Frontiers in Business, Economics and Management
ISSN: 2766-824X | Vol. 10, No. 2, 2023

Market Mispricing Timing and Post-acquisition Performance: Evidence from Chinese A-share Firms

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Abstract: This study examines the impact of market mispricing timing on the short-term and long-term performance of acquiring firms in the context of China's capital market. Using a comprehensive dataset of A-share listed companies engaged in mergers and acquisitions (M&A) between 2007 and 2021, we investigate whether M&A activities conducted during periods of market overvaluation lead to enhanced short-term performance while failing to generate sustained long-term benefits. Our findings reveal that acquisitions executed during market overvaluation exhibit significantly improved short-term stock market performance, reflecting the alignment of merger announcements with optimistic investor sentiment. However, such positive effects on short-term performance do not extend to long-term outcomes. The study underscores the critical influence of market timing on the immediate post-acquisition performance of acquiring firms but highlights its limited impact on long-term financial and market performance. These insights contribute to a better understanding of M&A behavior within the Chinese capital market, demonstrating that while capitalizing on market mispricing can yield short-term advantages, sustainable long-term gains hinge on other factors beyond market timing.

Keywords: Mergers and acquisitions, Market mispricing timing, Post-acquisition performance, China's capital market.

1. Introduction

The incidence of mergers and acquisitions transcends isolation. Micro enterprises, as the foundational units of the macro economy, inherently reside within the capital market. Decisions pertaining to enterprise mergers and acquisitions are shaped not only by internal wealth accumulation but also confined by the external market milieu [1]. A robust correlation between China's M&A activities and the stock market has been uncovered through research. Concurrent with stock market fluctuations, notable oscillations in China's M&A landscape have also come to light [2, 3]. For instance, data from the Wind database reveals that during the span of 2014-2015, as the Chinese stock market index surged from 2077 to 5380 points, the volume of M&A transactions by Chinese listed companies experienced a significant upsurge, marked by a growth rate of up to 65%. Scholars have observed that under the influence of stock market fluctuations, Chinese companies' merger and acquisition conduct manifests distinct attributes of irrational acquisitions, such as "herd behavior," "short-term speculation," and "arbitrage behavior" [4-6]. Concurrently with the considerable upswing in M&A activities, the practice of Chinese companies offering substantial premiums for acquisitions has become conspicuous [7, 8]. For instance, statistics extracted from the Wind database indicate that out of 1,279 M&A cases spanning from 2011 to 2019, the total transaction value amassed to 2,756.4 billion RMB, while the net asset book value of the target entities stood at a mere 1,153.3 billion RMB, culminating in an average premium rate of 239% [9]. This underscores the profound sway of the Chinese capital market on corporate M&A comportment. Research conducted by Li and Huang [10] suggests that the influence of the capital market on corporate M&A behavior and its ensuing economic repercussions could potentially surpass traditional corporate-linked factors.

Merger activity in any nation is subject to the influence of both macroeconomic and stock market factors [11, 12]. However, the body of M&A literature predominantly adopts a micro-level perspective to grasp the strategic decision-making of companies when announcing merger transactions. Macroeconomic factors at the market level are deemed exogenous, with individual firms holding nominal control over them [12]. Numerous researchers have underscored the pivotal role of capital market environmental factors in merger and acquisition undertakings [13, 14]. Nevertheless, a dearth of research currently exists regarding the manner in which market environmental factors impact M&A and the subsequent performance following acquisitions by companies, particularly in the context of emerging economies.

In contrast to mature Western capital markets, China, as an emerging economy, presently showcases distinct traits within its market environment, encompassing institutional imperfections, a robust speculative ambiance, prevalent herd behavior, notable market volatility, and a conspicuous degree of information asymmetry. These elements impede stock prices from comprehensively reflecting the intrinsic worth of listed companies, giving rise to the prominent occurrence of mispricing [15, 16]. This prominent mispricing within China's capital market provides companies with opportunities to make strategic determinations in the realm of mergers and acquisitions based on market timing [10].

Therefore, in light of the prominent mispricing observed within China's capital market, the examination of how companies can effectively harness the timing of market mispricing to bolster post-acquisition performance can aid companies in achieving elevated-quality development and augmenting value. Moreover, this study can offer empirical validation and policy backing for the national strategic objective of nurturing the development of the real economy through China's capital market.

