Lund University
School of Economics and Management

Master Essay

M&A Performance Involving Chinese Markets:

Impact of M&A Financing Methods on Performance

Supervisor

Jens Forssbæck

Students

Jiaqi Dong (20000923-T523)

Jiayi Guo (20010930-T143)

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Abstract

In the face of intense market competition, businesses often engage in M&A activities to rapidly enlarge their market penetration to strengthen their industry position, thereby gaining a competitive advantage and facilitating economies of scale, reducing per-unit costs of production and management. Through M&A activities, companies can share resources such as production facilities, research and development teams, and sales networks, thereby improving operational efficiency. M&A, as forms of property transactions, typically require substantial funds to complete. The acquiring companies often need to swiftly raise funds through extensive external financing, making M&A financing arrangements a critical factor in determining the results of M&A deals. Within the context of China's unique institutional framework, which is marked by insider control and government intervention, and drawing on modern corporate finance theory, capital structure theory under asymmetric information, and corporate control theory, this study provides general logic for businesses to choose different financing methods during M&A activities, for example debt financing and equity financing, and investigates their impact on M&A performance.

According to theoretical analysis, this study analyzes the financing choices made by acquirers and examines their impacts on extended and immediate market performance, using M&A events from 2016 to 2020. The findings suggest that equity financing, contrary to debt financing, significantly improves the financial performance of acquiring companies. Moreover, from a temporal perspective, equity financing tends to have more profound and enduring impact on the performance of acquiring firms.

Keywords: M&A performance, debt financing, equity financing

1. Introduction

1.1 Research Background

M&A refers to the consolidation of companies through either mergers or acquisitions.

When a well-managed enterprise chooses to acquire a target company with inefficient management, it would improve the target company's value and achieve merger synergies by way of appropriate merger integration (Servaes,1991). M&A could increase the market dominance of the acquiring entity in product markets, as acquiring competitors can reduce competition within the industry (Mullin, 1995). Weston and others (2001) recognize that M&A activities would lead to wealth redistribution between governments and companies, potentially resulting in tax savings. Generally, M&A represents fundamental methods of structural transformation and inevitable pathways for corporate growth and transformation. In recent years, with the acceleration of economic globalization, M&A has become an effective measure for enterprises to achieve external expansion, optimize resource allocation, and enhance core competitiveness to adapt to the new global economic landscape.

M&A financing refers to the financial activities undertaken by acquiring companies to fund the activity of M&A of target companies, constituting a crucial aspect of the M&A process and a determining factor in its success. In the diverse financial market, companies exhibit varied financing needs driven by differences in industry, scale, and developmental stage. Presently, primary financing approaches are debt financing and equity financing.

1.2 The purpose of the research

M&A financing, as a critical component of the M&A process, determines the success of the M&A activities. This is because M&A activities often require substantial financial commitments while internal resources cannot satisfy the huge needs. Consequently, it is necessary for acquiring entities to seek external financing. Logically, the Pecking Order theory (Donaldson, G., & Watters, A.,1971) indicates that companies

tend to conform to an order in financing decisions, prioritizing internal funds, followed by debt financing, and finally equity issuance, due to the lower costs and risks associated with internal funds and debt compared to equity. However, in reality, companies navigate a more complex landscape. Their choices in M&A financing methods are influenced not only by considerations of cost minimization and optimal capital structure but also by internal factors and the restrictions of the external environment for the unique factors of government intervention and imperfect market mechanisms in the Chinese capital market. The study aim to explore whether M&A financing methods contribute to enhancing M&A performance under such a complex environment. If so, what pathways do they influence?

Debt financing and equity financing are the two most common methods used by companies during M&A. These financing strategies significantly impact the market, directly influencing a company's financial structure and strategic business decisions. M&A can influence a company's stock price and market value, particularly with equity financing. Conversely, debt financing may impact a company's credit rating and bond prices. Studying these two financing methods provides a comprehensive evaluation of the market's response to M&A activities, offering investors and managers with deeper insights for market analysis and future projections.

In China, the scale and number of M&A have seen a significant increase these years, attracting attention from various parties (Zhai, 2010). For acquiring companies, focusing only on M&A returns is often short-sighted. The acquiring companies often need to consider an optimal approach during M&A, which is to maximize returns and to minimize the associated costs at the same time. These costs include transaction costs related to the payment method and the chosen financing method. This study aims to assess the impact of different financing methods on M&A performance based on the China's unique social environment, characterized by government intervention and insider control, with the control of the payment method. Therefore, it aims to complement previous research findings and help regulators and capital market

participants to understand the relationship between financing methods and M&A performance within the Chinese institutional environment better.

1.3 Motivation for the research question

Upon reviewing existing literature, we have observed a lack of research focusing on the influence of M&A financing on M&A performance. Most studies take research around the payment methods in M&A transactions to evaluate the relationship between financing preferences and M&A performance. However, the two are not entirely synonymous. Equating payment methods with M&A financing methods would lead to certain confusion, particularly when studying cash payments that involve external financing sources. Obviously, these studies often overlook the cost implications associated with financing method choices (Zhai, 2011). M&A payment methods primarily include cash, stock, and a combination of both, whereas M&A financing methods reflect the avenues through which companies source funds to pay for the acquisition target. These avenues encompass using internal funds, issuing bonds, issuing stocks, or their combinations. Companies may opt for one or a combination of these methods to finance and execute M&A activities. Typically, transaction costs associated with payment methods in M&A activities are more explicit and direct. For instance, if cash payment is chosen for the M&A activities, the direct costs include the cash amount paid and related fees. However, transaction costs related to financing methods are more implicit and complicate. For example, if the acquiring company chooses the debt financing, it may increase interest expenses and then have an impact on the company's financial structure and credit rating, which would increase future financial risks. Therefore, choosing different financing methods would cause in different transaction costs for companies in M&A activities, consequently influencing M&A performance. It requires the companies to have necessitates careful consideration and evaluation in order to ensure that the final M&A decisions maximize companies benefits.

Cash payment, as one of the most direct and common methods of payment, often dominates many M&A transactions. In contrast, stock payments involve stock price fluctuations and market reactions, which may cause more interference on research results. Meanwhile, mixed payment methods involve more complex factors such as valuation and transaction structure, making the research more complicated. Therefore, choosing to control the payment method as cash can simplify and clarify the study, which has a more accurate assessment of the impact of financing methods on M&A performance. Hence, this study analyzes the impact of financing method choices, debt financing and equity financing, on M&A performance with cash payment methods.

