms of control, Chinese listed companies use equity financing for M&A. They are willing to hold the target company's shares for a long time, indicating that they have confidence in the future of the company. In addition, long-term shareholding will encourage institutional investors and related parties to monitor the company actively in order to improve the level of corporate decision-making, which will ultimately improve performance. Wright et al. (2002) [32] show that institutional investors influence the profitability of acquisitions. They can play a monitoring role under equity financing.

The debt governance hypothesis and signaling theory are commonly used in developed Western capital markets to explain the impact of M&A financing on performance. However, in the Chinese context, there is a functional fixation phenomenon. Investors pay more attention to the impact of M&A decisions on the accounting results of acquirers. From the perspective of risk and return, equity financing can reduce leverage without the requirement for paying dividends. Hence, equity-financed companies are subject to reduced financial risk and cost as compared with firms using debt financing. Based on the aforementioned discussion, we propose the following hypotheses:

Hypothesis 1 (H1). *Equity-financed M&A deals will increase subsequent performance.*

Hypothesis 2 (H2). *Debt-financed M&A deals will reduce subsequent performance.*

2.3. M&A Financing, Ownership, and M&A Performance

In transition economies and emerging market countries, financing activities are influenced greatly by government performance goals. The relation between M&A financing methods and M&A performance is affected by the characteristics of acquirers, such as ownership [33]. Prior research in this area maintains that the government's preference leads to higher M&A performance for SOEs than for POEs [2]. The close relationship with the state-owned financial system reduces the financial constraints of SOEs and generates benefits through value-added tax breaks and favorable financing [34]. That relationship not only improves the probability of success of M&A transactions but also means SOEs have sufficient funds for resource integration. Kornai et al. (2014) [35] propose that socialist countries have a kind of "paternalism" for SOEs that eases their financial constraints significantly. Bortolotti and Faccio (2009) [36] point out that government intervention in the economic activities of firms is widespread in emerging market economies. Du and Boateng (2015) [2] suggest that the government plays a vital role in the value creation of cross-border M&A among emerging market enterprises. There is no significant difference in the short-term governance performance after M&A, while SOEs' performance is better than that of POEs in the long run because of governmental support. Governmental support for M&A deals may be motivated because such deals will facilitate access to strategic assets, natural resources, technology, and certain high-level skills and competencies for SOEs. However, because M&A decisions are costly, with approvals required across several layers of government control, and may be subject to political influence, they have the potential to affect the value of M&A deals. Zhou et al. (2015) [20] demonstrate that equity financing can effectively improve M&A performance, and that its impact will be affected by ownership type and level of national financial development. In their examination of M&A transactions among Chinese A-share listed companies from 2009 to 2011, Boateng et al. (2017) [23] consider that there is no "inaction" among SOEs after M&A. On the contrary, M&A performance is significantly better than that of POEs because they can obtain abundant resources and financial support from the government that is conducive to M&A integration.

Wang and Shailer (2017) [37] highlight the critical role of the government and its agents in Chinese capital markets, especially in the M&A process, after examining the effects of state ownership on M&A performance of Chinese acquirers. Although they find that the market generally has more confidence in POEs in the short term, SOEs' performance improves significantly more in the long run than that of POEs after M&A, mainly because SOEs can make full use of their governmental privilege, such as a rapid and smooth approval process, priority for production inputs, and the ability to find reliable M&A partners and obtain funding. Zhang et al. (2018) [38] report that in the Chinese ecological-economic environment, SOEs are favored by the government, resulting in a positive effect of equity financing on M&A performance, while POEs face financial discrimination from the government and do not improve their performance significantly. Ma et al. (2016) [39] show that in emerging markets with high levels of government intervention and weak protection for minority shareholders, the political connections of managers have a significant impact on M&A decisions and performance. They argue that the SOEs' greater political burden of meeting local political objectives and maintaining regional employment rates undermines the performance of acquirers.