2. Literature References

2.1. Review of Market Mispricing Timing

Market mispricing timing pertains to instances where the overall market is either overvalued or undervalued at the announcement of a merger. Rational managers capitalize on the "window of opportunity" created by such overall market misvaluation to strategically select favorable merger timings [17].

In recent years, the academic community has been extensively engaged in exploring how capital market mispricing timing influences the real economy. The prevailing literature predominantly centers around investigating firms' investment and financing behaviors. Scholars contend that systematic and non-compensable irrational biases among investors lead to enduring instances of mispricing within the capital market. These phenomena are likely to wield noteworthy effects on a company's decisions related to investment and financing [10, 18]. For instance, Botsari and Meeks [19] analyzed data concerning M&A transactions announced and completed by UK acquirers during the period of 1997-2010, discovering that market timing substantially influences M&A earnings management behavior. Chuang [20] emphasized the significance of market timing for attractive and high-value companies in the context of M&A. Employing a standard event study methodology, they scrutinized 1109 target firms and 6980 bidders from 2000 to 2003, yielding results indicating that attractive (value-driven) companies were more inclined to engage in M&A during hot (cold) market conditions. Fu and Wang [21] delved into the momentum and driving forces underpinning M&A activities in China using a dataset comprising 376 listed companies from 2008 to 2013. They identified bull or bear market conditions as being among the pivotal driving factors for M&A activities in China. Tuncay and Karan [22] adopted an event study approach to examine 119 companies listed on Borsa Istanbul during the period of 2010-2017, revealing that both hot and cold market conditions influenced M&A initial public offerings. Singh and Dhanda [23] elucidated the ramifications of market timing on the inefficiency and volatility of India's initial public offering (IPO) market through an investigation of hot and cold market conditions. Pungkaswati [24] undertook regression analysis using secondary data obtained from IPO prospectuses spanning the period of 2000 to 2016, identifying positive and significant effects of hot and cold market conditions on initial returns.

Current research on market mispricing timing is primarily empirical, characterized by variations in the choice of indicators and data employed to gauge market mispricing timing. Scholars have employed indicators such as average initial-day returns and market conditions conducive to hot issues to capture information about market mispricing timing. However, diverse capital market conditions necessitate distinct indicator choices, and a single indicator might not be suitable across different market environments.

The majority of research on market mispricing timing has been conducted using samples from mature capital markets in Europe and the United States, leaving a dearth of research focused on China's capital market. Market mispricing timing can manifest divergently across various capital markets. Particularly in recent years, owing to the widespread irrational behavior of market participants and the emergence of "policy-driven markets" arising from imperfect institutional systems, China's capital market has witnessed substantial stock price fluctuations and heightened information asymmetry. The conspicuous mispricing within China's capital market offers companies opportunities to strategically navigate mergers and acquisitions based on market timing [10]. Thus, effectively identifying timing factors in China's capital market and augmenting research on market timing within this context bear significant theoretical and practical implications for refining theories and regulating the trajectory of China's capital market.

2.2. Review of Post-acquisition Performance

Research into M&A performance has been extensively explored on a global scale, yielding diverse conclusions. The achievement or failure of M&A transactions remains an ongoing subject of debate within both practitioner and academic circles. While extensive discussions have taken place on this subject, consensus regarding conclusions, methodologies, and the identification of independent and dependent variables remains elusive. The evidence presented in M&A literature is notably inconsistent. While most scholars indicate that M&A can generate surplus returns for target companies, the research outcomes concerning the performance of acquirers show discrepancies [25] Krishnamurti, Shams [25] Aggarwal and Garg [26] Borodin, Sayabek [27]. Conversely, other studies propose a negative impact of M&A on post-acquisition performance [28] Renneboog and Vansteenkiste [29].

A thorough literature review highlights that determining whether M&A results in value creation or destruction is a complex endeavor. Despite in-depth explorations into underperforming post-acquisitions, the understanding of the underlying causes remains limited [29]. The question "What factors lead to success or failure in M&A transactions?" has emerged as a prominent subject of contemporary research. Identifying the driving forces behind short-term or long-term abnormal returns poses a challenge, as these returns might not solely reflect the intrinsic value of the acquirer, but also the synergies arising from the merger and the premium the bidding company may have paid excessively [30]. Despite numerous academic investigations into transaction and firm-level factors associated with M&A announcement returns, the sustainability of short-term returns into the long term often proves elusive [29]. Guided by these mixed findings, this study positions the identification of key factors explaining the post-acquisition performance of Chinese companies as its focal point.