Currently, research on M&A financing methods internationally is diverse, with various perspectives and debates. However, much of this research is conducted on European markets and US markets. For example, Schlingemann (2004) and Martynova and Renneboog (2009) examined the impact of financing methods on M&A performance in the European market, yet these conclusions may not directly translate to the distinct landscape of China's capital markets. Therefore, further investigation into the influence of financing choices on M&A performance within China's institutional framework is essential, which holds both theoretical and practical significance. Exploring how financing methods influence M&A performance in China's specific institutional environment can provide valuable insights for companies to devise more effective M&A strategies. Additionally, it would contribute to a deeper understanding of China's capital markets and inform potential improvements in regulatory policies.

Firstly, the study makes a review of existing literature, mainly focusing on the research on M&A performance, the selection of M&A financing methods, and the relationship between the two. Then, based on China's specific institutional environment, the study analyzes the influence of M&A motives on the financing choices. Building upon these analyses, the study conducts empirical research to examine the impact of the chosen M&A financing methods on the M&A performance of sample companies. Finally, the study gives some study limitations and future directions to enhance the M&A financing landscape in China.

2. Definition Distinctions and Literature Review

From the literature currently available, research on the choice of M&A payment methods is abundant both domestically and internationally, yet studies focusing on the choice of M&A financing methods are relatively scarce. Moreover, most studies do not clearly distinguish between M&A payment methods and financing methods, often mixing the two, and treating payment methods as synonymous with financing methods in their analyses. Additionally, measuring M&A performance remains a hot topic among scholars, though no consensus has been reached.

Therefore, this paper will summarize the literature review on four aspects: the definitions of M&A financing methods and distinctions from payment methods, empirical analysis methods for measuring M&A performance, factors influencing the choice of M&A financing methods, and the impact of M&A financing methods on M&A performance.

2.1 Definition Distinctions between Financing Methods and Payment Methods

M&A payment methods dictate the form of payment in an acquisition, whereas M&A financing methods pertain to the financing activities undertaken to make these payments. In transactions paid with cash, the source of funds may come from internal retained earnings, external borrowing, or issuing new shares. Therefore, equating payment methods with financing methods could render the research conclusions on cash transactions unreliable. Additionally, considering the M&A financing decision process usually involves first determining whether to use internal or external sources of funds and then deciding on the specific source of external financing, it becomes particularly important to consider the M&A financing decision process dynamically. Based on these considerations, this study aims to explore the impact of M&A financing methods on acquisition performance.

In conclusion, M&A payment methods include all-stock, all-cash, and a combination of securities and cash as mixed payment methods. M&A financing methods consist of using internal funds, external debt financing, or equity financing.

Internal financing refers to funds accumulated through a company's operational activities and profits. This mainly includes depreciation funds, amortization of intangible assets, and retained earnings. Internal financing represents "free" capital generated and retained within the company from operational activities.

Debt financing involves a company acquiring capital by borrowing from external entities, which can include securing loans from commercial banks or issuing corporate bonds and convertible bonds.

Equity financing refers to the process of generating funds through investments, such as issuing common and preferred shares or other similar methods. This financing approach offers capital that can be utilized for long-term needs.

The debt financing method allows companies to take advantage of external funds more effectively, thereby increasing shareholder profits after M&A activities. At the same time, debt financing is accessible to the public with a wide range of stakeholders, facilitating access to large-scale funds. Conversely, equity financing involves companies raising funds for M&A activities by issuing equity securities. The funds acquired through equity financing are relatively stable and long-lasting compared to debt financing, with lower associated risks, making cash flow management more flexible for companies.

2.2 Review of Existing Literature on Methods for Chinese Measuring M&A Performance

Traditional methods for studying M&A performance primarily include the event study method and the comparative operating performance study method. The event study method is a statistical technique that evaluates the magnitude and duration of the effect of particular economic events on the prices of assets. It can be further divided into short-

term and long-term event studies. On the other hand, the comparative operating performance study method (also known as the accounting indicators study method) primarily relies on the analysis of changes in financial indicators such as profitability, financing capacity, asset operation efficiency, and cash flow levels before and after the M&A, to assess the impact of the M&A on the value of the initiating firm. This method is more often used to evaluate the medium to long-term market performance of mergers and acquisitions.

Internationally, many scholars prefer to use the event study method for empirical analysis of M&A performance. In contrast, Chinese scholars tend to use the comparative operating performance study method more frequently. The primary reason for this difference is that the event study method is more suited to well-developed capital markets with strong market effectiveness, whereas China's earlier capital markets did not fully meet the requirements for this method. However, as China's capital markets continue to develop, an increasing number of scholars are beginning to use the event study method to analyze the M&A performance of Chinese listed companies.

2.2.1 Event Study Method

The event study method, proposed by Fama et al. (1969), analyzes the fluctuations caused by mergers and acquisitions in the securities market, based on changes in shareholder wealth to assess the impact of M&A on performance. It is also one of the common methods used today to examine M&A performance. Li and Chen (2002) used the event study method for empirical analysis and found that mergers and acquisitions do not tend to increase wealth for the acquiring companies. Zhu (2006) further found that diversified mergers lead to losses in shareholder wealth, and there is a substitution relationship between government affiliation and management capability, particularly evident in companies with poor management abilities.

2.2.2 Comparative Operating Performance Study Method

Given the distinct local characteristics of China's capital market, analyzing M&A performance using the event study method assumes the efficiency of the securities market. Thus, many Chinese scholars use accounting indicators to analyze M&A performance. Feng et al. (2001) selected four indicators: main business income / total assets, net profit / total assets, earnings per share, and return on equity. They were the first to use factor analysis to study M&A performance and concluded that although mixed mergers are favored by many listed companies, the performance improvements they bring are limited in the long run. Zhang et al. (2015) used factor analysis and found that in the long term, mergers and acquisitions by Chinese listed companies are inefficient and do not achieve resource integration and value creation through mergers.

2.3 Review of Existing Literature on Factors Influencing the Choice of Chinese M&A Financing Methods

The selection of financing methods in M&A activities is crucial for transaction success. While extensive international and Chinese research has examined M&A payment methods (Harford, Klasa, and Walcott, 2009; Uysal, 2011; Karampatsas et al., 2014; Vermaelen and Xu, 2014), fewer studies focus on M&A financing methods. Existing research primarily addresses the impact of a company's capital structure on financing decisions, noting that companies with high leverage opt for equity financing, while those with low leverage choose debt (Elsas et al., 2014; Harford et al., 2009). Management's equity holdings also influence financing preferences, with larger holdings favoring equity and medium holdings reducing equity financing (Martin, 1996).