In summary, in China's current transitional economic environment, ownership has an important impact on corporate financing activities through government intervention. Although some SOEs may sacrifice part of their economic interests in order to meet the government's objectives, the government, in turn, provides financial subsidies and support. Therefore, compared with POEs, government resources make it easier for SOEs to acquire high-quality targets and provide advantages in financing. Equity financing means more self-owned funds are reserved for M&A integration, so as to obtain better investment opportunities and, in effect, improve M&A performance. At the same time, POEs suffer from governmental financial discrimination and face greater financing difficulties, thus restricting the role of equity financing in M&A performance. Based on the aforementioned discussion, the following hypotheses are proposed:

Hypothesis 3 (H3). *Compared with debt financing, equity financing by SOEs will improve their M&A performance.*

Hypothesis 4 (H4). *Compared with debt financing, equity financing by POEs will not significantly improve their M&A performance.*

3. Data and Methodology

3.1. Sample Selection and Data Sources

We use data on M&A transactions initiated by Chinese A-share listed companies between 2009 and 2016. The M&A data are obtained from the China Stock Market and Accounting Research Database (CSMAR) of Chinese listed companies' M&A activities. Financial data are obtained from the CSMAR financial statements and financial index analyses. We winsorize variables at the 1st and 99th percentiles to reduce the potential impact of outliers. Additionally, the following are excluded from the analysis: (1) failed M&A transactions; (2) stock repurchase, divestiture, debt restructuring, and asset replacement transactions; (3) companies with missing relevant information such as financing methods and significant financial indicators; (4) companies with a transaction amount of less than 10 million yuan; (5) M&A transactions of financial companies; and (6) M&A transactions of special treatment (ST) companies. In addition, if a company announced multiple M&A transactions within a calendar year, the biggest transaction is selected; if a company announced multiple M&A transactions on the same day, the transactions are merged. According to the above criteria, we obtain 450 M&A transactions, as shown in Table 1.

Table 1. Sample distribution.

	SOE	**POE**	**Total**
Equity financing	80	215	295
Debt financing	39	116	155
Total	119	331	450

3.2. Sample Description

3.2.1. Dependent Variable

The dependent variable in this study is the long-term financial performance of acquirers. We select 14 indicators from five categories encompassing profitability, solvency, operating ability, development ability, and shareholder profitability in order to evaluate M&A performance, as single financial indicators cannot eliminate the manipulation of profits by acquirers [40,41]. We construct an index evaluation system for M&A performance of listed companies to measure the performance of acquirers, as shown in Table 2.

Table 2. Mergers and acquisitions (M&A) performance evaluation index.

Capability indicator	Symbol	Variable	Calculation methods
Profitability	(1) ROA (2) ROE (3) EPS	(1) Return on assets (2) Return on net assets (3) Earnings per share	(1) Net profit/total assets (2) Net profit/net assets (3) Net profit/total shares
Solvency	(1) LEV (2) FR (3) QR	(1) Asset-liability ratio (2) Current ratio (3) Quick ratio	(1) Total liabilities/total assets (2) Current assets/current liabilities (3) (Current assets - inventory)/current liabilities
Operating capacity	(1) ATR (2) RTR (3) ITR	(1) Total asset turnover (2) Receivable turnover (3) Inventory turnover	(1) Operating income/total assets (2) Operating income/accounts receivable (3) Operating cost/inventory
Development ability	(1) AGR (2) OGR (3) PGR	(1) Total asset growth rate (2) Operating income growth rate (3) Net profit growth rate	(1) (Total assets at the end of this year - total assets at the end of last year)/total assets at the end of last year (2) (Operating income this year - operating income last year)/operating income last year (3) (Net profit this year - net profit last year)/net profit last year
Shareholder profitability	(1) APS (2) TQ	(1) Net assets per share (2) Tobin's Q	(1) Net assets/total shares (2) Stock market value/asset replacement cost

3.2.2. Independent Variable

The independent variable in this study is M&A financing. We divide M&A financing methods into equity financing (Fin = 1) and debt financing (Fin = 0). Equity financing is mainly to issue funds through issuing or converting shares. Debt financing is funding through borrowing.

3.2.3. Control Variables

M&A performance is influenced by several factors. We select ownership, correlation, M&A scale, company size, financial leverage, operating cash flow, manager confidence, growth, industry, and year as control variables [42,43]. The measurements of these variables are provided in Appendix A.