Presently, consensus eludes scholars regarding the dimensions of post-acquisition performance evaluation. An analysis of existing literature underscores that the assessment of post-acquisition performance primarily revolves around two dimensions: one based on market performance gauged by stock price reactions, and another dimension based on financial performance gauged by the company's operational performance. Concerning the measurement methods of post-acquisition performance, scholars commonly employ stock prices or metrics such as Cumulative Abnormal Returns (CARs), Standard Deviation of Abnormal Returns, Buy-and-Hold Abnormal Returns (BHARs), and changes in Beta as criteria for assessing market performance. In contrast, the methods for measuring financial performance are more diverse, broadly categorized into single indicators and composite indicators. Frequently utilized financial indicators include Return on Assets (ROA), Return on Capital Employed (ROCE), and Return on Sales (ROS).

2.3. Review of the Relationships Between Market Mispricing Timing and Post-acquisition Performance

The body of literature concerning market mispricing timing and M&A performance presents a spectrum of perspectives and outcomes. For instance, the investigation conducted by Farinós, Herrero [31] delves into the short-term and long-term performance of acquiring companies during periods of market overvaluation and undervaluation. Their focus centers on the responses to acquisition announcements within Spanish listed companies from 1991 to 2016. Their research underscores that, during market overvaluation, acquirers exhibit full reactions on the announcement day, while inadequate responses during undervaluation result in sustained returns. Similarly, Tsai, Yen [32] posit that pre-acquisition market timing plays a significant role in shaping market reactions following M&A announcements. This viewpoint underscores the pivotal influence of market sentiment and valuation in shaping investor responses and anticipations during the announcement phase. Fu and Xia's [17] study, which examines a sample of 264 M&A events involving Chinese listed companies from 2010 to 2015, demonstrates the substantial impact of market mispricing on both M&A decision-making and post-acquisition performance of acquiring companies. This study elucidates the tangible real-world repercussions of market mispricing on M&A outcomes within a specific context. Antoniou, Guo [33] contribute additional insights into the temporal dynamics of market mispricing. Their findings suggest that M&A activities during periods of market overvaluation can yield significant short-term market gains. However, as time elapses and actual performance diverges from initial expectations, long-term market returns may reverse. This underscores the need to consider the sustainability of gains in light of evolving market conditions. Likewise, the study by Singh and Das [34] underscores the substantial influence of market valuation on post-acquisition financial performance within the framework of Indian corporate acquisitions. Their findings underscore the interconnectedness of market timing, valuation, and financial outcomes, suggesting that M&A decisions made under specific market conditions can yield enduring consequences.

Collectively, these studies highlight the multifaceted impact of stock market mispricing timing on M&A performance. However, while these insights provide valuable contributions, they might be context-dependent and influenced by varying market conditions. A unified conclusion regarding whether a sustained long-term impact exists is yet to be reached.

Drawing from the aforementioned arguments and findings, this study aims to delve further into the influence of mispricing timing within the Chinese capital market on M&A performance, an area in China that remains ripe for in-depth exploration.

3. Hypothesis Development

The correlation between market mispricing timing and post-acquisition performance can be elucidated using the catering theory. In a market characterized by overheating and overvaluation, investors often harbor overly optimistic expectations. Preceding a merger announcement, especially in an overvalued market phase, investors tend to perceive the company's merger endeavors positively. They interpret mergers as opportunities for the acquiring firm to augment its market share or align with the strategic goals of the target entity, thereby generating synergies. Consequently, investors are more inclined to invest in stocks of companies involved in mergers, resulting in a notable surge in stock prices before and after the merger disclosure. Conversely, during periods of market undervaluation, investors are more prone to hold a pessimistic stance toward merger activities. They might construe mergers as mere reallocations of economic interests between shareholders and management, without necessarily yielding a net increase in combined wealth. Consequently, investor enthusiasm for purchasing stocks could wane, leading to moderated stock price increments or even unexpected declines around the merger announcement date. Hence, when an acquiring entity caters to irrational investor sentiment by choosing to announce a merger during a phase of market overvaluation, short-term market performance following the merger is likely to exhibit notable enhancement. Nonetheless, while catering to such sentiment might bolster short-term value, stock prices typically revert to their intrinsic value over time. Long-term market and financial performance are more susceptible to influences such as post-acquisition integration and management competencies, whereas market sentiment is characterized by transient fluctuations and lacks enduring, stable impact.