M&A financing theories suggest companies follow the pecking order theory, using internal funds first, then debt, and equity as a last resort (Bharadwaj and Shivdasani, 2003; Martynova and Renneboog, 2009). However, market timing also plays a role, with high pre-M&A stock prices leading to equity financing. Vladimirov (2014)

supports the pecking order theory, but Martynova and Renneboog (2009) argue that market timing also influences financing decisions.

Chinese M&A financing research, although more recent and often qualitative, is growing. Quantitative studies have explored theoretical models (Fu et al., 2006) and case studies (Jiang, 2006; Song and Li, 2014). Empirical research shows that companies with ample cash prefer internal financing, those with strong debt capacity choose debt, and those with good stock performance opt for equity (Zhai et al., 2012; Yu and Li, 2013). Scholars like Li et al. (2015) and Zhao and Chen (2018) found that Chinese firms adjust their capital structures dynamically during M&A financing, with high leverage leading to equity financing. Li (2017) emphasizes the impact of target capital structure and stock mispricing on financing behavior..

2.4 Review of Existing Literature on the impact of Chinese M&A financing methods on M&A performance

M&A financing methods include internal funds, external debt, and equity financing, each of which can significantly impact M&A performance. However, there is a relative scarcity of studies specifically examining the effect of these financing methods on M&A outcomes.

Existing literature generally supports the notion that debt financing tends to yield better short-term performance (Bharadwaj and Shivdasani, 2003; Martynova and Renneboog, 2009). For instance, Bharadwaj and Shivdasani (2003) observed that mergers financed through bank loans exhibited higher cumulative abnormal returns compared to those funded entirely with internal cash resources. Similarly, Martynova and Renneboog (2009) found better performance in debt-financed mergers than in those financed internally.

This phenomenon is largely attributed to information asymmetry between insiders and outsiders. When investors perceive that a company is issuing stock to capitalize on mispriced equity markets, they often view equity financing as a negative signal, leading

to a decline in stock prices and consequently harming shareholder interests (Myers and Majluf, 1984). Additionally, debt financing can reduce financing costs due to its tax shield benefits.

Ang et al. (2014) specifically examined the performance of equity-financed M&A transactions and introduced hypotheses based on the “coupling principle,” which includes the customer separation hypothesis and the temporal separation hypothesis. Their findings suggest that acquirers gain higher abnormal cumulative returns when they finance acquisitions through equity offerings prior to the transaction, especially when the market is informed that the funds raised will be used for acquisitions. Nonetheless, research analyzing Chinese data concerning the effects of financing methods on M&A outcomes has revealed varied findings.

Nonetheless, research analyzing Chinese data concerning the effects of financing methods on M&A outcomes has revealed varied findings. Zhai (2011) found that debt financing significantly improved the market performance of the acquiring firms, with self-financing showing intermediate performance between equity and debt financing. This difference is attributed to the weak efficiency of China's capital market and investors' "functional lock-in".

Regarding long-term outcomes, although Bharadwaj and Shivdasani (2003) and Martynova and Renneboog (2009) did not evaluate long-term market responses, Xi and Wu (2016) analyzed the long-term performance of M&As by comparing the net profit margins of total assets two years after the merger to those from the year prior to the acquisition, finding a positive correlation between equity financing and M&A performance, with state-owned enterprises showing greater improvements. Similarly, Cao and Liu (2018) used the same method to measure M&A performance and reached consistent conclusions.

3. The Current Status of M&A Financing Methods in China

M&A financing behaviors that could bring about changes in financing are typically grounded in existing financing structures and are inevitably aimed at adjusting the

financing structure (Wang, 2012). Therefore, in analyzing corporate financing behaviors, it is imperative to consider the changes in economic relationships encompassed by alterations in the financing structure and, based on this, to examine their implications for corporate governance structures. Only through this approach can we genuinely and comprehensively grasp the essence of corporate financing behaviors. Fundamentally, the financing structure refers to the key items on the right-hand side of a company's balance sheet, encompassing the sources and uses of corporate financing, as well as their intrinsic organizational relationships.

In developed capitalist countries, due to the maturity of capital markets and favorable conditions for market economies, enterprises enjoy a high degree of autonomy in financing. Despite certain limitations imposed by legal regulations and socio-economic factors on corporate financing behavior. However, in all, corporate are free to make economic decisions based on the principle of maximizing their own interests. For instance, they can autonomously determine their debt levels and the number of stock issuances. Instead, when market economies are underdeveloped and capital markets are imperfect, the financing structure of corporate is not actively chosen by their members but rather constrained by external factors, resulting in a passive acceptance. In China, the market has become the primary means of resource allocation, while government intervention in capital markets significantly impacts the autonomy of corporate in financing through various policies, regulations, and administrative measures. Consequently, when engaging in financing activities, corporate often make compromises under external institutional constraints rather than purely following their own interests.

3.1 International Comparison of M&A Financing Methods

In comparison to Western developed countries, China's M&A financing methods appear relatively limited, with varying proportions of each financing method's application. The table1 below contrasts the application of the main financing methods in M&A transactions between China and the US.

Table1: Comparison of the M&A Financing Methods between China and US

	US		China	
	Type	Application	Type	Application
Debt Financing	Bank Loans	Over 20%	Merger loans and others	Primary Source
	Investment Banking Financing	Small	Bridge Loans	Less
	Bond Financing	Widely	Leveraged Financing	Less
Equity Financing	Stock Financing	Widely	Private Placement, Rights Issue	Primary Source
	Stock-for-Stock Acquisition	Over 50%	Stock-for-Stock Acquisition	Less
Hybrid Financing	Convertible Bonds	Primary Source	Convertible Bonds	Less
	Warrant	Alternative Instrument to Preferred Shares	Warrant	Less

In the US, the overall financing structure for M&A activities is more diversified. Also, bond financing and stock-for-stock mergers have a higher proportion of the total financing structure than in China. This is mainly because of the developed capital markets in the US, particularly the emergence of the junk bond market, which provides crucial funding sources for M&A activities. Because of junk bonds, leveraged buyouts have become a significant tool for M&A activities, enabling companies to acquire large sums of capital at relatively low costs. Additionally, due to the efficiency of the US capital markets and reasonable valuations, stock-for-stock mergers are widely used, significantly reducing the pressure on companies to raise cash externally and improving

the efficiency of M&A financing. The diversity of financing methods in the US far exceeds that of China. Hybrid financing methods like convertible bonds and warrants are widely employed. In contrast, Chinese listed companies prefer equity financing for M&A activities, while also indirectly relying on bank credit funds through flexible policy. Overall, the financing structure for company M&A activities in US is more flexible and diverse. Not only are funding sources more abundant, but financing methods are also more varied, enabling U.S. companies to adapt more flexibly to market changes and achieve more effective financing strategies in M&A activities.