3.3. Comprehensive Evaluation Model

In order to examine the impact of M&A transactions on the performance of Chinese listed companies, we select 14 financial ratios of four years before and after the M&A event and perform principal component analysis. The indicators are measured for the year before the M&A transaction, the year of the M&A transaction, and the first and second years after the M&A transaction. The principal component analysis is measured by extracting a relatively small number of common factors across many indicators and weighting them with a variance contribution rate to obtain a higher degree of interpretation with fewer variables.

The first step is to establish a comprehensive score model for M&A performance:

$$Y_{mn} = \alpha_{n1}ROA_m + \alpha_{n2}ROE_m + \alpha_{n3}EPS_m + \alpha_{n4}LEV_m + \alpha_{n5}FR_m + \alpha_{n6}QR_m + \alpha_{n7}ATR_m + \alpha_{n8}RTR_m \quad (1)$$

$$\alpha_{n9}MTR_m + \alpha_{n10}AGR_m + \alpha_{n11}OGR_m + \alpha_{n12}PGR_m + \alpha_{n13}APS_m + \alpha_{n14}TQ_m$$

where Y_{mn} represents the score of the mth common factor in the nth sample company, and α represents the score coefficient of the mth common factor on the corresponding index variable.

The second step is to construct a comprehensive evaluation model based on the common factor score and the variance contribution rate of the factor function:

$$F_m{}^t = \beta_{m1}Y_{m1} + \beta_{m2}Y_{m2} + \ldots + \beta_{mn}Y_{mn} \quad (2)$$

where t represents the relative time, $F_m{}^t$ represents the comprehensive score of the mth sample company's M&A performance in year t, and β_{mn} represents the variance contribution rate of the nth common factor of the mth sample company.

3.4. Multiple Regression Model

We then perform ordinary least squared regression to examine the impact of M&A financing methods on performance:

$$Per_m = \beta_0 + \beta_1 Fin + \beta_2 Rel + \beta_3 Sca + \beta_4 Size_{t-1} + \beta_5 Lev_{t-1} + \beta_6 TOP_{t-1} + \beta_7 CF_{t-1} +$$
$$\beta_8 Con_{t-1} + \beta_9 Gro_{t-1} + \beta_{10} SOE + Ind + Year + \varepsilon \quad (3)$$

4. Empirical Analysis

4.1. Empirical Analysis of the Overall Sample

4.1.1. Calculation of the Comprehensive Score

First, as shown in Table 3, the Kaiser-Meyer-Olkin(KMO) and Bartlett's tests on the financial index variables of sample companies show that the correlation coefficient matrix is not a unit matrix and the KMO value is higher than 0.50, indicating that the overall sample is suitable for factor analysis.

Table 3. KMO and Bartlett's tests.

		F^{-1}	F^0	F^1	F^2
KMO		0.61	0.58	0.58	0.62
Bartlett's	Approx. Chi-Square	2695.44	3289.91	3085.78	3805.41
	df	91	91	91	91
	Sig.	0.00	0.00	0.00	0.00

Second, we extract the factor according to the principle that the total variance contribution rate is higher than 80%. Through factor analysis of 14 financial indicators for a total of four years before and

after the M&A of 450 sample companies, we extract six common factors of Y_1, Y_2, Y_3, Y_4, Y_5, and Y_6 from each year. The common factor coefficients are shown in Table 4.

Table 4. Common factor coefficients.

	Y_1	Y_2	Y_3	Y_4	Y_5	Y_6	Total
F^{-1}	20.42	18.26	14.79	11.00	9.23	7.68	81.43
F^0	19.21	18.31	16.18	10.92	8.47	7.50	80.60
F^1	21.62	18.30	13.60	10.77	8.52	7.85	80.65
F^2	21.93	19.48	14.22	10.55	9.26	6.90	82.34

Finally, according to the factor score and the variance contribution rate obtained in the above table, we calculate the comprehensive score function of four different years.