Therefore, grounded in the catering theory, scholars posit that market mispricing timing significantly affects the immediate market performance of acquiring firms, whereas its sway over long-term performance remains limited.

H1: Market mispricing timing exerts a considerable influence on the acquiring company's post-acquisition performance.

H2: The short-term market performance of acquirers engaging in mergers during periods of market overvaluation displays a distinct positive trend.

H3: Market mispricing timing does not significantly affect long-term market performance and financial outcomes.

4. Data and Methodology

4.1. Sample Selection

The initial research sample for this study is comprises A-share listed companies conducted mergers and acquisitions on the Shanghai and Shenzhen Stock Exchanges in China between January 1st, 2007 to December 31st, 2021. Keeping in mind the patterns of available literature [35-38], the present study employed the same criteria for sample selection. The sampling process for the data sample is as follows:

i. The firm is included in the CSMAR database and the accounting data required for the study variables are reported in CSMAR.

ii. Excluding all special treatment (ST) firms as they exhibit characteristics during the M&A process that differ from those of ordinary listed companies.

iii. Excluding all financial industry firms. This is due to the unique nature of their business operations and regulatory framework, which greatly limits the comparability of their data when compared to firms in other industries.

iv. Excluding the firm whose trading status is not "buyer" because the research object of this study is on the acquiring companies and not the acquired ones.

v. Excluding all firms with failed M&A transactions and those where it was not clear whether the transaction was

successful.

vi. Excluding M&A events involving asset stripping, asset swapping, debt restructuring, and share repurchases.

vii. Excluding M&A events with a value less than 1 million RMB. The purpose of doing so is to ensure that the selected M&A events significantly impact the production and operation of enterprises.

viii. For firms that have undergone multiple merger and acquisition transactions in the same quarter, only the first merger and acquisition is included in the sample.

ix. the deal payment is settled in either cash or stock.

x. excluding sample firms with missing data.

After filtering according to the above criteria, the final sample contains 8010 firm-year observations.

4.2. Variable Measurement

4.2.1. Post-acquisition Performance

The following sections introduce specific measurement indicators used to evaluate market and financial performance.

4.2.1.1 Short-term Stock Market Performance

The event study is used to analyse short-term stock market performance and the CAR is used as a measure of short-term stock market performance in this study. This study calculates the CAR of sample firms during the (-2, +2) and (-5, +5) window periods, consistent with prior studies such as [39]. This study opted for a 120-day estimation period and the estimation window period is set from 150 days prior to the announcement of the self-acquisition event to 31 days prior to the announcement date.

To calculate the normal return for the sample firms involved in M&As, standard market model suggested by Fama [40] has been used in this study, consistent with prior studies such as Goel and Shawky [41], Wan [42]. In order to estimate the regression parameters, this research utilizes the widely used Ordinary Least Squares (OLS) method. The study used the following standard market model equation to calculate the normal return of the sample firms' stock:

To examine the effect of the event on each stock, i, control is made for the normal relation between the return on stock i during month t, and the return on the market index Rm.

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it} \quad (1)$$

where t is the day measured relative to event and where i is the sample firm. R_{it} reflects the stock return for firm i on a given event date t, and R_{mt} is market returns on a given event day t (as the event day is day 0) within the estimated window. In this study, R_{it} and R_{mt} refer to the data obtained from individual stock returns and value-weighted comprehensive market index returns sourced from China Stock Market and Accounting Research Database (CSMAR). α_i and β_i are parameter estimates estimated from ordinary least square (OLS) regression process, where αi represents the estimated period intercept of firm i in the regression equation and βi represents OLS estimates of firm i's market model parameters (the slope of the equation). ε_{it} is the error term of stock i on the sample event day t [43].