3.2 Internal Control and Its Impact on M&A financing Choices in Chinese Listed Companies

Internal control refers to the situation where there is asymmetric information between shareholders and management. While shareholders own the company, their lack of detailed knowledge about internal operations makes it challenging to fully assess whether management decisions align with their interests. Consequently, actual management and decision-making within the company often fall under the control of internal professional managers. In companies under internal control, management decisions are geared towards maximizing their own interests, inevitably harming shareholder interests and affecting the company's value. Moreover, the unreasonable corporate governance mechanisms based on this also reduce operational efficiency.

For a long time, China has not developed a true managerial market, and executive compensation in companies is to some extent regulated (Grove el,1995; Qian1995). On the one hand, the management of listed companies is more concerned about their control benefits within the company due to the presence of "internal control". With an increase in control within the company, the potential for implicit gains also rises accordingly. Therefore, in making economic decisions, especially in financing choices, management tends to prioritize expanding their control within the company, as it directly relates to the actual benefits they can obtain.

On the other hand, in developed capital markets, regulations provide stronger protection for small and medium investors. This cautious approach in financing decisions helps listed companies avoid harming minority shareholders. Additionally, the more rational structure of capital markets sees institutional investors with strong capabilities as the main participants, capable of supervising the financing activities of listed companies. Thus, even if large shareholders or management can effectively control listed companies, they must consider the potential impact of introducing external investors on the company's governance structure. In contrast, China's capital markets offer relatively lower protection for investors, with small and medium investors having little say in corporate governance. Consequently, they rarely have the opportunity to exercise supervisory rights.

Based on the above analysis, due to the presence of internal control, management tends to prefer equity financing. Equity financing allows management to obtain substantial financial support in the short term without affecting their control over the company. In contrast, opting for debt financing to support mergers would subject listed companies to future pressures of debt repayment, significantly reducing the degree of control management can exert over cash flows. Moreover, debt financing investors typically have a lower risk appetite than equity financing investors, leading to the inclusion of clauses in financing contracts to supervise corporate operations and management decisions, thereby avoiding actions that may harm the interests of creditors. The increase in corporate leverage also increases the risk of bankruptcy. If the company falls into distress, creditors may directly take over control of the company, an outcome management is clearly unwilling to accept.

3.3 Government Intervention and Its Impact on Financing Choices for M&A in Chinese Listed Companies

Government intervention refers to the assessment and appointment of top executives in large state-owned companies by the State-owned Assets Supervision and Administration Commission (SASAC). The assessment and appointment of senior

management personnel in major state-owned commercial banks, insurance companies, and securities firms, among other financial enterprises, are overseen by the Central Financial Work Committee. Meanwhile, the Ministry of Human Resources and Social Security is responsible for assessing and appointing senior management personnel in other central enterprises, with local SASACs and relevant departments handling the assessment and appointment of senior management personnel in local state-owned enterprises (Li, 2002). In cases of government intervention in mergers and acquisitions, management no longer needs to worry about the stability of their positions or personal gains. This inclination leads them to prefer adopting aggressive merger financing strategies to pursue higher returns, without concerns about the risks of excessive debt leading to merger failures. Consequently, there is an overall tendency towards choosing debt financing.

4. Data and Methodology

4.1 Theoretical Foundation of Event Study Methodology

The event study methodology is grounded in the assumption that stock prices in a rational market accurately reflect the long-term value of a company. When an event impacts a company's value, this effect will be promptly mirrored in stock prices—negative impacts lead to price decreases, while positive impacts result in price increases. Thus, observing stock price movements over a specific period allows for the assessment of the event's impact on company value.

The core idea of the event study method is to select an appropriate benchmark return rate and compare it to the actual return rate of the company, calculating the excess return to gauge the market's reaction to an economic event. Generally, the Cumulative Abnormal Return (CAR) model is used to measure market performance through the calculation of accumulated excess returns.

4.2 Event Study Methodology

This section focuses on the impact of financing methods in mergers and acquisitions on market performance. The most common approach for assessing market performance under different financing strategies is the event study methodology, which measures the abnormal returns of publicly traded companies. Short-term and long-term performances are evaluated based on different observation windows. Additionally, multiple regression analysis is utilized to explore the factors influencing M&A performance.

The market performance using the event study methodology generally entails these four phases: pinpointing the event date, determining the event window, establishing the estimation window, and calculating the normal and abnormal returns.

4.2.1 Event Date Determination

The primary task of the event study method is to define the event to be studied and establish the date of occurrence. For publicly traded companies undergoing mergers and acquisitions, this involves several key dates: the initial announcement day, board resolution announcement, draft merger plan announcement, shareholders' meeting resolution announcement, post-exchange review resumption announcement, regulatory approval announcement, and other related progress updates. The initial announcement day, which typically discloses the restructuring plan and involves a trading suspension, is considered the most reflective of the merger's impact on stock prices due to minimal external influence. Therefore, this date is deemed most appropriate for the event date.

4.2.2 Event Window Definition

Once the event date is established, the research interval affected by the merger event, referred to as the event window, is defined. This period generally extends before and after the announcement day (defined as Day 0). The extension backward is to detect any potential information leaks prior to the announcement and their impact on investor behavior; the extension forward assesses the event's influence on stock prices and

determines the extent of this impact by calculating the excess return rates. For this paper, the long-term event window is set to 60 trading days before and after the event day [-60, 60], and the short-term event window is set to 5 trading days before and after the event day [-5, 5] to analyze the effects of financing choices on long-term and short-term market performance.

In this study, a short-term window of 5 days before and after the event (-5 to 5 days) and a long-term window of 60 days before and after the event (-60 to 60 days) were selected. The short-term window was chosen to capture the market's immediate reaction to the M&A announcement, reflecting the market's quick response to the news, including speculative trading behavior and initial market interpretation. Numerous academic studies have adopted similar short-term windows to analyze the immediate market reactions to M&A events, providing robust theoretical and empirical support.

The long-term window was selected to capture the medium- to long-term market reaction to the M&A event. This period allows for the assessment of the market's digestion process of the M&A, including the initial effects of integration and the market's evaluation of the long-term prospects. Extensive research has shown that a 60-day long-term window is sufficient to evaluate the long-term impact of M&A events while avoiding the interference of other major market events. Therefore, choosing these two windows enables a more comprehensive assessment of the impact of M&A financing methods on market performance.