The first point is the acquirers' comprehensive score function one year before M&A:

$$F_m{}^{-1} = (20.42\%Y_{m1} + 18.26\%Y_{m2} + 14.79\%Y_{m3} + 11.00\%Y_{m4} + 9.23\%Y_{m5} + 7.68\%Y_{m6})/81.43\% \quad (4)$$

The second point is the acquirers' comprehensive score function in the year of M&A:

$$F_m{}^0 = (19.21\%Y_{m1} + 18.31\%Y_{m2} + 16.18\%Y_{m3} + 10.92\%Y_{m4} + 8.47\%Y_{m5} + 7.50\%Y_{m6})/80.60\% \quad (5)$$

The third point is the acquirers' comprehensive score function in the first year after M&A:

$$F_m{}^1 = (21.62\%Y_{m1} + 18.30\%Y_{m2} + 13.60\%Y_{m3} + 10.77\%Y_{m4} + 8.52\%Y_{m5} + 7.85\%Y_{m6})/80.65\% \quad (6)$$

The fourth point is the acquirers' comprehensive score function in the second year after M&A:

$$F_m{}^2 = (21.93\%Y_{m1} + 19.48\%Y_{m2} + 14.22\%Y_{m3} + 10.55\%Y_{m4} + 9.26\%Y_{m5} + 6.90\%Y_{m6})/82.34\% \quad (7)$$

Using the above comprehensive score models, the comprehensive scores of the financial performance of sample companies are calculated to gauge the performance trend before and after M&A. The impact of different financing methods on M&A performance is then analyzed.

4.1.2. Differences in M&A Performance under Different Financing Methods

To examine the changes in the performance of listed companies before and after M&A, and to compare the performance differences caused by different financing options, we conduct a group test on the scores between four intervals before and after M&A. The comprehensive test results are shown in Table 5.

Table 5. Comprehensive test results of the group sample.

F difference	$F^0 - F^{-1}$	$F^1 - F^{-1}$	$F^2 - F^{-1}$	$F^1 - F^0$	$F^2 - F^0$	$F^2 - F^1$
Equity financing	0.0036	0.0332[**]	0.0356[*]	0.0296[*]	0.0320[*]	0.0024
	(0.159)	(1.094)	(1.239)	(1.208)	(1.186)	(0.080)
Debt financing	−0.0018	−0.0620[***]	−0.0632[***]	−0.0602[**]	−0.0615[**]	−0.0013
	(−0.039)	(−1.990)	(−1.630)	(−1.600)	(−1.361)	(−0.042)

The t-statistics are reported in parentheses under the estimated coefficients. [***], [**], and [*] indicate significant levels at 1%, 5%, and 10%, respectively.

Table 5 suggests that when acquirers choose equity financing, the performance of the first and second years after M&A trends upward, compared with the year before M&A. The performance difference is significant at the 10% level, indicating that equity financing can improve post-M&A performance effectively and confirming H1. When acquirers choose debt financing, the performance after M&A continues to decline, meaning that debt financing will significantly reduce post-M&A performance. Therefore, H2 is also confirmed.

4.2. Financing Method and Post-M&A Performance

After comparing post-M&A performance under different financing methods, we take the post-M&A performance of listed companies as the dependent variable, use financing method as the independent variable, and add other factors that affect M&A performance as the control variables to construct the regression model and analyze the impact of financing methods on post-M&A performance.

4.2.1. Descriptive Statistics

In order to grasp the overall situation of samples, we conduct a descriptive statistical analysis of the variables selected in Section 3. The results are shown in Table 6.

Table 6. Descriptive statistical analysis.

	Sample size	Mean	Standard deviation	Median	Minimum	Maximum
Per	450	0.0016	0.4938	0.0161	−2.0979	2.7627
Fin	450	0.6560	0.4757	1	0	1.0000
SOE	450	0.2640	0	0	0.4415	0
Rel	450	0.3560	0.4792	0	0	1
Sca	450	19.9150	1.4475	19.9267	16.2579	24.1411
Size	450	21.7877	1.1542	21.6259	18.6108	27.0010
Lev	450	0.3983	0.2078	0.3836	0.0277	1.3986
TOP	450	0.3439	0.1437	0.3329	0.0812	0.9900
CF	450	0.0370	0.0724	0.0388	−0.3835	0.2688
Con	450	0.4233	0.1918	0.3996	0.1389	2.9939
Gro	450	0.2546	1.1229	0.0857	−0.7526	21.0074

From the table, we can see that the mean and median of post-M&A performance are greater than 0, indicating that most M&A transactions improve the financial performance of the company. The mean value of M&A financing methods is 0.6560, indicating that 65.6% of sample companies use the equity financing method in the process of M&A. The mean value of related transactions is 0.3560, indicating that 35.6% of the sample M&A transactions are related party transactions. The mean value of ownership is 0.2640, indicating that 26.4% of all samples are M&A events of SOEs.