Next, the ordinary least square (OLS) parameter estimation technique is used to estimate α_i and β_i from the estimation period. After determining α_i and β_i through equation (1), it is necessary to compute the daily abnormal stock returns (AR) for the specified event window for firm i on day t, using the αi and βi obtained from equation (1) to estimate the expected return in event period. Abnormal stock returns (AR) reflect the extent that expected normal returns ($E(R_{it})$) deviate from actual, realized stock returns (Rit) on the event day [43]. The expected returns for stock i on day t is estimated as:

$$E(R_{it}) = \widehat{\alpha_i} + \widehat{\beta_i} R_{mt} \quad (2)$$

An abnormal return (AR) for each sample firm i on event day t are obtained as follows:

$$AR_{it} = R_{it} - \mathrm{E}(R_{it}) \quad (3)$$

Daily ARs are accrued to calculate the cumulative abnormal return (CAR) for each specific window period. CAR from t1 to t2 is calculated as follows using all previously defined terms:

$$CAR_i(t_1, t_2) = \sum_{t=t_1}^{t_2} AR_{it} \quad (4)$$

4.2.1.2 Long-term Stock Market Performance

In this study, long-term market performance is measured as the "Buy-and-Hold Abnormal Returns" (BHAR) of the acquiring firm's stock over a three-year period. BHAR reflects the return to an investor if they bought an acquiring firm's stock on acquisition announcement to a specified later date. The long-term returns are calculated monthly, compounding 36 months after the M&As, adjusted by the benchmark return, consistent with prior studies [38, 44, 45]:

$$BHAR_{iT} = \prod_{t=1}^{T}(1 + R_{it}) - \prod_{t=1}^{T}(1 + R_{mt}) \quad (5)$$

where t is the month measured relative to event. T is the number of months and i is the sample firm. Rit is the stock return for firm i in event month t. Rmt is the market return in event month t. Rit and Rmt refer to the data obtained from individual stock returns and value-weighted comprehensive market returns sourced from China Stock Market and Accounting Research Database (CSMAR). BHARiT represents the total return for firm i, from a buy-and-hold strategy started following the merger and acquisition completion month and held for T months (T= 12, 24, and 36).

4.2.1.3 Long-term Financial Performance

This study uses ROA as a measure of financial performance and ROA was the dominant financial measure used in acquisition research [46]. ROA refers to earnings before interest and tax divided by the total assets.

This study draws inspiration from the methods used by Ghannam, Matolcsy, Spiropoulos, and Thai (2019), Nguyen and Vu (2021), Suk and Wang (2021) and Wang and Li [47] by utilizing the change in return on assets (ΔROA) as a proxy indicator to measure a firm's financial performance. The ΔROA1 represents the change in ROA of the sample firm one year before and after the first merger and acquisition announcement date. ΔROA1 is calculated as follows using all previously defined terms:

$$\Delta ROA_1 = ROA_{t+1} - ROA_{t-1} \quad (6)$$

where i is the sample firm and t represent the year in which the sample firm's first merger and acquisition announcement date falls. The ROA data for the sample firm is sourced from the China Stock Market and Accounting Research Database

(CSMAR).

The ΔROA2 represents the change in ROA for the sample firms between the second year after the merger and acquisition announcement date and the preceding year. ΔROA2 is calculated as follows using all previously defined terms:

$$\Delta ROA_2 = ROA_{t+2} - ROA_{t-1} \quad (7)$$

The ΔROA3 represents the change in ROA for the sample firms between the third year after the merger and acquisition announcement date and the preceding year. ΔROA3 is calculated as follows using all previously defined terms:

$$\Delta ROA_3 = ROA_{t+3} - ROA_{t-1} \quad (8)$$

4.2.2. Market Mispricing Timing

This study adopts the market valuation methodology as established by Antoniou, Guo [33], involving the utilization of market return rate for classifying the market into high-valuation and low-valuation categories. Additionally, this study draws from the approach outlined by Fu, Zhou [48], which employs index return rate as an indicator to gauge stock market valuation. This further validates the rationale behind classifying markets as overvalued or undervalued. Consequently, this study will employ both market return rate and index return rate as comprehensive indicators to assess market mispricing and categorize the market into high-valuation and low-valuation segments.

For the measurement of market mispricing through market return rate, the utilized data consists of market return rate data accounting for reinvested cash dividends from the China Stock Market and Accounting Research Database (CSMAR). Within CSMAR, three methods are available for calculating market return rates: equal-weighted average, circulating market value average, and total market value average. First, the annual average daily market return rate for each algorithm during the sample period is computed based on the daily market return rate data from the three algorithms. Subsequently, the annual average market return rate is calculated using the annual average daily market return rates from the three algorithms. Lastly, the average market return rate for the sample period is determined using the annual average market return rate. If the average market return rate for a particular year surpasses the overall sample period's average, that year is categorized as a high-valuation market; otherwise, it is designated as a low-valuation market.