4.2.3 Estimation Window Setup

To estimate parameters within the return calculation model, a period before the event day is selected as the estimation window [-300，-61] to ensure no overlap with the event window. This period is chosen for its sufficient length, providing robust statistical data while being distant from the event period to minimize its influence.

4.2.4 Abnormal Return Calculation

To evaluate the effect of mergers and acquisitions on stock prices, the market model method is used to compute the Cumulative Abnormal Return (CAR). This approach aids in discerning the precise influence of the event on stock prices. The steps and techniques for this calculation include:

1. Market Model Configuration: It is presumed that the expected stock returns have a linear correlation with the returns of the market, expressed as $R_{it} = \alpha_i + \beta_i R_{mt} + \epsilon_{it}$it where R_{it} is the actual return of stock i at time t, and R_{mt} is the market portfolio's return at the same time.

2. Parameter Estimation: Trading data from the clean window [-300, -61] days are used to construct the regression model$R_{it} = \alpha_i + \beta_i R_{mt} + \epsilon_{it}$, to estimate the market model parameters α_i and β_i. These parameters are then used to calculate the abnormal returns during the event period, AR_{it}.

3. Abnormal Return (AR) Calculation: The abnormal return is the difference between the actual stock return on any observation day within the 121-day window or the 11-day window and the expected normal return predicted by the market model, calculated as$AR_{it} = R_{it} - (\hat{\alpha}_i + \hat{\beta}_i R_{mt})$.

4. Event Window and Cumulative Abnormal Return (CAR) Calculation:

For long-term Event Window, we defined as 60 trading days before and after the event day [-60, 60]. During this period, the cumulative abnormal return is calculated as the sum of abnormal returns. $CAR_{it} = \sum_{t=-60}^{60} AR_{it}$.

For short-term Event Window, we set to 5 trading days before and after the event day [-5, 5]. The cumulative abnormal return is also calculated based on the sum of abnormal returns during this period. $CAR_{it} = \sum_{t=-5}^{5} AR_{it}$.

4.3 Sample Selection

For our study, we compiled financial data, stock price data, and basic M&A data from CSMAR Financial Database and RESST Financial Database, which were supplemented with manual verification. Data on M&A financing methods were extracted from Zephyr & Orbis Database.

Our research encompasses M&A events involving Chinese listed companies that occurred between 2016 and 2020. The criteria for acquiring companies including an M&A event in our sample are as follows:

-The method of payment for the M&A must be in cash.

-This study primarily focuses on controlling acquisitions and comprehensive acquisitions that have an important influence on the target company's corporate governance structure. Therefore, acquisition data involving forms of equity acquisition below 20% in the base sample events are excluded.

-Considering that small-scale mergers and acquisitions below 30 million USD for listed company assets have a relatively minor overall impact and may not significantly alter existing interest patterns of shareholders and creditors, and the resulting M&A market performance and corporate financial performance are not pronounced. Conversely, larger transactions are more representative. Thus, the absolute transaction price must exceed 30 million USD.

-For companies engaging in multiple M&A activities, only the transaction with the highest transaction price is considered.

-To thoroughly verify market performance and financial performance over time, it is essential to ensure complete stock price trading data from 300 trading days before to 60 trading days after the merger event date.

-To ensure data integrity, it need to exclude companies with missing M&A financing information.

-The earliest of either the board announcement date or the shareholder meeting announcement date is taken as the M&A event date.

-Financial and insurance sector companies, as well as companies categorized as ST (special treatment), are excluded.

-The transaction must have been completed as planned.

Ultimately, a research sample of 205 was obtained. Among them, there are 7 samples of debt-financing M&A, while there are 198 samples of equity-financing M&A.

4.4 Variable Definitions and Model Specification

For dependent variable, MR represents the long-term and short-term market performance resulting from the M&A, measured by $CAR_{[-60,\ 60]}$ or $CAR_{[-5,\ 5]}$, indicating the CARs of the acquiring company's stock within two windows around the M&A event.

For independent variable, $Equity$ refers to equity financing. If the acquiring company uses equity financing for M&A, the value is assigned as 1. If it uses debt financing, the value is assigned as 0. Focusing solely on debt and equity financing simplifies the study by reducing its complexity. Internal financing is closely tied to factors such as a company's cash flow, asset, and liability structure, which can complicate the research and introduce additional potential confounding variables. Internal financing has a closely relationship with the company’s internal operations and investment decisions, while the debt and equity financing are typically viewed as independent financial decisions. Therefore, excluding internal financing from the study helps us better to assess the distinct impacts of debt and equity financing on the M&A performance, avoiding confusion and ensuring more accurate research results. Control variables mainly include the size of the target company (Asquith et al., 1983; Louis et al., 2004), pre-acquisition leverage of the target company (Maloney et al., 1993), acquisition ownership stake (Zhai et al., 2010; Li et al., 2004), pre-acquisition profitability of the listed company, the risk level of the acquiring company, the market condition, and the

financial performance of the acquiring company (Zhai et al., 2011). To control for potential confounding variables and ensure the accuracy of our research results, we consider the deal value of the M&A transactions, operating profit growth rate, and PE ratio of the acquiring company. The appendix I provides the definitions for these variables.

To assess the relationship between the choice of financing and M&A performance, the following model is constructed:

$$MR = \alpha_0 + \alpha_1 equity + \alpha_2 size + \alpha_3 leverage + \alpha_4 share + \alpha_5 ROA + \alpha_6 value + \alpha_7 Beta + \alpha_8 mkt + \alpha_9 diff + \alpha_{10} operate + \alpha_{11} loss + \alpha_{12} PE + \varepsilon \quad (1)$$

The descriptive statistics of the CAR values are shown in Table 2 below. On the one hand, equity financing illustrates an average CAR of -0.04 within the [-60, 60] window, while with -0.005 within the [-5, 5] window. This suggests a decline in the impact of equity financing on M&A performance. The CAR of equity financing shows relatively low standard deviations within both time windows, at 0.36 and 0.14 respectively, indicating a relatively stable M&A performance.

On the other hand, debt financing demonstrates an average CAR of 0.03 within the [-60, 60] window, while with -0.004 within the [-5, 5] window. Overall, debt financing has a slightly positive impact on M&A performance. The standard deviations of CAR for debt financing within the two windows are 0.38 and 0.16 respectively, slightly higher compared to equity financing. It indicates greater variability in M&A performance associated with debt financing.