4.2.2. Correlation Analysis

Table 7 reports the Pearson correlation analysis results between the main variables, showing that M&A performance is correlated positively with equity financing, which is consistent with our expectations. The correlation coefficient between the variables is less than 0.4, which preliminarily shows that there is no high correlation between variables.

Table 7. Correlation coefficients of the main variables.

	Per	Fin	Rel	Sca	Size	Lev	TOP	CF	Con	Gro	SOE
Per	1.000										
Fin	0.095**	1.000									
Rel	0.068**	0.206***	1.000								
Sca	0.029	0.283***	0.352***	1.000							
Size	−0.050*	−0.086**	0.258***	0.288***	1.000						
Lev	0.143***	−0.077**	0.226***	0.139***	0.379***	1.000					
TOP	0.046*	0.056*	0.107**	0.017	0.155***	0.135***	1.000				
CF	−0.025	−0.024	0.078**	0.010	0.069	−0.120**	0.029	1.000			
Con	−0.010	0.004	0.005	−0.048	−0.124	−0.014	0.000	0.095**	1.000		
Gro	−0.267***	−0.080**	−0.040	−0.067	0.019*	−0.046	−0.080**	−0.095**	0.028	1.000	
SOE	−0.109***	0.021	0.355***	0.146***	0.370***	0.259***	0.186***	0.043	−0.002	−0.091**	1.000

The t-statistics are reported in parentheses under the estimated coefficients. ***, **, and * indicate significant levels at 1%, 5%, and 10%, respectively.

4.2.3. Multiple Regression Analysis

It can be seen from Table 8 that the model has passed the F test, P < 1%, which is suitable for analyzing the effect of each factor on post-M&A performance. The adjusted R-square value of the model is 0.351, and the goodness of fit is within the acceptable range. The maximum variance inflation factor(VIF) value of each variable is 1.713, which is much less than 10, indicating that there is no multicollinearity between variables. The Dubin Watson value is 1.932, which is close to 2, indicating that there is no autocorrelation problem between variables. The regression equation can fully explain the post-M&A performance change, and the model set is reasonable.

Table 8. Regression result.

Variable	All acquirers		SOE acquirers		POE acquirers	
	Coefficient	VIF	Coefficient	VIF	Coefficient	VIF
(constant)	1.766 (3.22)		1.569 (2.50)		1.529 (1.78)	
Fin	0.092** (1.83)	1.170	0.083* (1.79)	1.466	0.062 (0.83)	1.153
Rel	0.036* (1.67)	1.331	−0.052 (−0.62)	1.626	0.048 (0.70)	1.119
Sca	0.026* (1.51)	1.313	0.025* (1.69)	1.469	0.024 (1.02)	1.238
Size	−0.067*** (−2.69)	1.713	−0.052* (−1.79)	1.359	−0.067** (−1.80)	1.394
Lev	0.430*** (3.40)	1.419	0.567*** (3.52)	1.109	0.493*** (2.82)	1.33
TOP	0.006 (0.04)	1.059	−0.095 (−0.45)	1.15	0.051 (0.23)	1.029
CF	−0.120 (−0.38)	1.075	−0.491* (−1.63)	1.106	−0.312 (−0.77)	1.08
Con	−0.059 (−0.51)	1.038	−0.046 (−0.47)	1.061	0.299 (1.07)	1.081
Gro	−0.108*** (−5.36)	1.044	−0.579*** (−5.11)	1.093	−0.102*** (−4.65)	1.047
SOE	−0.105 (−1.73)	1.459				
Ind	Control		Control		Control	
Year	Control		Control		Control	
N	450		119		331	
D-W	1.932		2.140		1.882	
F-Statistics	6.171***		5.477***		4.566***	
AdjR^2	0.351		0.570		0.361	

The t-statistics are reported in parentheses under the estimated coefficients. ***, **, and * indicate significant levels at 1%, 5%, and 10%, respectively.

The impact of M&A financing methods on post-M&A performance is shown in the above table. We find that the financing (Fin) coefficient is significantly positive at the 1% level, indicating that the post-M&A performance using equity financing is better than that using debt financing, further supporting H1 and H2. Our findings are inconsistent with the conclusions of most Western studies, and are similar to those of Zhai et al. (2011) [30].