Regarding the measurement of market mispricing via index return rate, this study employs two types of index return rates: the simple arithmetic average daily index return rate of the Shanghai and Shenzhen stock markets, and the daily index return rate of the China Securities Index 300 (CSI300). These index return rates are used to categorize the market into high-valuation and low-valuation segments. The selection of the CSI 300 index stems from its representation of the top 300 stocks traded on the Shanghai and Shenzhen stock markets and its frequent use as a benchmark for measuring the overall performance of the Chinese stock market [49]. The division method aligns with that of the market return rate division method.

Ultimately, only when a year meets the criteria for high-valuation (or low-valuation) markets as per both the market return rate and index return rate divisions, is it labeled as a high-valuation market (or low-valuation market). The outcomes of the division between high-valuation and low-valuation markets are presented in Table 1. These results demonstrate that return rates during market overvaluation years significantly surpass those during market undervaluation years. This underscores the rationality behind the high-valuation and low-valuation market classification adopted in this study. When the market is categorized as a high-valuation market, the independent variable of market mispricing timing is assigned a value of 1. Conversely, in a low-valuation market, it receives a value of 0.

The calculation results show that 2007, 2009, 2014, and 2019 are overestimated years, with a value of 1 assigned. Assign a value of 0 to other years

4.2.3. Control Variable

A literature review was conducted on the factors influencing post-acquisitions performance of acquiring firms in previous research. It was found that the significant factors affecting performance can be categorized into three aspects: firm characteristics, deal characteristics and environmental characteristics. Therefore, to address the endogeneity issues arising from omitted variables and to mitigate potentially confounding factors known to affect the acquisition performance, this study incorporates 15 control variables into the regression model from these three aspects.

Firm characteristics control variables include firm size, financial leverage, profitability, sales growth, cash flow, firm age, equity nature, proportion of the largest shareholder, CEO duality, proportion of independent directors, and executive overconfidence; Transaction characteristics control variables include relative deal size, transaction type, and related-party transaction; Environmental characteristics control variables include stock volatility. The specific calculation method for variables is shown in Table 1.

4.3. Research Model Development

In order to achieve the research goal of testing the impact of market mispricing timing on post-acquisition performance, this study establishes the following OLS regression model to test hypothesis.

$$CAR_{i,t} = \beta_0 + \beta_1 MMT_{i,t} + \sum_m \beta_m ControlVariables_{i,t} + \lambda_k + \lambda_t + \varepsilon \quad (9)$$

$$BHAR_{i,t} = \beta_0 + \beta_1 MMT_{i,t} + \sum_m \beta_m ControlVariables_{i,t} + \lambda_k + \lambda_t + \varepsilon \quad (10)$$

$$\Delta ROA_{t+n,t-1} = \beta_0 + \beta_1 MMT_{i,t} + \sum_m \beta_m ControlVariables2_{i,t} + \lambda_k + \lambda_t + \varepsilon \quad (11)$$

where λ_k and λ_t represent industry and quarterly fixed effects respectively. β0 represents the constant and is the slope of the independent variable which reflects a partial explanation or prediction for the value of the dependent variable. β is the coefficient of the independent variable and Ɛ is an error term.