Table 2 The Descriptive Statistics of the CAR Values

	Equity Financing		Debt Financing	
	CAR: [-60, 60]	CAR: [-5, 5]	CAR: [-60, 60]	CAR: [-5, 5]
Obs	198	198	7	7
Mean	-0.04	-0.005	0.03	-0.004
Std	0.36	0.14	0.38	016
Min	-1.31	-0.66	-0.46	-0.20
Max	0.98	0.56	0.77	0.25

5. Results

5.1 Empirical analysis

Using Model (1), we examined the effect of financing choice on market performance by controlling for other influencing factors. Specific outcomes are detailed in Table 3.

Table 3: Regression analysis of the influence of financing selection on the M&A performance of the acquiring companies

Variables	The CAR values based on the window [-60, 60]			The CAR values based on the window [-5, 5]		
	Coefficient	t value	p value	Coefficient	t value	p value
C	-6.03*	-1.86	0.06	-3.05**	-2.39	0.02
equity	6.70**	2.04	0.04	2.49*	1.92	0.06
size	-0.04	-1.25	0.21	0.02*	1.75	0.08
leverage	0.02	0.15	0.88	-0.02	-0.32	0.75
share	-1.93	-0.37	0.71	-3.08	-1.49	0.14
ROA	-1.30*	-1.79	0.07	-0.14	-0.52	0.61
value	0.32**	2.09	0.04	0.11*	1.84	0.07
Beta	3.92	0.61	0.55	4.78*	1.88	0.06
mkt	-0.01	-0.21	0.83	0.04*	1.71	0.09
diff	-0.39	-0.16	0.87	-1.26	-1.34	0.18
operate	16.93	0.55	0.58	21.58*	1.78	0.08
loss	-0.12	-0.05	0.99	-1.38	-0.15	0.14
PE	-0.05	-1.02	0.31	0.00001	0.00001	0.99
R-Square (%)	10.66			10.17		

*Note: * indicates significance at the 10% level, ** indicates significance at the 5% level*

The empirical results show that the equity financing has a significant positive impact on CAR values based on both the [-60, 60] and [-5, 5] event windows. The regression coefficients for CAR [-60, 60] and CAR [-5, 5] are 6.70 (significant at the 5% level) and 2.49 (significant at the 10% level), respectively. Notably, the effect of equity financing on long-term performance has a greater impact than that on short-term performance, indicating that equity financing tends to have a greater impact over longer time horizons. This could be attributed to the time required for the effects of equity financing to appear the company's value. In shorter periods, there might not be

sufficient time for equity financing to exert a significant impact, whereas over longer periods, its positive effects gradually become apparent. Additionally, equity financing is likely better suited for achieving long-term operational objectives and value creation, while debt financing may be more focused on short-term financial goals and cash flow management. Consequently, equity financing's impact on a company is more pronounced over extended durations.

Furthermore, from the perspective of assessing a company's profitability, the variable ROA exerts a more significant influence on the longer-term market performance in M&A activities, with significant at the 10% level. This could be because the effects of profitability and operational efficiency take time to materialize, and the integration and synergy effects also require time to be realized. In the short term, a company's performance may be influenced by various immediate factors and initial costs, making the role of ROA insignificant. However, in the long term, ROA provides a more accurate reflection of the company's operational achievements and the success of its M&A strategies, thus its more significant impact on long-term performance. Also, we observe that the regression coefficient for the ROA variable is negative, indicating that companies with higher ROA value have lower CAR value. High ROA companies are typically considered high-performing, and the market has high expectations for them. When these companies announce new financing or other significant decisions, the market may have already expected this information, leading to smaller abnormal stock price fluctuations at the time of the event, or even negative CAR. On the other hand, low ROA companies, with their less stable performance, might show higher risk when announcing important decisions or events. Consequently, events involving low ROA companies could have stronger market reactions, resulting in higher CAR. Then, the financial health of high ROA companies is generally more robust, and the market might perceive that they do not require additional financing or significant structural changes. Therefore, when these companies take equity financing, the market might react negatively, viewing it as a bad signal, which results in negative CAR. Conversely, similar decisions by low ROA companies might be taken by the market as a positive

signal, such as improving financial health or increasing growth opportunities, leading to positive CAR.

Moreover, the impact of financial indicators on M&A performance varies across different time windows. Only within the [-5, 5] window, variables like beta and operate are significant at the 10% confidence level, suggesting a relatively stronger explanatory effect on M&A performance in the short term compared to the long term. In the short term, stock price fluctuations may be influenced more by market factors like market sentiment and investor behavior, potentially making other variables more significant in relation to CAR during this period. Conversely, within the [-60, 60] time window, stock price fluctuations may be more influenced by long-term fundamental factors and overall market trends. At this time, equity financing may better reflect the company's long-term value and market relationships, hence showing a more significant impact on CAR during this period.

These research findings are inconsistent with those from mature Western capital markets. Due to China's weak-form efficient market and frequent agency issues within listed companies' management, the management of companies prefers equity financing to pursue their self-interests by obtaining cash flow quickly without the pressure of debt repayment. Due to information asymmetry, unlike Western markets, Chinese investors do not take equity financing of companies as a negative signal. Instead, they focus on the impact of different financing methods on the accounting earnings on the balance sheet of the acquiring company. On the one hand, equity financing does not affect the listed company's accounting profits and leads to higher valuations from the market. So that, the equity financing would enhance M&A market performance. On the other hand, debt financing would bring a fixed interest cost on the listed company annually, reducing its accounting profits and consequently lowering the market valuation of the acquiring company, thus resulting in a decline in M&A market performance.

Overall, consistent with previous research findings (Zhai, 2011; Wang, 2012), the results suggest that equity financing, as opposed to debt financing, significantly boosts market performance and enhances shareholder wealth in acquiring companies.

Furthermore, in the long term, equity financing is associated with sustained positive outcomes, notably improving long-term performance and generating enduring wealth for shareholders.

Variables	The CAR values based on the window [-60, 60]			The CAR values based on the window [-5, 5]		
	Coefficient	t value	p value	Coefficient	t value	p value
ROA	-1.30*	-1.79	0.07	-0.14	-0.52	0.61
value	0.32**	2.09	0.04	0.11*	1.84	0.07
Beta	3.92	0.61	0.55	4.78*	1.88	0.06
mkt	-0.01	-0.21	0.83	0.04*	1.71	0.09
operate	16.93	0.55	0.58	21.58*	1.78	0.08
R-Square (%)	10.66			10.17		

5.2 Robustness analysis

The purpose of robustness testing is to ensure that research findings remain valid and consistent under different assumptions or calculation methods, thereby enhancing the credibility of the results. To mitigate data bias, we altered the calculation method for the variable ROA by using the mean of ROA for the three years prior to the M&A activities of the acquiring company. That is because the median may be biased toward one direction in skewed data distributions, whereas the mean can more comprehensively reflect the overall situation. Table 4 displays the findings of the robustness assessment, with the basic conclusions remaining unchanged.