We find that the coefficient of the correlation (Rel) is positive and significant at the 10% level. When acquirers are acquiring affiliates, the information asymmetry effect is reduced and M&A decisions are more strategic, which is more conducive to reducing the cooperation cost and generating synergies, thereby improving post-M&A performance. The coefficient of transaction size (Sca) is positive and significant at 5%. As the larger the transaction scale, the more significant the impact of M&A on the business model of the company, the more favorable it will be for acquirers to improve their core competitiveness and operational capability, which will have a significant positive impact on post-M&A performance. However, the coefficient of company size (Size) is negative and significant at the 1% level, meaning the larger the company is, the more difficult it is to integrate resources. There is a

significant positive correlation between the asset–liability ratio (Lev) and post-M&A performance at 1%, indicating that appropriate financial leverage can help companies improve their performance. Growth (Gro) is significantly negative at the level of 1%. When the company has ample space for growth, the capital demand for its internal needs is relatively large. M&A will increase the burden on the company and performance will decline.

4.3. Financing Method, Ownership, and M&A Performance

A large number of studies have found that China's unique economic system affects the M&A behavior of companies, especially their financing options. Based on the analysis of the impact of M&A financing on performance, we further study whether different institutional environments have significant effects on the relation found.

4.3.1. Differences in M&A Performance under Different Property Rights and Financing Methods

The performance differences caused by the two financing methods under different ownership are shown in Table 9. We find that the coefficient of M&A performance of SOEs with equity financing is significantly positive at the level of 1%. Meanwhile, the M&A performance of POEs with equity financing is much lower than that of SOEs, and it is not significant. At the same time, performance differences between groups are significant at the 10% level. The results show that equity financing of SOEs will significantly improve the M&A performance, while equity financing of POEs will not significantly improve the performance, which preliminarily verifies H3 and H4.

Table 9. Difference test results of the group sample.

	All acquirers	SOE acquirers	POE acquirers
Equity financing	0.0356*	0.1291***	0.0010
	(1.654)	(2.937)	(0.023)
Debt financing	−0.0632*	0.0147	−0.8945**
	(1.659)	(−0.200)	(−1.951)
Performance difference	0.0988**	0.1143*	0.9055*
	(2.036)	(1.765)	(1.852)

4.3.2. Multiple Regression Analysis

Based on the regression model constructed in the previous section, we further examine the impact of financing methods on M&A performance under different ownership types. The sample is divided into SOEs and POEs.

Table 8 shows that in SOEs, the coefficient of financing (Fin) is significantly positive at the level of 10% while, in POEs, Fin is not significant. The results show that, compared with POEs, SOEs with equity financing will improve M&A performance, therefore confirming H3 and H4. Compared to Zhou et al. (2015) [20] who find that the long-term stock returns of state-owned acquirers are higher, we further find that the M&A financial performance of SOEs through equity financing is better.

4.4. Robustness Check

Accounting-based performance measures, such as return on assets (ROA), reflect the degree of operational efficiencies obtained from M&A in the long term. As a robustness check, we replace the M&A performance measurement index with ROA, which is widely used as a measure of M&A performance [44,45]. The regression results show that the level and direction of the significance of the explanatory variables is similar to that when we use the M&A performance measurement index. The robustness check results are provided in Table 10.

Table 10. Robustness checks.

Variable	All acquirers		SOE acquirers		POE acquirers	
	Coefficient	VIF	Coefficient	VIF	Coefficient	VIF
(constant)	−0.084 (−1.40)		−0.140 (−1.54)		−0.046 (−0.54)	
Fin	0.012* (1.70)	1.17	0.015* (0.30)	1.421	−0.006 (−0.33)	1.156
Rel	−0.003 (−0.57)	1.331	−0.007 (−0.57)	1.511	−0.001 (−0.10)	1.126
Sca	−0.004** (−2.26)	1.313	−0.002 (−0.70)	1.473	−0.005** (−2.11)	1.242
Size	0.011*** (3.88)	1.713	0.012*** (2.88)	1.369	0.009** (2.47)	1.447
Lev	−0.091*** (−6.64)	1.419	−0.128*** (−5.54)	1.147	−0.073*** (−4.22)	1.375
TOP	0.044*** (2.59)	1.059	0.011 (0.37)	1.114	0.063*** (2.91)	1.026
CF	0.24 (6.96)	1.075	0.058 (0.87)	1.100	0.301*** (7.53)	1.082
Con	0.007 (0.56)	1.038	0.013 (0.95)	1.055	−0.012 (−0.44)	1.066
Gro	0.005** (2.50)	1.044	0.028* (1.65)	1.092	0.006*** (2.58)	1.048
SOE	−0.012*** (−1.87)	1.459				
Ind	Control		Control		Control	
Year	Control		Control		Control	
N	450		119		331	
D-W	2.018		1.763		1.998	
F-Statistics	14.674***		5.200***		12.513***	
AdjR^2	0.501		0.548		0.510	