Table 1. Definition of Variables

Variable Name	Symbol	Measurement
Dependent Variable		
Short-term Stock Market Performance	CAR(-2,2) CAR(-5,5)	The acquirer's cumulative abnormal return during the [-2,2] and [-5,5] window period before and after the merger and acquisition announcement.
Long-term Stock Market Performance	BHAR12 BHAR24 BHAR36	The acquirer's buy-and-hold abnormal return for the period of 12，24,36 months following the acquisition.
Financial performance	ΔROA1 ΔROA2 ΔROA3	Changes in return on total assets for the acquirer between the first year after the merger and acquisition announcement date and the preceding year.
Independent Variable		
Market Mispricing Timing	MMT	If the market return rate and index return rate in the year to which the merger and acquisition announcement date belongs are both higher than the average of the entire sample period, that year is defined as a period of market overvaluation and assigned a value of 1. Otherwise, it is assigned a value of 0.
Control variables		
Firm Size	Size	The natural logarithm of the book value of total assets at the end of the fiscal year prior to the acquisition announcement date.
Financial Leverage	Leverage	Total debt divided by book value of assets at the end of the fiscal year prior to the acquisition announcement date.
Profitability	ROE	Net income divided by total equity at the end of the fiscal year prior to the acquisition announcement date.
Sales Growth	Growth	The difference between the current year's main operating revenue and the previous year's main operating revenue is divided by the previous year's main operating revenue.
Cash Flow	Cash	Net cash flow from operating activities divided by total debt at the end of the fiscal year prior to the acquisition announcement date.
Firm Age	Age	The difference between the current year and the year of establishment, plus one, and then taking the natural logarithm of that value.
Equity Nature	Nature	Dummy variable equal to one if the firm is non-state-owned at the M&A announcement date, and zero otherwise.
Proportion of The Largest Shareholder	Holding1	The total number of shares held by the largest shareholder divided by total number of shares released.
CEO Duality	Duality	Dummy variable equal to one if the CEO and the chairman are the same person, zero otherwise.
Proportion of Independent Directors	Director	The number of independent directors divided by the total number of supervisory board members.
Executive Overconfidence	Overconfidence	The sum of the compensation of the top three highest-paid executives divided by the total compensation of all executives.
Relative Deal Size	DealSize	The ratio of transaction value to total asset of the acquirer at the end of the fiscal year prior to the acquisition announcement date.
Transaction Type	Type	Dummy variable equal to one if the transaction type is equity transfer, zero is asset acquisition.
Related-party Transaction	Related	Dummy variable equal to one if the merger and acquisition transaction is a related-party transaction, zero otherwise.
Stock Volatility	Volatility	The annualized volatility of daily stock returns measured over quarters t−4 prior to the announcement of a merger and acquisition to the quarters t−3. Change in volatility is the difference between volatility measured over quarters t−2 through t−1 and volatility measured over quarters t−4 through t−3.
Industry	Industry	Set 47 dummy variables based on the stwo-digit China Industry Classification System (CICS) codes.
Year	Year	15 years from 2007 to 2021, encompassing a total of 60 quarters, set to 60 dummy variables.

5. Empirical Results

Table 2 illustrate the impact of market mispricing timing on short-term stock market performance. The fundamental regression results indicate that the correlation coefficients between MMT and CAR are significantly positive at the 1% level, measuring 0.0452 and 0.0547, respectively. Therefore, market mispricing timing indeed has a positive influence on short-term stock market performance. Consequently, the

acquirer's short-term market performance is significantly positive when engaging in mergers and acquisitions during periods of market overvaluation.

The regression results from Tables 3 and 4 reveal that the correlation coefficients between MMT and BHAR, as well as MMT and ROA, are negative, but they lack statistical significance. In other words, the market mispricing timing does not have a significant impact on the long-term performance of the acquiring party.

Table 2. Multiple Regression Result of Market Mispricing Timing and Short-term Stock Market Performance

	CAR(-2,2)	CAR(-5,5)
MMT	0.0452*** (3.2910)	0.0547*** (2.8433)
Control variables	Yes	Yes
Industry	Yes	Yes
Year	Yes	Yes
N	8010	8010
R^2	0.0900	0.0888
Adj. R2	0.0763	0.0750

Table 3. T Multiple Regression Result of Market Mispricing Timing and Long-term Stock Market Performance

	BHAR12	BHAR24	BHAR36
MMT	-0.0109 (-0.1409)	-0.1026 (-1.0809)	-0.3940 (-1.4551)
Control variables	Yes	Yes	Yes
Industry	Yes	Yes	Yes
Year	Yes	Yes	Yes
N	7454	7005	6554
R^2	0.1512	0.1818	0.1894
Adj. R2	0.1374	0.1677	0.1744

Table 4. T Multiple Regression Result of Market Mispricing Timing and Financial Performance

	ΔROA1	ΔROA2	ΔROA3
MMT	0.0104 (1.3074)	0.0037 (0.4272)	0.0147 (1.5311)
Control variables	Yes	Yes	Yes
Industry	Yes	Yes	Yes
Year	Yes	Yes	Yes
N	7316	6677	5972
R^2	0.0948	0.0716	0.0835
Adj. R2	0.0805	0.0560	0.0669

6. Conclusion

In conclusion, our study sheds light on the impact of market mispricing timing on post-acquisition performance in China's emerging economy. Our findings indicate that M&A activities conducted during periods of market overvaluation can lead to short-term performance improvements for acquiring firms due to investor sentiment. However, it's important to note that this effect does not translate into sustained long-term performance enhancements. While M&A during market overvaluation may yield immediate gains, other factors come into play for enduring success in China's dynamic capital market. Further research is needed to refine strategies for achieving consistent growth in M&A endeavors.

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