Table 4: Robustness analysis of the influence of financing selection on the merger performance of the acquiring companies.

Variables	The CAR values based on the window [-60, 60]			The CAR values based on the window [-5, 5]		
	Coefficient	t value	p value	Coefficient	t value	p value
C	-6.15*	-1.9	0.06	-3.05**	-2.39	0.02
equity	6.91**	2.10	0.04	2.48*	1.92	0.06
size	-0.04	-1.42	0.16	0.02*	1.80	0.07
leverage	-0.04	-0.26	0.79	-0.02	-0.27	0.78
share	-1.67	-0.32	0.75	-3.11	-1.5	0.14
ROA	-1.43**	-2.02	0.04	-0.17	-0.60	0.55
value	0.34**	2.19	0.03	0.11*	1.82	0.07
Beta	3.79	0.59	0.56	4.80*	1.89	0.06
mkt	-0.03	-0.51	0.61	0.04*	1.80	0.07
diff	-0.32	-0.13	0.89	-1.27	-1.35	0.18
operate	16.29	0.53	0.60	21.64*	1.79	0.08
loss	-0.11	-0.05	0.96	-1.38	-1.50	0.14
PE	-0.06	-1.14	-0.26	0.0001	0.02	0.98
R-Square (%)	11.07			10.13		

*Note: * indicates significance at the 10% level, ** indicates significance at the 5% level*

6. Study Limitations and Future Directions

(1) All sample data in this study were collected from publicly available sources such as Zephyr, Wind, and company financial reports and M&A announcements. However, these data may be incomplete or biased in certain details of refinancing methods. Future research could combine internal company data with publicly available data to obtain more comprehensive information, thereby improving the accuracy and reliability of the research.

(2) This study focuses on samples where the financing methods under cash payment are debt and equity, without examining samples with hybrid financing methods. With the increasing frequency of M&A transactions and the continuous improvement of capital markets, the financing tools for listed companies' M&As will become more diverse. Hybrid financing methods, combining the advantages of equity and debt financing, have gradually become an important means for companies to raise funds. Future research could delve into the specific impact of hybrid financing methods on M&A performance and analyze their performance under different market environments, industries, and company sizes.

(3) This study only considers market performance (ROA) when evaluating M&A performance, whereas successful M&A transactions aim to improve operational efficiency. How to eliminate other interfering factors and solely study the impact of M&A transactions on operational performance is a goal for future efforts.

(4) Furthermore, this study finds that M&A transactions financed by different methods show different long-term and short-term performances. Investigating the reasons behind these differences and understanding through which mechanisms financing methods affect M&A performance are also valuable topics for future research.

7. Reassessment of Research Limitations Due to Sample Imbalance

7.1 Explanation of Sample Imbalance Issues

As we mentioned in the motivation section of the first part, we chose to study the financing methods used by companies making cash payments for mergers and acquisitions because we noticed a significant gap in the literature over the past 20 years, including Chinese master's and doctoral theses and some top journals. We found only three papers, all more than ten years old, which are not very relevant today. This indicates that we faced special difficulties in research design and academic referencing,

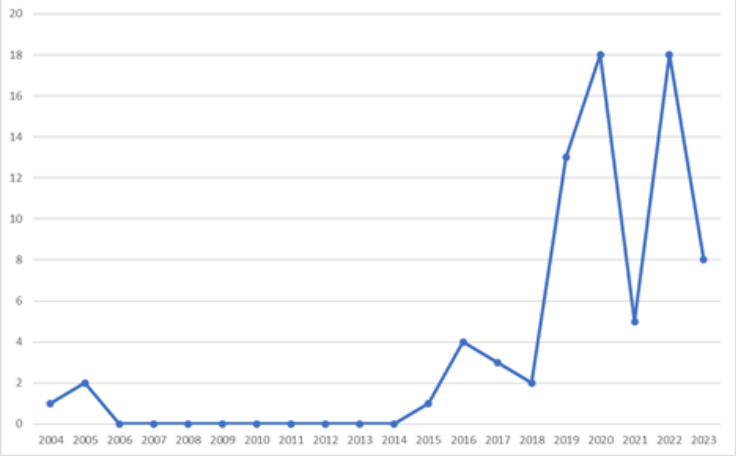
but we still tried to do something new and provide some special insights into M&A research.

After organizing the sample data, we found that under the same selection conditions, the number of debt financing samples was significantly less than that of equity financing samples. No matter how we adjusted the selection criteria for transaction amounts or years, equity financing had hundreds of sample data, whereas debt financing had only a handful of cases.

7.2 Study of All Debt Financing Samples

Therefore, we expanded the data collection scope and time limit, organizing debt financing method samples over the past 20 years in China as shown in the line graph below:

Figure1: The fluctuations of debt financing in M&A activities in China



These samples did not restrict the transaction amount size; there were only 75 samples over 20 years, and under the selection condition of unrestricted amount, there are tens of thousands of debt financing method cases. We then began to study the reasons why pure debt financing methods are less common in cash payment M&A cases, investigating these 75 companies and finding factors related to economics, market, legal, and strategic aspects:

Financial Risk: Companies using pure debt financing will bear higher financial risks, as the debt must be repaid regularly along with interest. This increases the company's debt level, which may adversely affect the company during financially unstable periods, especially during economic downturns.

Debt Repayment Capacity: The ability of companies to use pure debt financing is limited by their current financial condition and credit rating. High debt levels may affect the company's credit rating, raising financing costs and making it difficult to attract debt investors.

Market Conditions: The market interest rate environment also affects the cost of debt financing. In periods of high interest rates, borrowing costs increase, and companies may prefer to use equity financing or combined financing strategies to reduce costs.

Regulatory Constraints: National or industry-specific legal or regulatory constraints on debt levels may hinder businesses from using high ratios of debt financing.

Investor Preferences: Shareholders and potential investors may be cautious about highly indebted companies, believing that this increases business uncertainty and affects their investment decisions.

We also studied some legal and regulatory restrictions in China that might affect the ability of enterprises to use debt financing under specific circumstances.

a. Macroeconomic Control Policies

Deleveraging Policy: Since 2016, the Chinese government has been pushing for deleveraging, especially in the financial sector and local government debt. Measures have been taken to limit bank credit growth and strictly control high-risk non-bank financial activities, such as shadow banking systems.