The t-statistics are reported in parentheses under the estimated coefficients. ***, **, and * indicate significant levels at 1%, 5%, and 10%, respectively.

5. Conclusions

This study examines the relation between equity and debt financing of M&A and subsequent M&A performance in a large sample of Chinese A-share listed companies between 2009 and 2016. We find that equity-financed M&A transactions lead to significantly better performance than debt-financed transactions. Equity-financed M&A transactions of SOEs improve their performance significantly compared to debt-financed ones, whereas equity-financed M&A transactions of POEs have little effect on their performance. This study extends our insights into the relation between financing methods and M&A performance under different ownership types in the context of emerging markets.

In China, ownership type has a significant impact on the economic activities of enterprises, with widespread "father love" for SOEs and "financial discrimination" against POEs. Thus, for SOEs, funds and quality resources are provided for M&A transactions and integration, so that transaction costs of the M&A process are reduced and M&A performance is improved. In contrast, POEs are at a disadvantage in terms of resourcing M&A. Finance channels for POEs are relatively narrow, and financing costs are high, thus restricting the selection of target companies before M&A and their integration afterwards, neither of which is conducive to value improvement and sustainable development of acquirers. These findings suggest that when studying the impact of M&A financing methods on M&A performance, we must pay attention to the deeper institutional background and incorporate ownership into the research framework. Overall, this research provides further insights into the drivers of M&A performance in transitional economies and emerging markets, offers a reference for national macro-policy formulation, and provides guidance for M&A financing decisions of listed companies.

When it comes to the development of enterprises through M&A deals, it is recommended that enterprises with different ownership should focus on the national M&A market and fully consider the financing cost, financial risks, and capital structure in order to make reasonable financing

decisions. Through equity financing, financial flexibility can be improved, high-return industries and high-yield projects can be considered, and the benefits of having institutional investors in enhancing corporate governance can be brought into play. At the same time, more credit resources and self-owned funds will be reserved for the integration of M&A, resulting in improved performance and sustainable development.

Our research provides enlightening results on the impact of M&A financing on long-term firm performance under different ownership types in the Chinese economic environment. However, it is subject to some limitations that could provide appealing avenues for future research. First, it will be an issue for prospective studies to check whether other emerging market countries, such as Brazil and India, experience similar effects. Second, more research is warranted on the role of ownership in short-term performance. Last but not least, the classification of M&A financing methods can be further refined from equity financing and debt financing to stock issuance, debt-for-equity swaps, bank loans, corporate bond issuance, and so on.

Appendix A

Table A1. Variable definitions.

Symbol	Variable	Variable definitions
Per	M&A performance	Average score difference before and after M&A
Fin	Financing	Equity financing = 1; Debt financing = 0.
SOE	Ownership	The final controller has a state attribute of 1, and the others are 0.
Rel	Related transaction	Associated transaction = 1; Non-related transaction = 0.
Sca	M&A scale	Natural logarithm of the M&A transaction amount
Size	Company size	Natural logarithm of total assets at the end of last year
LEV	Debt asset ratio	Debt asset ratio of the company at the end of last year
TOP	Top shareholding ratio	Proportion of the largest shareholder at the end of last year
CF	Operating Net Cash Flow	Net operating cash flow at the end of last year
Con	Manager confidence	Top three executives' total salary last year/total executive salary
Gro	Increase rate of main business revenue	Revenue growth last year
Ind	Industry	Virtual variables that control the impact of industry factors
Year	Year	Virtual variables that control the impact of macroeconomic factors

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