Financial Risk Prevention: The central government emphasizes the prevention of systemic financial risks, especially in the real estate market and financial markets, through strengthening financial supervision and risk warning systems.

b. Debt Ratio Limits

Enterprise Debt Restrictions: According to the "Corporate Bond Issuance and Trading Management Measures," non-financial enterprises issuing bonds must maintain a debt-to-asset ratio of no more than 70%, and the interest coverage ratio should not be less than 1 times.

Financial Requirements for Listed Companies: The China Securities Regulatory Commission stipulates that listed companies should maintain a reasonable debt structure. For those planning significant financing, specific financial health indicators are required to protect investors' interests.

c. Foreign Debt Management

Foreign Debt Quota Management: According to the regulations of the State Administration of Foreign Exchange, Chinese enterprises borrowing overseas must declare and be subject to total foreign debt limits. This includes strict monitoring of the purpose, amount, and duration of the borrowing.

Regulations on the Use of Foreign Debt: Enterprises must report the use of foreign debt to ensure that funds are used for legitimate business activities and comply with foreign exchange regulations to prevent exchange rate and capital liquidity risks.

d. Bank Loan Regulations

Loan Conditions: According to the "Commercial Bank Law" and the guidance of the Banking Regulatory Commission, commercial banks must consider the asset quality, financial condition, and debt repayment capacity of enterprises when issuing loans.

Loan Supervision Management: Banks need to regularly review loans and assess credit risks to ensure the loan purpose and repayment plans comply.

e. Specific Industry Restrictions (such as Real Estate)

"Three Red Lines" Policy: Since 2020, a policy has been implemented for real estate enterprises, limiting their debt levels based on their debt-to-asset ratio, net debt ratio,

and cash-to-short-debt ratio. These indicators determine the future borrowing capacity and financing conditions of enterprises.

Real Estate Market Regulation: Additionally, the government controls the overheating and speculative behavior in the real estate market through measures such as purchase and sale restrictions, impacting the financing structure of related enterprises.

7.3 Stepwise Regression of the Leverage Ratio Variable

In the initial analysis, due to the limited number of debt financing samples, most variables did not show statistical significance. After collecting more accessible leverage rate data and calculating the CAR for these 75 samples, we incorporated them into our original sample set for stepwise regression.

Table 5: Stepwise Result on the CAR values based on the window [-60, 60]

	Unstandardized Coefficients		Standardized Coefficients	t-value	*p-value*	Collinearity Diagnosis	
	Coefficient	std	*Beta*			VIF	Tolerance
Constant	0.051	0.047		1.098	0.273		
equity	-0.114	0.050	-0.150	-2.294	0.023*	1.028	0.973
Lev	0.106	0.048	0.144	2.212	0.028*	1.028	0.973
R^2			0.050				
$Adjust\ R^2$			0.042				
F			F (2,229) =6.071, p=0.003				
D-W value			1.690				

Dependent Variable： The CAR values based on the window [-60, 60]
* p<0.05 ** p<0.01

Table 6: Stepwise Result on the CAR values based on the window [-5, 5]

	Unstandardized Coefficients		Standardized Coefficients	t-value	*p-value*	Collinearity Diagnosis	
	Coefficient	std	*Beta*			VIF	Tolerance
Constant	0.050	0.043	-	1.177	0.241	-	-
equity	-0.091	0.045	-0.131	-2.007	0.046*	1.028	0.973
Lev	0.109	0.044	0.162	2.489	0.014*	1.028	0.973
R^2			0.051				
$Adjust\ R^2$			0.042				
F			F (2,229) =6.091, p=0.003				
D-W value			1.667				

Dependent Variable： The CAR values based on the window [-5, 5]
* p<0.05 ** p<0.01

The results showed that the impact of the leverage ratio became statistically significant, indicating that in a larger sample set, debt financing has a significant impact on corporate behavior and performance. The leverage ratio, as a key indicator of corporate debt level, demonstrates the importance of debt financing in capital structure decisions.

7.4 Conclusion

Through this study, despite facing the challenge of sample imbalance, I made efforts to improve the methodology and expand the sample size to compensate for this deficiency. Although these findings are preliminary, they provide valuable references for companies in formulating M&A strategies. I deeply analyzed the existing samples and attempted to provide a more refined perspective on how different financing methods affect M&A performance. This process not only enhanced my research skills but also may offer useful methodological insights to other researchers facing similar issues.

Despite limitations, such as sample selection bias which might affect the universality of the results, I believe these initial findings are crucial for understanding the choice of financing methods and their economic effects. In the future, I plan to further expand the sample size, including more industries and countries, to verify the universality of these findings. Additionally, I hope to explore how the leverage ratio affects corporate performance through mechanisms such as influencing investment decisions and risk-

taking. Through this research, I aim to provide new insights to the academic and practical communities and support the formulation of related economic policies. I am fully aware of the limitations of the research and have discussed these and their potential impact on the research conclusions honestly in my report.

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Appendix

Appendix I Variable Design

Variable	Variable definition
$equity$	a dummy variable, assigned a value of 1 if the M&A was financed through equity, while debt financing is assigned a value of 0
$size$	the scale of the acquiring company, measured as the natural logarithm of the total asset value from the balance sheet at the end of the preceding year before the M&A activities
$leverage$	the debt capacity of the acquiring company, defined by the debt-to-assets ratio a year before the M&A activities
$share$	the proportion of equity in the target company taken over by the acquiring company
ROA	the profitability of the acquiring company, calculated as the median return on assets over the three years prior to the acquisition year
$value$	the deal value of M&A activities, calculated as the natural logarithm of the deal value
$Beta$	the risk level of the acquiring company, using the annual beta coefficient in the year of the M&A
mkt	a dummy variable, assigned whether M&A activities occurs during a bull or bear market. If the initial announcement date falls within a bull market (in 2017, 2019, or 2020), the variable is assigned a value of 1, otherwise, it is assigned a value of 0
$diff$	the financial performance of the acquiring company, measured by the ratio of the operating cash flow in the year of the M&A event to that of the previous year
$operate$	the growth rate of operating profit for acquiring companies in the year of M&A

$loss$	a dummy variable, assigned a value of 1 if the net profit is negative in the year of the M&A event, otherwise assigned a value of 0.
PE	the investment valuation of the acquiring company, represented by the natural logarithm of the price-to-earnings (PE) ratio in the year of the M&A